

Status Report
on Health care and Medical Education

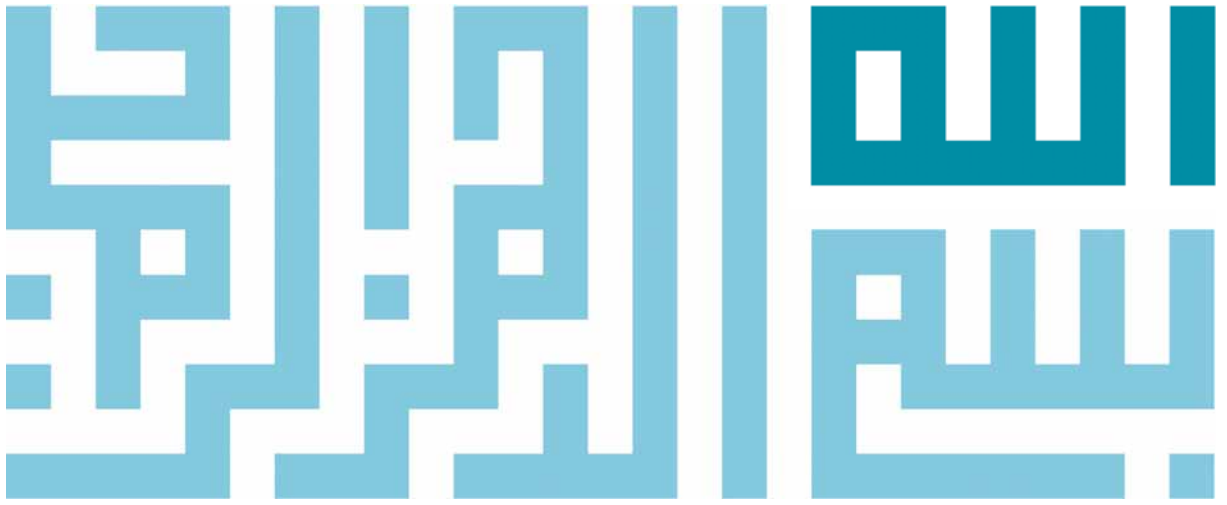
Three Decades of Endeavor on the Health Care Front





Islamic Republic of Iran
Ministry of Health and
Medical Education

www.mohme.gov.ir



Three Decades of Endeavor on the Health Care Front

Status Report
on Health care and Medical Education





Three Decades of Endeavor on the Health Care Front

Status Report
on Health care and Medical Education
Edition: March 2009

Compiled by
Dr. Abbas Zarenejad and Dr. Majid Akbari
Translated by Siamak Delara
Published by
Public Relations Department of
Ministry of Health and Medical Education
Address: No. 312, Sixth Floor, Public Relations Department,
at the corner of Jomhuri Eslami and Hafiz Avenues, Tehran
Tel: + 98 21 66705436

Photography, Graphic design and Printing by
FARDA Designers

All rights reserved

Preface

Generalities

Position of Health in Legal System	8
Chronicle and Structure of the Health Machine	8
Financial Resources of the Health Sector	9
Workforce	9
Membership in International Organizations	10
International Relations	10
Role of Women in Healthcare and Medical Education	11

Health and Prevention

Promotion of Primary Health Care	13
Information Dissemination and Promotion of Healthcare Culture	13
Public Contribution	14
Health Volunteers	15
Communicable Disease Management	15
Expanded program on Immunization	16

- 17 Eradication of Polio
- 17 Fighting Zoonotic Diseases
- 17 HIV/AIDS Programs in the Islamic Republic of Iran
- 18 Management of Non-Communicable Diseases 1
- 19 Management of Non-Communicable Diseases 2
- 20 Prevention of Accidents
- 20 Environmental and Occupational Health
- 21 Healthy City, Healthy Village Project
- 21 National Plan to Promote Breast-feeding
- 22 Child-Friendly Hospitals Project
- 22 Family Planning and Population Growth Control
- 23 Mortality Rates in Iran
- 24 Promotion of mental health
- 24 Prevention and Treatment of Drug Abuse

Treatment and Care

- 27 Expansion of Diagnosis and Treatment Wards
- 27 Optimization of Hospital Emergency Services
- 28 Promoting Emergency Medical Services
- 28 Development of Specialized
and Subspecialized Treatment
- 29 Organ Transplantation
- 29 Expansion of Medical Insurance Services
- 30 Family Doctor and Referral System
- 31 Nursing Services in the Islamic Republic of Iran
- 31 Procurement of Medical and Laboratory Equipment

Rehabilitation Services and Prevention of Social Harms 32

Supply of Healthy Blood 32

Blood Refinery Project 33

Food and Drug

Promotion of Food Safety and Quality 35

Nutrition Support and Enrichment Programs 35

Medicinal Drugs; National Structure and Policy-making 36

Pharmaceuticals in Iran 36

Procurement of Needed Pharmaceuticals 37

Expansion of Medicinal Drug Exports 37

Development of Natural Drugs 38

Guarantee of Quality and Effectiveness of Medicinal Drugs 38

Availability of Medicinal Drugs 38

Medical Education and Research

Integration of Medical Education and Healthcare Service 41

Training Needed man-power in Medical Field 41

Expanding Medical Specialties 42

Sending Students Overseas; Exchange Programs 42

Promotion of Medical Education Quality 43

Continuing Medical Education (CME) 44

Expansion of Medical Researches 44

Information Technology in Medicine 45

Development of Stem Cell Lines 46

Preface

Easy access to primary health care and amenities which help the public lead a healthy life is an essential right of every nation and statesmen are duty-bound to materialize this objective. Without a doubt, paving the way for maintenance and promotion of public healthcare would be impossible unless international exchanges were boosted and the experience of others tapped.

It is a great pleasure to host you once again. We would like to extend a warm welcome to all distinguished ministers and honorable guests. This get-together provides a chance to promote our ties and friendship and at the same exchange views and boost our cooperation as far as different aspects of healthcare are concerned.

Under development plans of the government of the Islamic Republic of Iran, the Ministry of Health and Medical Education has been tasked with promoting public health through training workforce, procuring all necessary equipment and making investment in the field. To materialize this objective, and to make primary healthcare and treatment as much available, the ministry has taken giant strides and pulled off many achievements some of which have drawn praise from international institutions.

In the health sector, effective measures have been taken to control, eradicate and eliminate communicable and non-communicable diseases and huge successes have been notched up. As for treatment, measures have been taken to expand medical insurance services, install a referral and family doctor system, promote the national emergency service and supply the equipment the medical community needs. The list of achievements in this field includes treatment of spinal cord injuries, transplants, development of nuclear medicine and stem cell technology, and treatment of infertility. In the food and drug sector, gaining self-sufficiency in production of medicinal drugs and ensuring food and drug safety stand out among the achievements of the health machine. When it comes to medical education, integration of the education system into the treatment network and sustained training have drawn admiration from around the world. Meanwhile, the stage has been set for health research. Development of medical research centers and a rise in the number of researchers bear testimony to the fact that extensive measures have been taken in this regard. The overall policy centers around deregulation, delegation of more authority to field units and universities, optimization of policy-making, planning and supervision, and transfer of a more active role to the public in decision-making, executive affairs and evaluation of services on offer.

This pamphlet is designed to reflect an overall picture of the measures taken by the Ministry of Health and Medical Education; however, inclusion of all achievements has been impossible. We hope expansion and sustainability of our ties will help us build on the experience of one another to promote healthcare in our countries.



Generalities

Position of Health in Legal System

A look at every nation's rules and regulations would be enough to understand how important health is to authorities in that country. The fact that health plays an important role in development and progress of a country coupled with institutionalization of the motto of "healthy humans; pillar of sustainable development" has prompted authorities to attach significance to the question of health in drawing up rules and regulations. Principles 43, 30, 29, 21 and Three of the Constitution lay emphasis on health and education. Principle 29 requires government to set the stage for fair access of the public to healthcare. "Access to social security including retirement, unemployment, accident and incapacitation allowances, as well as medical and healthcare services under insurance coverage is a public right and the government is required to use public funds and contribution of the public to provide these services including financial support for each and every citizen".

Principle 43 underlines that basic needs of the public including housing, food, clothing, healthcare and education should be fulfilled. Article 12 of Principle 3 calls for efforts to eliminate housing, employment, health and food-related problems of the public. It also calls for expansion of insurance coverage. Principle 21 calls on the government to lend support to expecting mothers and parentless children. Principles Three and 30 require the government to provide free higher education to the point of self-sufficiency.

The fact that social justice and 'healthcare for all' are a central pillar of the ideology of the Islamic Republic, translated to special attention to healthcare in all macro-policies of the nation including all four development plans drawn up so far. Articles 84 through 94, 96, 97 and 103 of the map out the responsibilities of the health sector to materialize social justice. Article 84 deals with food safety, creation of a nutritional food basket and efforts to minimize the risk of disease arising from malnutrition. Under Article 90 of the Fourth Development Plan public contribution should not exceed the 30% mark in funding the health machine.

Article 91 calls for creation of a family doctor system. Article 92 says victims of road accidents should be admitted to hospitals and treated unconditionally. Articles 86 and 97 require the government to implement harm reduction programs for addicts and vulnerable groups as it calls for prioritizing harm reduction plans. Article 96 reiterates social security coverage.

To execute these regulations, the Ministry of Health and Medical Education constantly promotes its cooperation with appropriate bodies to offer speedy services to the public.

Chronicle and Structure of the Health Machine

At look at the history of Iran's health machine shows that the country's first health department was founded in 1926. A few years later it was renamed healthcare department. In 1941, structural changes were introduced to the department; as a result a healthcare ministry emerged. In 1967, the organizational structure of the ministry and its responsibilities were approved by the National Administrative and Employment Organization. In 1976, it was renamed as the Ministry of Healthcare and Welfare. In the same year, provincial health and treatment organizations were established. After the Islamic Revolution in 1979, the Welfare Organization separated from the Healthcare Ministry. And eventually, with the separation of medical sciences universities from the Ministry of Science, Research and Technology, and integration of health and treatment networks into medical sciences universities, the Ministry of Health and Medical Education was established in 1985.

In 1993, all healthcare organizations were integrated into medical sciences universities which were renamed as universities of medical science and healthcare services. In 2000, the structure of the ministry was reviewed and its new structural pattern was approved by the Management and Planning Organization.

Presently, the ministry has eight divisions namely health, education, research and technology, food and drug, parliamentary affairs, students and cultural affairs, management of resources and coordination. Medical sciences universities are run under direct supervision of the health minister. Iran has 42 medical sciences universities and faculties which fall into three categories and have different structural patterns. Education faculties and hospitals act under the supervision of healthcare universities. Health houses along with healthcare centers and bases form the central core of the health and treatment sector. To give universities and



institutes of higher education more independence, a Board of Trustees Act was adopted.

In early 2006, the Supreme Health Council was created. The president of the Islamic Republic heads the council and the health minister acts as its secretary. A number of Cabinet ministers and presidents of some organizations have seats on the council, which meets once every three months to review social factors affecting health and works out solutions to the problems facing the health system. There are similar structures at a provincial level to deal with such questions.

Several ministries and organizations contribute to questions related to health and the Ministry of Health and Medical Education acts in close cooperation with other institutions to advance the overall cause of the health machine.



Financial Resources of the Health Sector

In Iran investment in the health sector is viewed as a key strategy to secure development and eliminate poverty. To that end budget has been allocated to the health machine to make sure members of the public have access to public health and individual treatment services without feeling economic pressures.

The health budget of the country posted an annual growth of 22.8% between 1997 and 2006. With 39% and 51% hikes over earlier years, 2004 and 2005 registered the highest yearly growth in the past decade. The overall budget of the sector in 2003 stood at 71,087 billion rials or 6.49% of GDP.

Each year, the average budget of the sector is 11.6% greater than its general income and 5.4% more than the medical insurance spending package. It comes as the amount of money spent on medical insurance services is less than income. That in turn means people are paying less in healthcare expenses. Per capita healthcare spending stands at no more than \$110.

Creation of national health accounts, implementation of a scheme to mechanize budgetary information, cooperation with the health and macro-economy commissions and formation of GMH teams are among other measures taken as far as the healthcare budgeting is concerned.

A part of activities in the Iranian health sector is financed through the agreements concluded with the world Bank. The "Health and population" plan was implemented in 1993 – 2003 in form of different projects using the credit amounting to \$294 million. Out of the said amount \$152.6 million was provided by the Iranian Government and \$141.1 million was financed by the world Bank in form a loan provided by the Iranian Central Bank with the fixed exchange rate of 1,750 rials.

The "Health and Nutrition" was the second joint plan implemented by the Iranian Health Ministry and the world Bank in form of a projects started in 2002 and completed in 2008. Total credit appropriated for this plan amounted to \$124 million out of which \$37 million was provided by the Iranian Government and \$87 million was financed by the world Bank in form of a especial loan .

Workforce

The number of people working at Iran's Ministry of Health and Medical Education stands at 284,128. The education status of the staff varies from primary school certificate to subspecialty degrees in medicine and basic science. The ministry, which tops the list of state institutions when it comes to variety of the knowledge and skills of its staff, has the largest number of skilled workers in the country. It employs many skilled workers across the nation. At present some 10% of its staff has a doctorate degree and more than 10,000 of its personnel hold a seat on the faculties of various universities.

In 1999, some 65% of the ministry's workers didn't hold a university degree. The figure has now dropped to 52% whereas the percentage of workers with BS, MS and PhD degrees has risen to 35% from 24% seven years ago.

Inauguration of new facilities between 1999 and 2005 saw the number of health ministry workers rise to 284,000 from 252,000.

At the ministry, training and education are of great importance in developing the workforce. In 2003, some 270 million rials were spent for 26 hours of training for each member of staff. That figure rose to 1.57 billion rials in 2005 and every member received 60 hours of training in the 12-month period. Besides measures have been taken to raise the salary of the personnel and offer them better welfare services.

Taking into account all the physicians, dentists, pharmacists and paramedics working at the health ministry, the number of doctors per 100,000 population stands at 33.2. The figure for dentists and pharmacists stands at 3.7 and 1.8 per 100,000 population whereas the number of paramedics is 232.1.

Health Ministry Workers, Their Job and Educational Status

Year	No. of workers	Employment status (Percent)				Education Status (Percent)					
		Permanent	Contracted	Piece Worker	Others	Below High-School Diploma	High-School Diploma	Associate's Degree	B.S.	MS	PhD
1999	252,064	81.74	7.92	4.30	6.04	39.56	25.16	11.35	15	2.01	6.93
2001	266,827	78.05	7.55	8.83	5.57	37.64	23.81	11.88	16.77	2	7.89
2003	272,937	75.23	8.30	9.69	6.79	33.73	22.28	12.25	20.92	2.22	8.60
2005	284,128	78.26	13.4	5.3	1	28.4	23	13	22.5	2.9	9.9

Membership in International Organizations



The Ministry of Health and Medical Education has had extensive cooperation with other countries and international organizations in a bid to secure its objectives. The Islamic Republic of Iran is an active member of the WHO, Training in Tropical Diseases Research (TDR) and the World Federation of Public Health Associations (WFPHA). It also has close cooperation with UNICEF, United Nations Fund for Population Activities (UNFPA), UNAIDS, United Nations Office on Drugs and Crime (UNODC), Global Fund to Fight AIDS, Tuberculosis and Malaria, (GFATM) and the World Bank.

Iran has seats on several technical and executive committees of the World Health Organization and plays a crucial role in the governing body of the organization. Among the positions Iran has held or is holding at the world body the following stand out:

1. Vice-president of the WHO Executive Board for a 1-year period and member of the board for three 3-year terms
2. Chairman of the TDR joint coordination board in 2005 and 2006, deputy chairman of the same board in 2004; and member of the board for three 3-year terms
3. Chairman of Committee A of the World Health Assembly in 2005
4. Deputy Chairman of the Intergovernmental Working Group on the revision of International Health Regulations
5. Member of the advisory committee on health research for three 3-year terms
6. Member of the Global Advisory Group which works on Expanded Program on Immunization
7. Commissioner of the Commission on Social Determinants of Health
8. And coordinator of the executive management of Joint Program Review Mission
9. Membership in the ECO Health Committee and assuming the role of a coordinator of the relevant health activities (National focal point).

International Relations

Each year, the Ministry of Health and Medical Education plays host to several high-ranking foreign delegations. In recent years, at least 70 such delegations and many more consultants have visited Iran and more than 60 MOUs have been signed. During the same period, 531 foreign consultants have visited Iran to teach technical and specialized courses. Besides, Iran has sent more than 1,600 experts and advisors to some 100 meetings and gatherings of joint commissions.

Here is a look at the overseas activities of the Iranian health machine: preparation of 21 health projects as part of the Afghan reconstruction drive, cooperation with the WHO in piecing together a joint 5-year plan and determining the health priorities of the nation, coordination for approval of a global treaty to control

tobacco and organization of many workshops.

Concerning the drive for further promotion of international relations we can refer to the following:

■ Holding several international conferences and meetings including 53rd and 54th EMRO meetings (respectively) in 1997 and 2006, second preliminary Health Research meeting (2007), UNFPA Regional conference, 4th commissioners meeting on social factors Behind Health (2005), Meeting of Health Ministers of ECO-UNICEF Member states (1994), etc.

■ Promotion of the joint activities with UNFPA in the fields of population and fertility health. The first relevant projects started in 1983 in form of 2 and 3 year programs and completed accordingly. The relevant second phase projects in form of 5 year programs started in 1993 as well.

■ Making required coordination and participating in the specialized committees of the Foreign Ministry and preparing state reports for relevant conferences.

■ Involvement in defining the relevant frame work of the UNDAF 2005-9 plans and participation in the National committee of Millennium Development Goals for health millennium goals.

■ Conclusion panta-lateral Health Care and Treatment cooperation Agreement among Iran, Pakistan, Afghanistan, Iraq and WHO and establishment of its permanent secretariat in Iran (G5).

Thanks to extensive interaction between Iran and other countries as well as international organizations, many of the health projects Iran has undertaken have drawn international admiration. Besides several prominent figures of the health system have been praised for their efforts.

Role of Women in Healthcare and Medical Education

The Constitution of the Islamic Republic of Iran offers a clear picture of the status of women in Islam, and calls for efforts to pave the way for development of their identity and healthcare as well as revival of their material and moral rights. The Constitution specifically makes mention of support for expecting mothers. To ensure women's healthcare and to seek their contribution to family and social health, the Ministry of Health and Medical Education has taken extensive measures so far.

According to statistics released in 2007, more than 95,000 women work for the health ministry – 55% of all staff. They also account for 71% of the ministry's nurses and midwives. The number of female subspecialists in the ministry stands at 197. The total number of female doctors and dentists is 3,675 and there are an additional 1,089 gynecologists working for the ministry. The number of women with doctorate degrees and PhD stands at 5,545 and 347 respectively. And 3,779 of the faculty members of medical science universities – almost one third – are women.

Men and women have equal access to education and healthcare in Iran. Literacy rate among women aged six and above is more than 80%. Women account for 53.4% of all university students. In recent years, the same ratio in medical universities has reached as high as 78%. The number of female students who have graduated from medical science universities and are serving in return for their scholarship is on the rise. Actually in 2007 it stood at 90% of all graduates. Latest statistics put the overall number of female general practitioners at 20,892, specialists at 6,392, subspecialists at 121, midwifery experts at 12,185, medical science faculty members at 1,097, dentists at 6,271 and pharmacists at 5,135.

At the managerial level, the Ministry of Health and Medical Education topped the list of state institutions with the greatest percentage of female managers; 32.5% in 1996 and 25.6% in 2001.

The office for women's affairs which was established in 1993 to make planning and create equal opportunities, has so far taken outstanding measures among them: implementing several projects to promote women's health, conducting research on women's health, organizing several workshops, and supporting non-governmental institutions focusing on women's health. In parallel, efforts have been made to reform the nutrition culture of women and young girls and hone the communication skills of young couples.

The health department, meanwhile, tries to improve women's health indicators and has made a lot of progress. According to statistics released in 2005, the percentage of pregnant women who are examined at least six times during their pregnancy has risen to 94.3% from 60.5% in 1997. The percentage of untrained people who help with delivery has dropped to 1.7% and 92.8% of all deliveries occur in maternity hospitals and clinics. At present, the maternal mortality rate stands at 24.6 per 100,000 live births. In parallel, the number of children born via C-section rose from 35% in 2000 to 42% in 2005.



Health & Prevention



Promotion of Primary Health Care

Primary healthcare is an important tool to materialize healthcare for all and an intrinsic part of socio-economic development in every community. In Iran rendering primary healthcare services first began when outreach groups were formed to fight malaria, tuberculosis and smallpox in the years that followed World War II. Later “Orderly Training” and “Health Corps” programs were implemented. In 1972 a study was conducted as to how medical and healthcare programs could be expanded. That was designed to create a united service system and use non-doctors in field units. Later similar studies were conducted.

In the early years of the Islamic Revolution, fundamental policies of the healthcare system were mapped out. In 1982 and '83, authorities developed an executive plan for the national healthcare system. And in 1984, the Islamic Consultative Assembly adopted an executive plan to develop the national health system. Main policies regarding the primary Health Care in Iran include: Giving priority to rendering primary Health Care Services, prioritizing the deprived and poor areas over rich ones; prioritizing prevention over treatment; and prioritizing out patient treatment over hospitalization.

In the primary healthcare system, families are the first target group to receive services. They are followed by health houses in rural areas and healthcare bases and at times clinics in urban areas. Health and treatment centers in villages and towns are the second tier while specialized policlinics form the third layer. Finally come university hospitals which offer sub-specialized services.

Iran’s national health and treatment network is world-famous and has been inspected by international experts time and again. The network includes some 17,000 health houses, 2,400 health and treatment centers in rural areas and 2,200 such centers in towns. It ensures 100% availability of primary healthcare to the urban population. The figure for rural population stands at 95% (20 million people). It employs more than 30,000 health-workers. In recent years, health and treatment projects have been reviewed and new plans have been worked out and added to the system. At present, health houses and health and treatment centers offer a wide array of primary healthcare services including mother and child care, family planning, diagnosis and follow-up treatment, professional healthcare, school healthcare, dental and mental healthcare, etc. One major feature of the healthcare system is that it offers accurate information on the basis of daily records, vitals pie chart, statistics and monthly questionnaires filled by healthcare houses and centers.

The fact that diseases are under control and healthcare indicators have registered much improvement is a key achievement of the primary healthcare system. As a result of services rendered under the scheme, the mortality rate among children under the age of one year fell from 104 in 1,000 live births in 1979 to 18.9 in 2007. Also, mortality rates of infants and children under the age of five year fell to 12.9 and 22 per 1,000 live births respectively. The maternal mortality rate fell to 24.6 per 100,000 live births in 2007.



Information Dissemination and Promotion of Healthcare Culture

Prevention services and promotion of the healthcare culture are a major strategy of the Ministry of Health and Medical Education. All healthcare programs lay special emphasis on information dissemination and education. In Iran healthcare education dates back to the 1950s when the promotion department was formed in the health ministry and a number of health workers received training to fight malaria in different parts of the country. In 1972, it was renamed as the public health education bureau and took on more responsibilities. In 1978, it became a department.

Following the emergence of healthcare networks, education became a central pillar of primary healthcare and was integrated into the national health system with an emphasis on public contribution. The system offers education to the public even in the farthest reaches of the country.

The state broadcaster, IRIB, the education ministry, Friday prayer leaders, the volunteer force, municipalities



and NGOs are now contributing to the healthcare education drive. There is a radio service which solely focuses on health matters and every day many programs which build on expert views are broadcast. There have been some TV series picturing the activities of the health machine. There is a certain strategy in place to promote fertility health and educational courses are on offer at high schools for both boys and girls. Textbooks contain vital health-related information. The AIDS Information Committee leads educational activities on HIV/AIDS. The public relations department of the Health Ministry has produced more than 100 animations in recent years to promote healthcare. These productions have been aired by IRIB. The stage has been set for contribution of mass media and journalists to the information drive; as a result their coverage of educational stories has increased.

There are some websites dedicated to health information dissemination and the Web is being given a more active role in that regard. Besides, each year, thousands of posters and millions of pamphlets are published and distributed across the country.

Each year, with the approach of World Health Day and Health Week, mobilization gathers pace to raise public awareness on health matters. Besides, there are other information campaigns on other occasions. In 2003 more than 1 million volunteer forces launched an information campaign to prevent risky behavior and some 25 million pamphlets were distributed across the country. The president held a speech to mark the event. The role education and information dissemination play in birth control, vaccination schemes and awareness among youngsters as far as risky behaviors are concerned is undeniable.

To train the workforce needed to push forward the information drive, bachelor's, master's and PhD courses are being offered and refresher courses for health workers of medical science universities are also on the table. A plan has been worked out to offer master's and PhD courses on health communications. The public relations department of the ministry, its communications and health education management and a number of information committees are now contributing to efforts designed to give the health culture a shot in the arm. The management tries to hone the skills of health workers and members of the public as it promotes environments supporting the healthcare system.



Public Contribution

The Constitution of the Islamic Republic of Iran underlines public contribution to their own health, stating: "Health is an undeniable public right and government is required to meet the health needs of the public by building on their own contribution."

Without a doubt, public contribution to the national cause manifested in the form of a volunteer force during the eight-year war Saddam's Iraq imposed on our country in the 80s helped the nation feel the tangible difference they can make on a particular stage. Measures to remove the obstacles standing in the way of healthcare development have always been of great importance. People continue to donate property or money to purchase equipment for medical centers and establish private institutions and NGOs to contribute to that cause. Thanks to government support, recent years have seen the civil society and NGOs play a more important role in advancing the health programs of the nation.

In late 2005, an office was set up at the Health Ministry to coordinate public contribution to the healthcare system. At present more than 100 NGOs are in contact with the office to contribute to ongoing health programs. In the run-up to World Health Day in 2006, the office named five NGOs as exemplary supporters of the health drive and they received tablets of commendation from the Minister of Health and Medical Education. In a separate ceremony, the services of those who had contributed to the health drive were praised.

Among the measures NGOs have taken to advance the health drive are contribution to creation and evaluation of national health plans, inauguration of HIV counseling and testing centers, establishment of family planning and drop-in centers, formation of outreach teams, establishment of rehabilitation centers and implementation of education and information dissemination programs.

A number of measures are to be taken in the future to beef up NGOs among them creating an assembly of NGOs focusing on healthcare, lending them more financial support, organizing regular meetings between NGOs and the health minister and or his deputies and publishing a book cataloging these organizations.

It is also notified that in the recent years the center for communication and Education of the Health System plan has prepared and put the comprehensive program for the peoples Involvement in development and promotion of the

Health System into effect at national level which has brought about valuable achievements and outcome.

The “health volunteers program” is a good example of public contribution to the health system. We will elaborate on it later on.

Health Volunteers

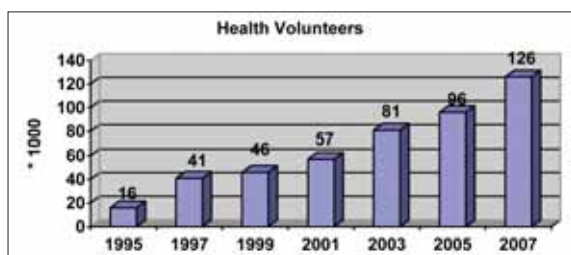
In the late 1980s, the Ministry of Health and Medical Education launched an experimental health volunteer program south of Tehran to eliminate the health problems people in suburban areas were grappling with. The plan launched from four suburban bases recruited 160 volunteer mothers to serve as health workers. Later the number of bases they were operating from increased to ten and greater public contribution expanded the experience to other cities.

The success it pulled off prompted officials to take it to all urban districts in 1993.

The plan which found its way to rural and urban areas across the nation during the past 15 years is a perfect example of public contribution to health programs.

It is now operational in 42 universities and faculties and in 384 towns. There are 2,830 active health units in urban areas and an additional 3,705 in rural communities. The plan brings together more than 1260,000 volunteer health workers and 20,000 technicians and covers four million families of the country’s population. The number of volunteers working in nomadic and rural areas stands at 550 and 18,000 respectively. To enrich the knowledge of health workers, more than 1,100,000 copies of health manuals on 30 subjects have been published so far. Health volunteers have attended 4,500 training courses. Latest estimates suggest that 95% of the educational material these health workers are exposed to is specific to the area they are working in. Some 82% have expressed willingness to carry on with their job and in 55% of the centers health volunteer committees and cooperatives have been formed.

Every health volunteer, on average covers 50 families in the his /her neighboring area and he/she tries to educate the people with healthy behaviors and acceptable norms and beliefs. The methods used by the health volunteer, is a combination of participation education system and normal education which includes peer education as well.



Communicable Disease Management

Management of communicable diseases in Iran dates back to 1921 when malaria was first studied. A few years later, a plan was worked out to eradicate the disease. In 1941, a directive was approved to prevent communicable diseases including those transmitted sexually.

In 1980, a department was established in the Health Ministry to lead efforts to eradicate malaria and fight communicable disease. Six years later it was renamed as the department of communicable diseases. In 1994, a new department emerged to spearhead the fight against all diseases. At present the Disease Management Center has two executive arms to turn up the heat on communicable and non-communicable diseases.

Malaria: Malaria is the most important parasitic disease in Iran. Efforts to eradicate it got underway in 1957. In 1985, the eradication campaign was renamed as the ‘control drive’ and three years later the malaria control program was integrated into the health system. At present, transmission of malaria is non-existent in much of the country except for a small area in the southeast. In 2006, the number of malaria cases confirmed by laboratories across the nation stood at 16,000. In 1979 though, the incidence rate stood at more than 100 for every 100,000 people. That number has now dropped to less than 40. Development of primary healthcare and expansion of primary healthcare services to areas where residents are more susceptible to the disease on the one hand and a significant decline in the number of reported cases on the other, prompted the health machine to consider an elimination drive in cooperation with the WHO in 2004. Operational plans have been worked out and the ultimate objective is total elimination of malaria.



Tuberculosis: In recent years Iran has almost managed to meet a major objective set by the WHO and that is successful treatment of at least 85% of new cases of pulmonary tuberculosis with positive sputum smear. Presently the number of TB cases in Iran is no more than 13.9 per 100,000 people. Whereas 12 years ago, it stood at 22.6 and 40 years ago it was as high as 142 per 100,000.

In 2005, the number of TB patients with positive sputum smear stood at 6.8 per 100,000. WHO estimates, however, put the actual figure at 12 per 100,000. That means 56.7% of all people who suffer from pulmonary tuberculosis with positive sputum smear are spotted. It is hoped that contribution of the private sector and all other institutions which render diagnostic and treatment services will push up that figure in the future.

Cholera: This is a rather old disease in Iran. Since 1965, the country has seen 13 epidemics. However an improvement in development and health indicators following the victory of the Islamic Revolution has brought about a steep drop in the number of cholera cases. Today, no major epidemics are reported and the cholera control measures have been integrated into the primary healthcare system. Besides, are trained to deal with the disease. Thanks to timely diagnosis and subsequent medical care, the case fatality rate (CFR) is currently less than 1%. In 2006, there were only 24 known cases of cholera across the country.

Schistosomiasis: Implementation of an extensive plan in the fight against schistosomiasis hematobia has seen the number of patients suffering from the disease fall dramatically. It comes as 27 years ago, there were between 25,000 and 30,000 cases of the disease in only one of the provinces with an endemic. Since 2001, there has been no infection even in places where the disease used to be endemic. A national schistosomiasis committee is now drawing up a plan to eliminate the disease.

Influenza: In light of the danger the likelihood of an influenza pandemic posed to the world, measures to handle seasonal (human) influenza, avian influenza and influenza pandemic were placed on the agenda in 2003. To that end, observation posts were launched in 12 medical science universities as extensive training was offered across the country. Keeping an eye on outbreaks and epidemics of suspect respiratory diseases are also part of the measures. At border crossings quarantine conditions have been intensified.

The Health Ministry's measures which include planning and coordination, monitoring and evaluation, prevention and control, as well as intervention and training are ongoing. A comprehensive plan to counter an influenza pandemic has been drawn up. It is set to be presented to the Supreme Health Council and the Cabinet.

Expanded program on Immunization



A special spending package adopted in 1983 marked the launch of an expanded program on immunization (EPI) in Iran. As the Health Ministry developed its healthcare system, the number of people covered by the immunization network increased. In 1995, the polio vaccination coverage stood at 97%. For DPT the figure was 97%; whereas for measles, BCG and tetanus inoculation for pregnant women, it stood at 95%, 99% and 82% respectively. The hepatitis B vaccination coverage was 81%.

In recent years, in addition to routine vaccination programs, ad hoc and additional vaccinations in the form of outbreak response have been undertaken. In high-risk areas mopping-up has also been on menu. And of course on national day of polio immunization, vaccination is conducted. In 1997, a measles immunization program saw some 6.5 million doses of vaccine given to children aged between nine months and 15 years. In the spring of 2004, health-workers went door to door in two stages for immunization of children against polio. It came after some 33 million children received vaccines in a national drive against measles and rubella.

Stepped-up measures to eradicate polio, such as designating a day as national immunization day, got underway in 2004. Mopping-up and SNIDS immunization remain in effect.

In 2004 the expanded program on immunization underwent change and ever since vaccination is administered according to new instructions. From 1993 onward, infants and high-risk groups began to receive vaccination for hepatitis B. In 1984 all high-school students received Td vaccines and in 2004 measles, mumps and rubella vaccine made it into the vaccination program. And now integration of influenza hemophilus into the expanded program on immunization is under study. Since 2006 the mobilization program to immunize people with 18 years old against Hepatitis B has been put into effect.

At present, for all vaccines, the coverage figure has risen over 98% of the total population. Neonatal tetanus

was eliminated in 1995 and the number of new polio cases has been zero since 2001.

Eliminating measles and mumps, bringing diphtheria and whooping cough under control and maintaining the zero incidence status of polio until it is eradicated in the world, are among major objectives of the expanded program on immunization.

In the wake of valuable achievements of the EPI program, the first National Ceremony was held in February 2009 for elimination, control and eradication of contagious diseases in Iran.

Eradication of Polio

In 1988, the World Health Organization set a 2000 deadline for eradication of polio. The world has failed to meet that deadline and there are efforts underway now to announce the eradication of polio three years after the last case has been reported. Subsequently efforts were made to boost immunization plans and introduce complementary schemes as the polio care system was reinforced. And later accurate global health indicators were defined.

Just like other countries, Iran made extensive efforts to eradicate polio. Expansion of the healthcare system into all areas in the country has seen the OPV vaccination campaign maintain a 95%-plus coverage since 1992. In addition to ongoing immunization which involves four oral doses for children under one, additional immunization schemes – in which health workers go door to door in border areas on occasions such as sub-national immunization days and mopping-up programs regardless of previous vaccinations – have been worked out for children under five years of age. The disease surveillance system has been reinforced too. During the latest visit to Iran by WHO representatives, the national polio lab secured all the 100 points as far as quality was concerned.

Adoption of certain strategies has seen the number of cases drop to zero since 2001 and the polio-free status has been maintained so far. This issue has been confirmed by WHO based on the indicators of the polio eradication program.

In recent years, an average of 3.5 billion rials has been spent annually to implement the plan.



Fighting Zoonotic Diseases

To minimize the incidence of diseases which jump from animals to humans and to cut mortality rate, the Ministry of Health and Medical Education is aggressively pursuing a program to fight such diseases.

To that end, technical committees for diseases such as rabies, leishmaniasis, Malta fever, CCHF, VCJD and leptospirosis have been formed and national protocols on diagnosis and treatment developed. In addition, educational TV programs and several national, provincial and local workshops have been on menu. Seminars which serve as refresher courses for doctors have also been organized.

On the back of measures taken by the health machine, the number of such diseases has taken a considerable plunge. In 2006 the incidence of Malta fever fell to 30 per 100,000 population. As for cutaneous leishmaniasis the figure fell to 35. The number of anthrax cases plunged to 2 per 100,000. And cases of hydatid cysts dropped to 0.51 per 100,000. Fatalities arising from rabies dropped to 10 as the mortality rate from leptospirosis, CCHF and Kalaazar registered dramatic decreases.

Among other objectives the plan is pursuing are: establishing greater cooperation among various government agencies for elimination of zoonotic disease, immunizing domesticated animals across the nation, making efforts to join the MZCC organization, boosting the national surveillance system, and preventing the entry of newly-emerged zoonotic diseases into the country.

HIV/AIDS Programs in the Islamic Republic of Iran

Statistics show that as of December 20, 2008, 18,881 people were identified to have HIV/AIDS across the nation. Of that figure, 93.5% were men and the remaining 6.5% women. At present the virus has developed into full AIDS in 1,592 people and an additional 2,945 have died of the disease. Shared use of hypodermic



needles among injecting drug users is the most common mode of infection (69.3%). That is followed by unprotected sexual contact (7.3%). In 20.8% of cases, the mode of transmission remains unknown. Just like other countries, the known number of infected people represents just part of the actual figure. Estimates for 2008 stood at 80,000. Actually, in the Islamic Republic of Iran, prevalence is now at a concentrated level. Iran and 188 fellow members of the United Nations committed themselves to global efforts to prevent the spread of HIV/AIDS in June 2001. To that end, the Islamic Republic of Iran has taken extensive measures which have drawn the admiration of international organizations.

A first national plan to control and prevent the spread of HIV/AIDS was drawn up in 2002. That was followed by adoption of a second plan in 2006. The 10-strategy plan pursues 75 objectives and involves 489 major activities. The national plan pays close attention to a number of questions including education and information dissemination, blood safety, the epidemiological care system, voluntary counseling and testing, harm reduction, prevention and treatment of sexually transmitted diseases, and social support for AIDS patients and their families.

There is equal education for boys and girls at high schools. In universities, HIV/AIDS education committees run by students have been formed and high-risk groups are receiving training. Iran's state broadcaster has so far produced several clips and TV series on AIDS and high-risk behavior. Each year, thousands of posters, pamphlets and books are published to raise public awareness. Education programs which target different groups, youngsters in particular, are also on menu. Besides, a national plan has been worked out to disseminate information on HIV/AIDS and high-risk behaviors.

On the harm reduction front, until middle of 2008, 205 voluntary counseling and Testing Centers, 155 Drop-in centers, 220 outreach groups and 850 Methadone Maintenance Therapy centers have been established.

On another front, needle and syringe exchange programs and methadone maintenance therapy are underway as free condoms are distributed to addicts.

The national plan aims to make care and treatment as well as prevention, diagnostic, antiretroviral and counseling services 100% available to all individuals. At present, Most Iranian towns have at least one center which can offer voluntary counseling and testing. Inpatient services are offered gratis by all hospitals across the nation. Most Iranian towns have at least one active HIV diagnosis center and most provinces have one Western blot analysis test center. Besides, 16 AIDS hotlines have been launched in 16 provinces.

Winning a \$15.9 million award from the World Bank for drawing up a national plan to prevent the spread of HIV/AIDS, being named a trail-blazer in launching close cooperation with prison facilities, receiving an accolade from the WHO for harm reduction programs, being recognized as having the best health and applied research system in the region, being praised by UNAIDS Executive Director Peter Piot, winning the special award of the Japanese Society for AIDS Research, etc. reflect the major achievements Iran has pulled off in the fight against HIV/AIDS.

Management of Non-Communicable Diseases 1

Cardiovascular Disease, Diabetes, Cancer

Up until the early 1990s, there was no unified management to deal with non-communicable diseases; rather various specialist groups and institutions would contribute to the overall drive. In 1991, a department was established to spearhead efforts to deal with non-communicable diseases including hypertension, diabetes, mental disorders, emergencies and accidents. The management now runs several departments.

Cardiovascular Disease: In Iran the fatality rate of cardiovascular disease stands at 167.7 per 100,000. Such diseases reduce life spans by 23.4% and account for 38% of all deaths. To counter that trend, a national plan is being implemented in all health and treatment networks in rural and urban areas to prevent and control hypertension. Another national plan to control and prevent cardiovascular diseases was pieced together in 1997 and reviewed in 2002. It is now being implemented in five medical science universities on an experimental basis. Besides, a plan to improve the lifestyle of the public was finalized in 2005 and is being trialed at a healthcare center of metropolitan Tehran since March 2006. A 2005 review of risk factors for non-communicable diseases showed that inactivity is the leading major contributor to cardiovascular diseases (69%). That is followed by cholesterol levels of more than 200 mg (44%) and overweight (28%).

Diabetes: A plan to prevent and control diabetes was worked out in 1996. By 1998, it was operational in 17

medical science universities on an experimental basis. The plan was evaluated in 2002 before finding its way into the national healthcare system. At present some three million Iranians suffer from diabetes. Results of a study suggest prevalence of diabetes stands at 5% in urban areas and 3.03% in rural communities. In rural areas, the prevalence of gestational diabetes mellitus is 0.9%. At present 200 state-run centers and 12 private-run specialized clinics across the nation offer medical services to diabetics. However, the actual need for such centers runs into 700 and efforts are being made to meet that need. Training skilled personnel is a major strategy of the prevention and control plan.

Cancer: The Islamic Consultative Assembly adopted legislation in 1984 which made registration and reporting of cancer cases mandatory. Three years later a national plan was in place to register all cases of cancer. The plan has posted yearly improvement since 2000 which saw 17,000 new cases registered. In 2006 this figure was estimated at around 60,000 (%83).

Presently skin, stomach and prostatic cancers are the leading cancers afflicting men. As for women, breast, skin and stomach cancers top the list. A comprehensive national plan to fight cancer was adopted in 2006 and experimentally carried out in some provinces.

Total Crude Incidence Rate of Cancer Cases in the country in 2008 have been estimated at 100 in 100,000 persons.

Management of Non-Communicable Diseases 2

Thalassemia, Genetic Disorders, Hereditary Hypothyroidism

Thalassemia: The average carrier rate for the disease stands at 4.5%. In case of non-intervention, the incidence rate would stand at 0.9 per 1,000 live births. Introduction of genetic counseling and molecular services, coupled with education aimed at members of the public and health-workers in the past decade, has seen a drop in the number of thalassemia cases. The number of β thalassemia cases which stood at 1,200 per year a decade ago has now dropped to less than 400. That translates into a 75% drop in incidence. However, better healthcare has resulted in longer life span of people and thus a hike in the number of thalassemic patients who can be detected. There are more than 18,000 registered patients across the country.

A comprehensive plan to prevent new cases of the disease was adopted in 1992. Five years later a plan was underway to prevent

β thalassemia major. That means each year more than 700,000 couples are screened before tying the knot. Of that figure some 2,500 couples are identified as gene-carriers and are given counseling. In the first five years of the plan's implementation at least 5,000 couples identified as gene-carriers decided not to get married. Availability of molecular services in recent years has seen many young couples who would have earlier dropped their plans for a risky marriage, opt for marriage and molecular per-natal diagnosis (PND).

Implementation of the plan has seen the number of patients fall to 300 from 1,200.

Genetic Disorders: During the past four decades, the average infant mortality rate (IMR) in developing countries has fallen from 137 to 56 per 1,000. The decline has been quite noticeable in Iran where the figure has dropped to 18.9. Even when the index slips below 50 per 1,000 childbirths, 25% of all infant mortalities could be blamed on genetic disorders. That means controlling genetic disorders is of the essence in improving the national health index. In Iran, efforts to contain such disorders began when a national plan was worked out to fight thalassemia. That pattern laid the foundation for establishing a national genetic advisory network and its subsequent integration into PHC, creating a regional molecular diagnosis network, training personnel and establishing a genetic care system to develop community-based genetics. The World Health Organization has praised Iran for offering "unique" genetic services and for integrating those services into its primary healthcare system.

Hereditary Hypothyroid: The high number of infants suffering from hereditary hypothyroid prompted officials to design a screening program in 2003 and integrate it into the national healthcare system two years later. Since the launch of the plan, some 900,000 children have been screened. Of that figure 2,108 have been diagnosed to suffer from the disease and received treatment. These patients suffer from both temporary and permanent hypothyroid. The combined incidence rate of the two in Iran is one per 430 live child-births whereas the global average is one in every 3,000 to 4,000. Studies are being planned to determine the cause of this. It should be mentioned that the accurate incidence rate of permanent hereditary hypothyroid can be evaluated three years after diagnosis.



Presently the nationwide coverage of the plan stands at 88%. The figure is estimated to hit the 90% mark by March 2009. Thirty screening labs and 6,000 sampling centers are now operational across the nation.

· It is to be mentioned that until end of 2006 total number of multiple sclerosis and hemophilia cases were estimated at respectively 12,000 and 6,800 and for these two diseases particular programs have been arranged and implemented.

Prevention of Accidents

Accidents impose a lot of death, incapacitation and costs on every society. In Iran accidents are the second leading cause of death and claim some 50,000 lives each year. Of that figure more than 22,900 lose their lives to traffic accidents. In other words, every 23 minute a person dies in a road accident.

Besides, some 4,000,000 years of life are wasted as a result of early deaths, of which 26.5% is blamed on accidents. The growing rate of deaths caused by road accidents in recent years has sounded alarm bells for the health sector and economy.

To reverse this trend, a safe-society-based plan involving various government agencies was introduced to prevent accidents. Under the plan a committee was formed to lead national efforts to prevent accidents. Pilot projects were implemented in five towns between 1997 and 2004. And since two years ago, the plan has been operational in other parts of the country. The plan covers over 95% of the country's population.

Another plan to prevent home accidents was drawn up and approved in 1994. By 1999 it was being implemented in six provinces across Iran. Then it covered the whole nation. Under this scheme, social workers pay visits to houses which are under coverage and offer safety training to family members. On another front, health clinics and hospitals have been required to record the information of the people who fall victim to home accidents and report it to health centers of their towns. In 2004, some 133,000 people are affected by home accidents each year – 3.6 people per 1,000 population. The number of those killed each year stands at 625 – 1.4 per 100,000 population.

The fact that Iran is a quake-prone country and 120,000 people have lost their lives in earthquakes in the past two decades prompted the Islamic Consultative Assembly in 1991 to approve the formation of a committee to offset the negative impact of natural disasters. Health and treatment is one of the nine subcommittees of the committee which began its work in 2005. Following adoption of a comprehensive relief and rescue plan in 2003, the scope of the committee's activities expanded.

Organizing education workshops, working out directives, forming rapid reaction teams, designing a warning system called FACT, launching emergency management centers, and piecing together health service packages to be rendered in times of natural disasters are among the activities of the committee. It should be mentioned that in the past eight years, 924 quakes measuring between 3 and 7.3 on the Richter scale have jolted the country.



Environmental and Occupational Health

Following the victory of the Islamic Revolution in 1979, rendering healthcare services to people in under-developed areas became a priority and huge budget was allotted to a number of projects to supply drinking water to, and build bathhouses and other hygiene facilities in rural areas. In 1978, rural access to clean water was less than 25% whereas the figure has now risen to 89.3%. An additional 66.7% of villages have a system to collect and dump disposal medical waste. Bacteriological tests suggest water supply is 82.6% and 97.6% hygienic in rural and urban areas respectively. A system has been developed to collect hospital waste hygienically and at present 80.2% of all hospitals have the system up and running.

The fact that the country had 2,500 radiography centers, 100 nuclear medicine clinics, 200 CAT scan centers and 30 radiotherapy clinics prompted parliament to adopt a Ray Protection Act in 1989. Afterwards, an action plan was worked out and at present 98.5% of radiography centers are well protected.

There are some 750,000 food production and distribution units across the nation. More than 96.5% of the units based in urban areas and 82.6% of them in rural areas measure up to health and hygiene standards. Implementation of article 94 of the Fourth Development Plan and contribution of the private sector will

pave the way for all these units to come under complete supervision of authorities. And a plan to eliminate sodium bicarbonate is being implemented in 87.3% of the country's bakeries.

The percentage of public places which comply with hygiene regulations stands at 89.6% in towns and 81.1% in rural areas. And to control tobacco consumption, a law is in effect.

As for occupational healthcare, extensive measures have been taken and integration of the occupational health system into primary healthcare has placed all workshops under the supervision of health workers and in possession of health certificate.

The number of plants and workshops under coverage has risen in recent years; more than 1,400 health houses and 1,500 healthcare stations offer services to laborers. And in 1996 a carpet-weavers health program came into effect. It has so far seen 350,000 workplaces and 600,000 weavers carpet come under coverage. In recent years, more attention has been paid to the question of workplace health and regular examination of workers has posted considerable growth. Adoption of a workers health program, implementation of an OHSAS 18001 workplace plan, establishment of healthcare stations in terminals, execution of a plan to control the ergonomic conditions of workplace and training workers have been among other measures taken to contribute to that cause.



Healthy City Healthy Village Project

The World Health Organization has warned that expansion of towns and cities in the 21st century poses the greatest threat to human health. WHO predictions on the scourge of urbanization prompted the world body to present a health initiative in a first meeting on healthy towns in Portugal in 1986.

In Iran, the Ministry of Health and Medical Education held its first gathering on healthy cities in 1991 in cooperation with the Interior Ministry and Tehran Municipality. WHO representatives attended the meeting. Afterwards, a healthy city project was implemented on an experimental basis in a neighborhood in the capital. When the project proved successful, it found its way to other provinces. And by 2000, it was implemented in 56 cities.

Following presentation by the WHO of a Community-Based Initiative, projects on healthy cities, healthy villages and basic development needs took center-stage and some changes were introduced to the original project. The healthy village project was integrated into basic development needs. The program is now being implemented in 19 cities and 39 villages across the nation.

The project aims to promote health in society in keeping with WHO appeals for healthcare for all and or health-based sustainable development. It is based on cooperation among various government agencies as well as public contribution.

As a result, public awareness on social, cultural and health-related questions has increased and their direct and indirect contribution to such programs has posted remarkable growth. Creation of jobs has narrowed the gap between people in underdeveloped and developed areas, social justice has been served and healthier lifestyles have developed.

The following stand out among other programs pursued by the health machine: on-the-spot recycling of waste, a scheme which has resulted in less waste disposal, expansion of green areas, less unemployment, supply of drinking water and hygienic disposal of waste water, and better compliance with regulations by restaurants, food preparation and distribution centers.

National Plan to Promote Breast-feeding

The fact that breast-feeding prevents malnutrition and mortality among infants and helps establish a deeply emotional relationship between the nursing mother and her infant, prompted official measures in 1986 to promote breast-feeding. In the same year, a "milk and infants' food" commission was set up and the then health minister signed a directive requiring hospitals to keep the newly-born babies with their mothers in the same room. Besides, the formulas of several milk powders were reviewed and limited permits were issued for local production of dry milk. In 1988, mass media launched a campaign to raise public awareness on advantages associated with breast-feeding.



Studies suggest between 1988 and 1991, the percentage of babies who would be solely breast-fed by the age of 6 months stood at 8% in towns and 11% in villages. The figure for partial breastfeeding until the age of 12 months was 62% in towns and 72% in rural areas.

In 1991 a committee was formed to promote breastfeeding and subsequently a national center was established to pursue that objective. Its activities brought about a positive change in the trend of breastfeeding in the country. In addition to public education through mass media, several workshops were organized. Only residents who would take part in weeklong education workshops on breastfeeding were allowed to take the exam for pediatrician and gynecology specialties. In recognition of the services rendered by the center, it was officially identified as an institute in close cooperation with the WHO.

In 1995, the Islamic Consultative Assembly approved a law on breastfeeding and supporting nursing mothers. Under the legislation, nursing parents could take a 4-month maternity leave and take a one-hour daily leave up to 20 months after delivery.

Following extensive efforts to promote breastfeeding, imports of powder milk dropped from between 50 and 70 million cans a year to between eight and 12 million, saving the nation \$100 million in foreign expenses.

In 1997, following the introduction of structural change to the Health Ministry, the center and the Children's Department were merged and a flurry of education, advocacy and research activities followed.

In 2004 the partial breastfeeding of kids up to the age of one year stood at 88.2% in towns and 91.8% in rural areas. The same figure for mothers who kept breastfeeding their kids up until the age of two years stood at 57.5% as application of powder milk in feeding kids less than one year of age fell to 9%.

The fact that the percentage of kids who were solely breastfed before the age of six months had fallen to 28% during that period prompted officials to take serious measures such as revival of the national committee to promote breastfeeding, establishment of another committee to adopt decisions and supervise the implementation of the breastfeeding law, formation of a commission to contribute to that cause, adoption of measures to include information on nutritional value of breastfeeding in the health pie chart and inclusion of related items in the education curriculum.

Child-Friendly Hospitals Project



In 1991, the WHO and UNICEF released a joint statement on breastfeeding and the role of maternity hospitals in its promotion. The ten-point statement urged world nations to found child-friendly hospitals to promote the culture of breastfeeding.

The most important objective the hospitals would follow was to use the assistance of universities to maintain the health of babies and prepare their mothers for breastfeeding. These hospitals were also designed to replace wrong approaches and customs with up-to-date information and scientific approaches.

For a hospital to be designated as child-friendly, it should comply with the 10-point statement which is regarded as a global criterion. In Iran, such hospitals first emerged in 1991 when the health ministry launched a campaign to promote breastfeeding. In 1992, 11 hospitals were awarded child-friendly status. By 2001, the figure had reached 485 and now it stands at 500. In such hospitals workers who have received training on breastfeeding help mothers go about appropriate breastfeeding. In these facilities, after delivery newly-born babies are kept in the same room as their mothers. Breastfeeding starts an hour after delivery and milk powder, pacifiers and milk bottles are not welcome in the environment. Mothers are also urged to breast-feed their babies whenever the infants feel hungry.

To beef up the plan, the performance of hospitals is constantly evaluated. Since March 2006, the results of such evaluations are included in the overall evaluations of the health system. In parallel, regulations governing the breast-milk bank have been drawn up and sent to scientific associations for appraisal. And an educational complex is being built for the personnel of child-friendly hospitals.

Family Planning and Population Growth Control

Iran's population growth rate maintained an upward trend in the 1960s and in 1966 it stood at 2.7%. Between 1966 and 1976, some family planning schemes were introduced but the overall rate remained almost

unchanged. Following the victory of the Islamic Revolution, in the absence of a clear-cut policy, the figure rose fast and during the 8-year war Saddam's Iraq imposed on Iran it reached as high as 3.9%.

To stop that alarming trend, officials with the health ministry sent several letters to high-ranking state officials. Eventually the founding father of the Islamic Republic, the late Imam Khomeini released a letter and paved the way for measures to bring population growth under control. Five-year birth control plans were worked out and contraception methods were approved one after another.

The scheme which began to be implemented in 1989 – the same year the First Development Plan got underway – saw the population growth rate fall to 1.6% from 3.2% three years earlier. Implementation of a total fertility rate scheme saw the average number of times a woman would give birth fall from six in 1978 to 1.9 in 2006. The figure is even lower now and the crude birth rate which stood at 35 per 1,000 at the outset of the program plunged to 20 in 2000. It is now even lower 20 per 1,000.

“Education and promotion of healthcare awareness in society” has played an important role in the success the program has achieved. Several education methods were applied in the course of the program. Besides, the fact that clerics assured the public family planning is not in contravention of religious teachings was instrumental. Then the stage was set for easy and free-of-charge access to contraception means. To that end several vasectomy centers were established and condom-producing plants were inaugurated. Today, the overall coverage of birth control methods is 79% and the percentage of unwanted pregnancies has fallen from 30% in 1989 to 18.6% in 2005. During the same period, Rate of using the modern family planning control methods has increased by %59.6 from the previous figure of %27.5.

According to the most recent statistics released by the Iranian Census Bureau, the population of the country stands at 70.5 million of whom 68.46% live in cities and 31.53% in rural areas. The new figures show since 1996 an average 1,000,000 people have been added to the population each year.

Population Indicators

Indicator	1966	1976	1986	1996	2006
Crude Birth Rate	-	42.9	49.6	20.5	-
Growth Rate	3.3	2.71	3.91	1.47	1.62
Total Fertility Rate	-	6.6	7.1	2.96	1.9



Mortality Rates in Iran

With infectious diseases under control and urbanization on the rise, the mortality picture in the country underwent change. In 1971, infectious diseases topped the list of national killers with 94 deaths per 100,000 population. That was followed by diarrhea and vomiting which claimed 46 lives. Cardiovascular disease came in third with 42 deaths per 100,000 population. Today the deaths caused by diarrhea and vomiting are no more than eight per 100,000 population while cardiovascular diseases are the leading cause of death in the country.

The average number of deaths reported each year stands at around 300,000 (between 825 and 850 per day). With 38% of deaths blamed on heart conditions, cardiovascular diseases are the leading cause of death (167.7 deaths per 100,000 population). However in 1971 and 2001 the number of such deaths stood at 42 and 105 per 100,000 population respectively.

Accidents are the second leading cause of death in Iran (18%). Some 14% of all deaths are blamed on cancer, 6% on neonatal disease and 6% on respiratory conditions. The average age of death caused by cardiovascular disease, accidents and cancers stands at 68, 35 and 60 respectively. That means accidents and cardiovascular diseases top the list of factors which shorten Iranian life span.

The drop in maternal mortality rate (MMR) and in mortality rate of children in the 1-59-month age group has been satisfactory in recent years. Maternal mortality rate fell from 140 per 100,000 live births in 1985 to 24.6 in 2007. The figure for children aged between one and 59 months dropped to 12 from 79 deaths 25 years earlier. The neonatal mortality rate (NMR) has decreased to 12.9 per 100,000 live births in 2007 from 40 per 1,000 live births in 1978. During the same period infant mortality rate (IMR) slid to 18.9 from a previous 111 per 1,000 live births. In 2007, mortality rate among children under five years of age stood at 22 per 1,000 live births.

Despite a rise in the number of deaths caused by cardiovascular disease, life expectancy has always been

on the rise and in 2003, 73.1 years for women and 70 years for men. The average life expectancy in 1956, 1976 and 1996 stood at 37.5, 55.7 and 69.2 years respectively.

Promotion of mental health



When it comes to primary healthcare and mental health programs Iran is a pioneer country in the Eastern Mediterranean. A group of Iranian experts first worked out a national mental health program in 1986. The program, which was meant to provide primary mental health care for all, develop a mental health pattern compatible with the socio-cultural features of Iranian society and raise public awareness about mental health, began to be implemented one year later. So far some 11.5 million of the urban population and 19.3 million of the rural population – overall 46% of the country's total population – have come under the coverage of the program.

Evidence pointing to ever-growing effectiveness of support and prevention along with development in recent years of services rendered to mental health patients has considerably affected the country's mental health programs.

These programs are mainly based on policies which in turn focus on structural plans and integration of activities into public healthcare, promotion of quality and guarantee of sustainability, expansion of society-based services, emphasis on evidence-based approaches and on attention to cultural, indigenous qualities, fair distribution of services and facilities, contribution of NGOs, interagency cooperation, and application of the expertise of experts working in universities and research centers.

Some of the measures taken in this regard in recent years are as follows:

1. Drawing up and adopting a national mental health convention in the policy-making council of the ministry
2. Drawing up policies and putting forth proposals to work out mental health regulations
3. Contributing to research in the field and to the strategic committee on psychology education and pushing research and education in the direction of healthcare priorities
4. Drawing up a package on family doctors in the field of mental health for different age groups including behavioral assessment of children, prevention when it comes to children and young adults, middle-aged individuals and senior citizens and intervention in cases of emergency and suicide
5. Implementing a national plan on social skills and then assessing it
6. Making plans to offer psychosocial services in the aftermath of natural disasters
7. Launching psychosocial support centers for children and parents at children's hospitals
8. Drawing up a comprehensive plan to prevent domestic violence in families in groups 1 and 2 of the national healthcare system
9. Drafting a plan to standardize psychiatric services rendered in the country
10. Drawing up a comprehensive protocol on follow-up treatment for mental health patients after they have been discharged from hospital
11. Holding ceremonies to mark mental health week in order to raise public awareness and drum up support for the mental health system

Prevention and Treatment of Drug Abuse

When it comes to illicit drug control on a national scale, policy-making, planning and executive affairs are the responsibility of the Counter-Drug Headquarters which brings together several institutions and acts under direct supervision of the President of the Islamic Republic of Iran and is presided over by the first vice-president. Following adoption of an amendment to the Counter-Drug Act by the Expediency Council in 1997 which paved the way for government to offer addiction treatment services, the Ministry of Health and Medical Education stepped into an unfamiliar territory. The ministry is now leading a committee charged with treatment, rehabilitation and vocational training of addicts. It is also an active member of the harm reduction committee in the Counter-Drug Headquarters. Following a decision by the Supreme National Security Council, the Health Ministry launched a department in 2001 to lead national efforts to



prevent drug abuse and treat its victims.

The average budget allocated to addiction programs in the ministry in 2002 and 2003 stood at 11.5 billion rials. In 2004, that figure rose to more than 28 billion rials. The budget for implementing anti addiction programs was increased to 66.4 billion rials in 2007. 4.4 billion comes from the ministry of Health and 62 billion come from Counter-Drug Headquarters.

One key measure the ministry has taken in recent years has been to draw up a strategy in the campaign against addiction.

The document involves education and prevention, treatment, harm reduction, research, etc. Under the education and prevention section of the strategy, training courses have been offered to high school seniors to hone their community skills. Besides, some 1,300 health workers and 5,000 caregivers have received training to contribute to that cause. During the last 3 years 160 different training courses for 2400 practitioners applied for the establishments of Quit Drug Addiction centers have been arranged.

Since 1999, 151 treatment centers have been established by medical science universities. These centers admit some 28,000 patients each year. Following adoption in 1999 of a directive which provided for private addiction treatment centers, the private sector made its presence felt in the field so much so that presently private centers admit up to 140,000 patients per annum. Also In 2007, some 66,000 patients are receiving methadone-maintenance therapy in centers across the nation. An additional 4,000 are undergoing similar treatment in prison facilities.

In 2003, for the first time a comprehensive plan was adopted to help the addicts. Prevention and harm reduction are the central pillars of the plan which brings together health ministry workers and police in getting the job done. Second phase of the plan continued in 2007 with participation of 9 medical sciences universities. During this phase 13,220 addicts were identified and came under required treatment.

In 2004, following consultations with the Judiciary, a directive was issued by the Judiciary Chief recognizing the national harm reduction plan, prescription of methadone and needle and syringe exchange programs. In keeping with harm reduction programs targeting street addicts and high-risk groups, 72 drop-in-centers (DICs) have been established in seven big cities. In addition 117 groups of outreach have been formed. In 2007 totaling 60,000 individual referred to DIC and number of the referrals stood at 342,000. In the same period through the same centers around 5.8 millions of syringes and needles and 640,000 condoms has been distributed and 285,000 individuals enjoyed direct relevant training courses. Five units for treatment of drug abuse cases were established in 2007. Currently the cost of methadone maintenance therapy in public centers, on monthly basis, amounts to 150,000 rials and in private centers 627,000 rials.

At present, it is seriously pursuing efforts to integrate the prevention and treatment of drug abuse programs into the national health system. In line with that objective pilot projects are underway in 11 towns across the nation.

A photograph of a patient in a hospital bed, surrounded by medical equipment, overlaid with a red tint. The patient is wearing a white hospital gown and is sitting up. The room contains various medical devices, including monitors and IV stands. The text "Treatment & Care" is overlaid on the left side of the image.

Treatment & Care

Expansion of Diagnostic-Curative and Treatment Services

The fact that diagnosis and treatment services play an important role in materialization of social justice turns “very important” any effort to make timely services available and promote productivity. So in 1996 as the national health and treatment network was being designed, a system on diagnosis and treatment services was in the making too. In 1998, a national plan on inpatient treatment and specialized services was drawn up and approved by parliament. The scheme later became part of the Third and Fourth National Development Plans.

Under the scheme, each town should work out a 5-year prediction as to how many hospitals, hospital beds, treatment and diagnostic equipment and workforce it is going to need.

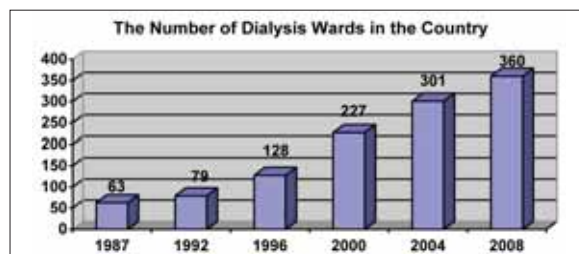
Hospitals lie at the center of this plan. In the wake of the Islamic Revolution, expansion of hospitals continued even when there was a crunch budget during the 8-year war. Each year an average of ten hospitals are built across the nation. In 1978, only 37% of towns had hospitals. The figure has now risen to 94%. At present the number of hospitals and hospital beds across the nation stands at 856 and 120,000 respectively. Before the Islamic Revolution, those figures were 524 and 55,000. Although the population has doubled, the index of bed per 1,000 population has risen to 1.44 which is satisfactory. The percentage of hospital beds playing host to patients in recent years has varied between 58% and 64%.

Then more investment of the government to build new hospitals along with introduction of change in management of existing hospitals came to the fore and important measures were taken to that end. In 1995, the Islamic Consultative Assembly passed the Autonomous Hospital Act, which entails a novel system of management in hospitals. And some non-education hospitals were privatized. As time passed, the role of specialized managers in running hospitals became more prominent and more financial and legal authority was delegated to them. Besides, measures were taken to computerize the information systems of hospitals, set up hospital committees and make the treatment facilities greener and more beautiful.

At present the private sector runs 12.2% of all hospital beds (more than 13,000) and 135 hospitals and a major portion of outpatient treatment and diagnosis is undertaken by 550 private clinics as well as doctors and dentists who practice medicine in their offices.

In all the number of medical diagnosis labs and radiology centers in Iran stands at 4,570 and 2,600 respectively which each center covering a population of around 15,000 and 27,000. Meanwhile, there are 100 nuclear medicine and 200 CT scan centers up and running in the country. So far 220 nuclear medicine and 465 CAT scan clinics have been given the go-ahead to launch their activity. The Number of dialysis wards in the country have increased from 63 in 1997 to 360 in 2008.

To make treatment available to members of the public, two schemes called “outsourcing of outpatient services” and “family doctors” have been drawn up and are being implemented under coverage of the medical insurance system.



Optimization of Hospital Emergency Wards

Hospital emergency wards are at the center of the treatment system and improvement of their workings will surely result in better performance. To beef up the hospital emergency system and improve the quality of services, a plan was drawn up in 2001. The plan, designed to offer top-quality services to patients in the shortest time possible and meet their expectations, was implemented as a pilot project in 30 hospitals in 2002. The fact that it proved successful and increased patient satisfaction with hospital services to 70%, prompted officials to enforce it in all university hospitals in 2003.

To that end, centers were set up in all medical science universities to lead the project, disseminate information and take care of all treatment-related questions. Also a triage system was activated in emergency wards.



Besides, measures were taken to expand the areas of emergency wards and eliminate understaffing. On other fronts, coordination is underway to let hospitals admit the patients of one another, keep paraclinical units open 24 hours a day, speed up the process of examining the patients and meet their expectations. Emergency services offered at hospitals require no payment and no one is authorized to deprive patients of their right to be looked after. The hospital management and officials of university units have to work out a way to meet such expenses. Chief among achievements of the plan are: patients are looked after in shorter periods, patient flow is expedited, management looks into the problems of the patients and patients are more satisfied with the services they receive

In 1999, some 28% of patients would complain of doctors' failure to look after them in time in emergency wards. That figure dropped to 5% in 2004 and the level of dissatisfaction as far as admission is concerned fell from 44.5% to 4.7%. During the same period, patient satisfaction with the performance of hospitals climbed to 86% from 53%. And last but not least, in 2000 some 30% of the medicine used in emergency wards would come from outside the hospital. The figure dropped to 5% in 2004.

Establishing an online network to electronically register the information of patients admitted to emergency rooms, making plans to handle the aftermath of natural disasters and paving the way for more public contribution are also in the pipeline.

Promoting Emergency Medical Services

Following the deadly collapse of part of the ceiling at Tehran's Mehrabad Airport in 1974, the then government decided to establish a medical emergency service. A year later, Tehran's emergency service began to operate from seven bases. Subsequently it expanded its activities to other provinces.

In later years, population growth, emergence of new industries and roads as well as natural disasters pressed the need for a larger and better-equipped emergency network.

To that end, the Health Ministry implemented a comprehensive medical emergency plan to attend to the people who were in need of medical care in the shortest time possible and take them to nearest clinics or hospitals. Under the plan, three kinds of emergency service bases were established: one located in towns and cities with a population of more than 250,000; another for areas with a population of less than 250,000 and the third for major roads linking towns and cities across the nation.

The service aims to have its paramedics – in 80% of the cases – on the site of traffic accidents in 10 minutes in major cities, eight minutes in small towns and 15 minutes on inter-city roads.

During the course of the Third Development Plan, 295 emergency bases were established. In the past four years, 700 more centers were added and the overall number increased to 1,582. As of March 2009, there were 2,641 ambulances in the country – one per 26,700 population. On average, emergency teams go on 2,560 missions a day – 935,000 a year – 500 of them are related to road accidents. At present in minor cities it takes ambulances 7 minutes to reach the site of an accident. On inter-city roads the required time is 14 minutes. These figures are pretty close to the stated objectives of the service.

The emergency medical service now has advanced telecommunications systems at its disposal. Besides it has launched an automation system. The number of ambulances rushing to the aid of people in need of emergency aid has increased considerably in recent years. Emergency medical care courses are being offered and the service now has boats and helicopters in major cities to get the job done.

Development of Specialized and Subspecialized Treatment



Following expansion of specialties and subspecialties and local training of physicians, the most advanced specialized and subspecialized treatment is now conducted within the country. Iranian doctors have managed to fix spinal cord injuries using Schwann cells; they have also developed stem cell technology and pulled off a success in cloning. These are among major achievements of Iran's medical community.

The successful performance of Iranian doctors in heart surgery, ophthalmology, treatment of infertility and other specialties and subspecialties coupled with relatively low costs of treatment in Iran has drawn many foreign patients into the country. In 2005 some 17,500 foreign patients were admitted, each bringing

in between \$4,000 and \$5,000 in revenues. There are up to 12 hospitals which currently admit foreign patients. At least 50 hospitals across the country do have the potential to measure up to standards of admitting foreign patients. The Tourism and Cultural Heritage Organization has in cooperation with other institutions drawn up a health tourism plan. And in 2005 a tourism treatment consultancy was set up in the health division of the Ministry of Health and Medical Education.

Besides, a rise in the number of experienced specialists along with expansion of services on offer locally has precipitated a fall in the ranks of patients who are referred overseas for treatment. In 2005, the number of such patients stood at 40, costing the nation \$753,000 in expenditure. Whereas in 1990, the figure stood at 2,968 and its costs ran up to \$16 million. In other words, that number has registered a 98.4% drop in a matter of 15 years.

Since 2004, a plan has been in effect to pave the way for local treatment of all patients and thus prevent overseas referral. Since 2005, 15 patients suffering from drug-resistant Parkinson's disease and advanced scoliosis have undergone surgery in Iran saving the health machine some 3.8 billion rials in costs. The money saved through local treatment of patients, has been funneled to procurement of modern equipment for specialized centers across the nation. These centers mainly focus on children's heart surgery, radiology, bone-marrow transplant, and surgical treatment of drug-resistant epilepsy. As of March 2006, the number of specialists and subspecialists in the country stood at 22,811.



Organ Transplantation

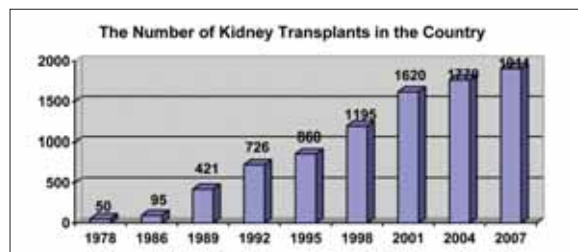
Transplantation is a vital measure in helping the people who suffer from organ failure and in improving their lifestyle. It is one of the most dynamic achievements of modern medicine and a sign it has made a lot of progress of late. The first kidney transplant in Iran was conducted in Shiraz in 1968. In recent years, the number of transplants involving kidney and other organs has posted a steep rise. The first kidney transplant ward was established in Tehran in 1984. A subsequent rise in the number of experts along with sustainable education and the realistic attitude of officials saw the number of such wards increase. At present there are some 90 transplant wards in hospitals across the nation.

In 2000, the Islamic Consultative Assembly adopted legislation dealing with brain death and organ transplant from the dead. That decision paved the way for doctors to build on all sources for conducting transplant operations. By March 2006, 460 brain dead donors had been registered across the country. In all, there have been 821 kidney transplants involving clinically dead donors. The figure for liver, heart and lung transplants stands at 230, 104 and 13 respectively. In 2005, the number of kidneys, livers, hearts, and lungs taken from brain dead patients registered a 6% annual rise and reached 290.

In addition to transplants involving clinically dead patients, an additional 1,900 kidney transplants are conducted in Iran each year. Iran is a leading country in the region as far as transplants are concerned and patients from Azerbaijan, Oman, Afghanistan, Saudi Arabia, Iraq and the UAE come here to undergo transplant operation.

Fortunately university centers do have the capacity to offer specialized transplant education; that is why transplantation has posted a lot of progress in Iran.

The center for management of transplants and special diseases takes care of policy-making, planning and supervision as it tries to pave the way for expansion of research on various subjects such as transplants involving clinically dead people and the training of coordinators and nurses.



Expansion of Medical Insurance Services

Principle 29 of the Constitution and some articles of the Fourth Development Plan underline expansion of medical insurance services. When the motion to create a ministry of health and medical education was

raised on parliament floor, an article was added to the original bill requiring government to draft another bill on public medical insurance services. The Islamic Consultative Assembly approved the bill in 1994 and in September 1995, the Medical Insurance Organization was established and tasked with offering medical insurance to public sector workers, villagers, nomads, self-employed people and members of other social strata.

In 1996, some 1.2 million self-employed people were given medical insurance services by the organization and insurance services were offered in rural areas. Implementation of the plan translated into full coverage for the country's 23 million-strong rural and nomadic community. It means 75% of all inpatient services rendered to the insured and 70% of outpatient services are free of charge.

The scheme expanded in later years and the number of people under its coverage now stands at more than 38 million. It comes as the Social Security Organization offers insurance coverage to an additional 28 million. This organization was established in the wake of the Islamic Revolution when the Social Security Fund underwent structural change. The organization offers services to laborers through mandatory insurance and to the self-employed through insurance contracts. It also pays money to more than 1.2 million families covered by its pension and retirement schemes.

In 1994, some 40% of the country's total population was benefiting from medical insurance services. The figure has now risen to 95%. And more than 90% of physicians and diagnostic institutes, as well as 99% of the country's labs, CT scan and MRI centers cooperate with the Medical Insurance Organization. The number of doctors and dentists cooperating with the organization has now reached 35,000. The same is true about some 10,000 paraclinics, 750 hospitals and 6,700 pharmacies. An additional 28,000 doctors and 16,000 clinics cooperate with the Social Security Organization.

Following adoption of a legislative act on a comprehensive welfare and social security system, the Ministry of Welfare and Social Security emerged in 2004. Among the responsibilities of the ministry is to set up nomadic and rural insurance funds. Under the new arrangements the Social Security Organization acts under the supervision of the newly-established ministry.

Family Doctor and Referral System



One major way to make healthcare as much available as possible to members of the public is through the family doctor scheme which dates back 70 years in some countries. The scheme which helps render services to members of the public is bound to reform the healthcare system and promote healthcare justice.

In Iran the legal stage has been set for implementation of the family doctor and referral system and articles 81, 90, 91, and 96 of the Fourth Development Plan underline the government's implementation of the system. Article 91 explicitly requires the government to pave the way for implementation of the scheme.

An amendment to article 14 of last year's spending package meanwhile required the Medical Insurance Organization to issue treatment cards to all residents of villages, towns and nomadic communities with less than 20,000 population and let them benefit from healthcare services through the family doctor and referral system.

The scheme has been implemented since 2005 in towns and villages with less than 20,000 population. The Medical Insurance Organization, the Ministry of Welfare and Social Security and the Health Ministry contribute to the program.

It already covers 25 million people in small towns and rural areas and the ratio of physicians to total population in rural areas now stands at 1 to 4,395 from a previous figure of 1 to 9,000. That means access to healthcare has risen to 100%.

Health and treatment networks are at the center of the program. Physicians have been designated to more than 73% of all rural centers. The program employs 6,600 doctors (2,856 of them from the private sector) and 4,600 midwives (3,612 of them from the private sector).

Full implementation of the plan is expected to raise public satisfaction with the health system and result in improving the drug consumption culture, and healthcare justice.

In such programs, general practitioners and the teams they lead take full responsibility for the health of individuals and families under coverage and refer them to specialists whenever necessary. That is not all; they have a duty to follow up the process of referral treatment.

Nursing Services in the Islamic Republic of Iran

The first Iranian institute which taught nursing courses was established in Orumiyeh 93 years ago. Applicants would have to receive three years of training to become certified nurses. In 1959, the Supreme Cultural Council approved a curriculum for nursing schools. The first specialized course in nursing was offered by Shiraz University in 1967. In 1976, a new nurse training system was adopted and in the same year, the first master course in nursing was offered.

To coordinate all nursing affairs a department was created at the Health Ministry in 1968. The new unit was later overhauled. In 1996, a council bringing together representatives of the nursing community was established. In 2001, on the back of extensive follow-up efforts by officials and experts alike, the Islamic Consultative Assembly passed legislation which laid the foundation for a new nursing organization. To make the profession independent, a new system was worked out too. The organization which has a 55,000-strong membership takes care of legal and welfare-related questions of its members.

Following the foundation of new nursing schools and a rise in admissions, the number of nurses which stood at no more than 7,100 in 1979, rose to 32,500 in 1996. At present that number has hit the 54,000 mark and Iranian nurses. Presently rate of number of nurses to 100 hospital beds has reached 84. In this respect it is to be mentioned that number of auxiliary nurses in public hospitals has increased by 9,500.

A recent decision to review the job description of nurses is in line with technological advances and the need to make the profession more specialized. Colleges no longer admit students on associate programs. Rather more attention is being paid to BS, MS and PhD programs. As a result the number of nurses with BS and MS degrees has grown and a decline has been posted in the ranks of orderlies. Another major step taken recently was the establishment in 1989 of a nursing research committee. In the ten years that followed 1000 consultative and call-in nursing centers were established and presently more than 250 applications for establishment of similar centers are processed each year.

Nurses enjoy a special status in Iran where officials and members of the public attach much importance to their profession. Results of a recent study suggest even in the most difficult of circumstances 80.6 percent of patients are satisfied with the performance of nurses. Nurses have a day named after them in the official calendar of the Islamic Republic. On that day ceremonies are held to praise the services of nurses across the country.

Procurement of Medical and Laboratory Equipment

Up until a few years ago, Iran would solely rely on imports to meet its need for medical equipment. Major investment in production of medical equipment came when the Iraqi-imposed war was drawing to a close in the late 80s. In 1989, a plant was inaugurated to produce medical equipment. During the war and afterwards when the reconstruction drive was in full swing, the industry at large posted a lot of progress. In 1993, the department of medical equipment was created at the Ministry of Health and Medical Education to take charge of policy-making and quality control. At present that responsibility falls on the Center for Management and Coordination of Commercial Affairs.

Elimination of monopoly and creation of a competitive environment saw the number of plants producing medical equipment increase. Besides, the quality and quantity of their products improved considerably. In 1990, the number of such plants stood at 61. The figure rose to 281 in 1997 and 415 in 2008. These plants produce some 520 pieces of equipment the industry needs.

At present, some 85% of disposable products, lab kits, dentistry equipment and a considerable percentage of other medical equipment are produced locally. It saves the nation a lot in foreign expenses. Besides, in recent years Iranian products on display at exhibitions abroad have secured a share of the international market and the stage has been set for exports.

To shore up the industry, plans have been implemented to better coordinate and manage the production of such equipment, rate the companies which roll out such products and allocate money for modernization of hospitals in the country.



Rehabilitation Services and Prevention of Social Harms



The Welfare Organization plays an important role in rehabilitation of the disabled and in social welfare of vulnerable groups. The organization which was working under the supervision of the Ministry of Health and Medical Education up until 2004, has taken positive steps to achieve its stated objectives.

In Iran, according to statistics released by Welfare and Rehabilitation University, cases of mental disability stand at 12 per 1,000. The figure for physical disability and blindness is 11 and seven respectively. As for deafness it is three per 1,000 population and elderly citizens account for 6.6% of the total population.

Disabled people who are under coverage of the organization receive a wide array of paramedical, social, professional, community-based and rehabilitation-related services. The number of centers which render such services has increased remarkably as the community-based services have expanded in towns. In parallel, disabled people have been identified to receive services. The plan which is designed to help disabled people get back on their feet conforms to scientific and practical standards of rehabilitation and is conducted in cooperation with the WHO.

In addition to governmental centers, the number of private rehab facilities has grown too. The private sector now runs 669 mental rehabilitations centers, 21 physical centers, 172 centers for the elderly, 10 rehab clinics for senior citizens, 100 centers for chronic mental disorders and 18 family rehabilitation institutes.

Establishment of centers to prevent social harm and promote welfare is another measure taken by the welfare system. In 1999, the number of such centers stood at 62. It has now risen to 225, among them 53 social emergency centers, 22 health houses for girls, 42 for street children, 36 for women victims of social harms, and 72 intervention centers to reduce the number of divorce cases.

Social Advocacy Centers

No.	Center	1999	2001	2003	2006
1	Social Emergency Centers	9	39	52	53
2	Girls' Health Houses	9	21	27	22
3	Centers for Street Children	16	33	41	42
4	Divorce Intervention Centers	15	55	68	72
5	Rehab Centers for Socially-Harmed Women	13	33	28	36
*	Total	62	151	216	225

Supply of Healthy Blood



The Iranian Blood Transfusion Organization, which is the sole authority to supply blood and blood products in the country, was founded in 1974. Following the victory of the Islamic Revolution, particularly during the war years, development of the organization gathered pace. As a result all provinces had their own blood transfusion bases. There are now 364 blood transfusion centers across the country, including 60 blood transfusion bases, 144 temporary centers, 128 permanent centers and 32 processing centers.

To ensure blood safety and quality, authorities decided to scrap a regulation that required relatives of a blood recipient to donate blood themselves to replace it. The move was meant to make donation a voluntary act. The decision adopted in 1997 was initially implemented in provinces where the need for replacement blood was minimal. By early 2001, it was in effect in nine provinces and is now practiced in almost all provinces. The voluntary blood donation index reached 99% in 2006. It now stands at 100%.

With an index of 25 units per 1,000 population – 1,667,412 units of blood are taken each year – Iran is now self-sufficient in meeting its own blood need and there is no shortage in hospitals. Adoption of logical approaches has seen the country's need for blood hit a record low. In 2006, only 3% of the country's blood reserve was used and the remainder was processed for production of blood products.

Expanding the activities of the Blood Transfusion Research Center, using more sophisticated laboratory equipment, applying the MAK-System technology, securing a permit from Germany's Paul Ehrlich Institute, reviewing the country's blood supply system, improving the blood transport system and exports of plasma are among other measures taken in this regard.

Blood Refinery Project

Ground was broken on a 4-hectare expanse of land in 1990 for a project to fractionate plasma and extract serologic constituents of blood for pharmaceutical purposes. The nominal capacity of the facility was 80,000 liters a year. In addition to the main building, the facility has a special section for animals, alcohol distillation, a water reservoir and heating and cooling rooms. The raw material used in the facility is healthy plasma taken from volunteer donors. The plasma is first frozen in plastic bags before being taken to the facility under aseptic conditions.

The plasma is then tested for viral and microbial infections such as HBSAg, HIVAb, HVCAb as well as for syphilis. In case the tests produce negative results, the plasma is then used in the facility.

Another raw material used in the production line is pyrogen-free distilled water which is produced in the same facility. In the processing section, the frozen plasma is crushed and melted and factors VIII and IX are separated. Then the COHN technique is used to separate major proteins such as immunoglobulin and albumin. Then samples of the product are tested on animals to ensure high quality. When the tests confirm that the product measures up to international standards, the product is ready to be distributed.

The machinery used in the production line is modern and automatic while semi-automatic systems are used to control production parameters such as PH, temperatures and addition of buffers, ethanol, etc.

In the past four years, the facility has produced 4.1 million bags of concentrated red blood cells, 1.3 million bags of cryoprecipitate, 2.3 million bags of fresh frozen plasma, 1.1 million bags of platelet, 410,000 bags of washed red blood cells, and 635,000 bags of whole blood.

Plans are underway to use the total manufacturing method and strike deals with other countries to raise the current volume of plasma produced in Iran – 72,000 liters a year – and roll out more plasma products. More investment along with private contribution to establishment of new refineries is expected to see the industry boom in the future.





F o o d & D r u g

Promotion of Food Safety and Quality

An increase in the number of plants producing food and drinks along with swift changes in the processing and packaging technology has turned food safety and quality into a top priority. To that end, extensive measures have been taken chief among them establishment of a Supreme Food and Nutrition Council, and implementation of Hazard Analysis and Critical Control Point (HACCP). Following recommendations by the World Health Organization, the stage began to be set for implementation of HACCP in 1997.

In 2000, formation of a national coordination committee laid the foundation for implementation of HACCP. In addition to policy-making and ensuring food safety through HACCP, the committee is tasked with replacing old approaches with new ones, ensuring high quality, making all necessary coordination for implementation of training programs at all levels and adopting an appropriate auditing approach as far as the food industry is concerned.

To promote food safety and quality, industry experts have received 1,774 hours/person training in the past two years. In addition, a proposal has been tabled and approved to launch food safety and healthy nutrition courses at institutes of higher education run by the Ministry of Science, Research and Technology. Other measures include: implementing national plans to enrich foodstuff, grading the producers, conditioning the extension of technical licenses on receiving yearly training and scoring at least 125 points in five years, drawing up lists of permitted additives and stepping up supervision when it comes to production of foodstuff and drinks.

Also, measures have been taken to further develop the food and drug control laboratories which serve as the supervisory arm of the health machine when it comes to production of food, and cosmetics. In 2000, a quality control unit was established to pursue that objective. It came as measures were taken to improve the performance of quality control labs and to rank such centers in universities.

A department was formed in 2005 to deal with new products such as supplements and special foods. In addition to drawing up directives, the new body handles supervision, control and monitoring at ports of entry, in the process of production and along distribution lines. In 2006, a sign was worked out to indicate the safety of a food product. Ever since, it has appeared on the packages of products which measure up to standards.



Nutrition Support and Enrichment Programs

Because malnutrition has a series of harmful effects, programs to support and enrich nutrition and minimize malnutrition has been a top priority of the health system and the Fourth Development Plan lays emphasis on efforts to promote food safety.

Growth monitoring cards have been in circulation across the country since 1964. However results of a nationwide survey in 1998 showed 31% of Iranian children didn't have the card at all and only 17.5% had cards on which their growth indicators had been regularly registered. In 2001, new cards began to be distributed to all health clinics. In 1996, the plan to prevent protein malnutrition came into effect as a pilot project in three provinces and resulted in a 50%-plus drop in child malnutrition. At present it is in effect in several towns across the country.

To push that objective forward, a national nutrition manual has been released. The manual, which includes facts and questions which are easy to understand, is an important tool to raise public awareness as far as nutrition is concerned. Besides, national workshops have been organized to help master trainers join in efforts to improve nutrition and child growth.

After Oman and Lebanon played host to meetings on enrichment, Iran adopted a plan to enrich flour with iron and folic acid. Under an agreement, the WHO, MI, and UNICEF offered technical assistance to Iran. The plan which got underway in 2001 is now in effect in provinces. To enrich flour with iron, Iranian researchers designed and developed "microfeeder" and "premix" machinery.

To promote the culture of milk consumption, free-of-charge milk was distributed in some schools in 10 provinces on an experimental basis. In 2001, following an Executive approval, it became operational in impoverished areas of six provinces. In 2003 it was expanded to 24 provinces covering some six million



students. Presently, the number of students covered by the plan stands at eight million. Besides, several plans have been implemented to promote the health of high school girls through courses on nutrition and weekly distribution of iron supplements, improve the health status of students at boarding schools and beef up health standards at school buffets in cooperation with the Ministry of Education.

Enrichment of milk with vitamin D – since 2001 – and enrichment of cooking oil with vitamins A and D have been among other measures taken in that regard. In parallel, programs have been underway to determine shortages of iron, Zinc and vitamins A and D in 11 regions, offer vitamin A mega dose capsules to children under five and mothers who have just given birth to their babies in eight impoverished provinces.

Plans to promote iodized salt to eliminate disorders arising from iodine shortage have been repeatedly emphasized by international organizations.



Nutrition Indicators for Under-6 Children

Indicator	1995	1998	2004
Underweight children under 6 years of age (%)	16.6	10.9	5.2
Short children under 6 years of age (%)	19.7	15.4	4.7
Thin children under 6 years of age (%)	7.1	4.9	3.7
Mothers who know about growth monitoring cards (%)	-	52.6	81
Children who have no growth monitoring cards (%)	-	31	4.2

Medicinal Drugs; National Structure and Policy-making

The Food and Drug Division of the Ministry of Health and Medical Education is officially in charge of policy-making and sustainability of supply when it comes to medicinal drugs. Thirty-six food and drug divisions in medical science universities and six independent food and drug management agencies take care of supply in towns and cities. To meet a national need for improvement, a structural overhaul of the system has long been on the agenda. Formation of a biological department, establishment of a committee to draw up standard operating procedures (SOPs) and last but not least creation of a National Hazard Analysis and Critical Control Point (HACCP) committee in recent years have all been in line with the need to introduce structural change. The number of experts active in the field stands at 326, of whom 25 have PhD and another 160 hold MD and MS degrees.

To lead the overall medicinal drug machine of the nation in the right direction, a Medicinal Drug Planning Council – bringing together experts from across the nation – was formed in 1995 to review the whole structure and draw up national policies. In 2003, a 13-point national medicinal drug policy – a document designed to inject as much transparency as possible into the system – was approved by a joint session of the Ministry of Health and Management and Planning Organization. The document has since been at the center of every course of action adopted in the medicinal drug system. This report was reviewed and corrected in 2008. And the council that had been in charge since introduction of a new medicinal drug system following the victory of the Islamic Revolution in 1979, was given a broader say and its decisions became binding during the course of the Third Development Plan. The council underwent structural changes in 2006. It is now headed by the minister whose deputies attend its sessions. The council has drawn up a list of Iranian medicinal drugs. Some 30,000 copies of the list are published each year and handed out to members of the medical community. Under Article 93 of the Fourth Development Plan, physicians are urged not to prescribe items which are not on the list. Besides, a detailed list of medications needed in times of contingency and over-the-counter items has been pieced together.

Pharmaceuticals in Iran

In Iran, production of medicinal drugs dates back to ancient times. Herbal drugs have been available to Iranians for centuries. However, the actual production of chemical drugs started after establishment of Dar-ul-Fonun – a famous school in downtown Tehran – and introduction of pharmaceutical courses there. In 1946, advanced pharmaceutical laboratory equipment found their way onto the country's industrial stage.

In the years that followed, more laboratories were established. However they were forced out of the market when multinational companies made their presence felt in pre-Revolution Iran. Despite efforts by some local companies, foreign firms were in full control of the market. Local companies would supply no more than 25% of the country's medicinal drug needs.

Following the victory of the Islamic Revolution in early 1979, several new companies were established. Between 1988 and 1993, the industry was handed over to the private and semi-private sector. In the following years, the stage was set for more private investment in the field. At present, the number of pharmaceutical companies up and running across the country stands at 70, ten of which have been inaugurated in the past eight years alone. Production of feedstock has always been on the minds of officials. To meet that need, a committee was formed in 1997 to oversee the supply of feedstock as well as packaging. The following years saw the ranks of plants producing feedstock swell gradually. In 2008 there were 44 of them up and running.

To support the local industry, a number of measures have been taken in recent years, among them: liberalizing trade, removing state monopoly on production, changing the pricing patterns, slapping tariffs on imported items, setting the stage for closer international cooperation and paving the way for emergence of a hands-off approach to the industry.

Procurement of Needed Pharmaceuticals

Efforts to meet the medicinal drug needs of the nation have always been of the essence at the Ministry of Health and Medical Education. Even in critical times, the health body constantly gives top priority to this objective. In the wake of the Islamic Revolution giant strides have been taken to decently produce and distribute medicinal drugs across the country. Introduction of a new medicinal drug system that excluded brand names has been one of many measures taken to that end. Under the initiative, the list of medicinal drugs available on the market was thoroughly reviewed. As a result thousands of items were removed from the list and imports became limited to the items on the new lists which would not be produced locally. At present, local pharmaceutical companies are capable of producing almost all kinds of medicinal drugs and for more than a 15 years they have been meeting some 95% of all local needs. The fact that new formulas are being developed in the world and local need for such products is not huge means that figure is unlikely to reach 100% ever. In fact the present situation looks ideal.

In 2004, local manufacturers built on biotechnology to produce three new items. And an important project to produce anti-cancer drugs became operational last year.

Presently, local companies produce 1,200 items and the number of production licenses issued by the Health Ministry stands at around 3,800. It comes as the number of basic pharmaceutical elements produced locally has risen to 133 from 18 in 15 years ago.

Production of new drugs such as an anti-AIDS drug called IMOD and Cinnovex are among the latest achievement of the industry in Iran. So far 18 different anti cancer medicine and 10 biotechnological based drugs have been produced in Iran and a number of other related projects in form of joint ventures with multinational companies for producing exclusive medicine and drugs have been already implemented and completed.

Expansion of Medicinal Drug Exports

Exports of locally-manufactured medicinal drugs have always been a long-term objective of the industry and officials in post-Revolution Iran. In the late 1990s when exports of non-oil products became a priority to the Iranian government, exports of medicinal drugs registered a considerable jump. Up until 1997, such exports would bring in up to \$3 million in foreign revenues each year. According to a Customs report, the figure jumped to \$34.5 million in 2003 and Iranian products found their way onto markets in 24 countries around the world. In 2004, the figure stood at more than \$35 million. Total export of medicine to 50 different countries stood at \$60.4 million in 2008.



Development of Natural Drugs

A Natural Drug Council and a Natural Drug Department are up and running in the Food and Drug Division of the Ministry of Health and Medical Education to oversee and expand all activities related to production and imports of natural drugs. Adoption in 1997 of a series of regulations and bylaws along with the warm welcome people and doctors gave to natural medicine saw the number of plants processing natural drugs post a sizeable increase. It also resulted in an ever-increasing inclination of local producers of chemical drugs to put natural medicines on their menu. At present there are 45 plants producing natural medicine and the number of production licenses has risen to 366.

Herbal medicine, products used in alternative medicine, homeopathy drugs and products used in diagnosis of allergies are among natural drugs.

Guarantee of Quality and Effectiveness of Medicinal Drugs



In parallel with development of the industry, measures have been taken to ensure high quality and efficacy of the products finding their way onto the market. Evaluating the quality of products and conducting field inspections through Performance Management System (PMS) and Good Performance Practices (GMP), drawing up a new pharmacopoeia, enforcing a branded generic naming system, and establishing a center to register and review the Adverse Drug Reaction (ADR) as well as quality control laboratories have been some of those measures.

Between 1997 and 2008, PMS was used to evaluate 923 locally-produced items, of which 5.9% failed to qualify. Since inauguration of the center to register and review the adverse drug reaction in 1996, some 18,000 reports on adverse effects of drugs have been collected and registered. In 2005, following a decision by the legal commission overseeing the production and imports of medicinal drugs, the Food and Drug Division of the Health Ministry required drug companies to submit reports on adverse effects of their products.

Implementing a Quality Assurance (QA) system and requiring the companies to register their products and the raw material they use and to conduct bioequivalence tests are among other measures designed to make sure the items that hit pharmacy shelves enjoy high quality. Bioequivalence tests were first conducted in 1991 and became mandatory in 1997. Since then it has increased to 1,076 cases. So far 30 clinical test studies regarding efficacy and side effects of the newly produced medicine in the counting have been carried out.

Availability of Medicinal Drugs



Easing monopoly on production has been a major tool to make medicinal drugs more available to members of the public. The measure, one of many to achieve that objective, comes as efforts are made to raise production levels. Up until ten years ago, the number of medicinal drugs exclusively produced by only one company stood at 500. That figure has now dropped to 220. These items are either new or have a lower consumption pattern across the nation. Elimination of subsidies as far as production is concerned and giving the private sector a more active role have been instrumental in boosting the availability of medicinal drugs too.

Besides, the number of pharmacies across the country rose to 8,000 in 2008 from just 1,800 in 1978. Some 4,000 of these new outlets have been established in the past 15 years alone. Add to that a great number of pharmacies which are up and running in hospitals and health and treatment centers throughout Iran. A plan to mechanize pharmacies is well underway and by March 2005 some 60% of all pharmacies across the country had software and hardware mechanisms designed to facilitate their work. This percentage currently stands at %100. At present, authorities issue a pharmacy license for every 6,000 people living in an area.

The number of companies distributing medicinal drugs has registered a 600% increase over ten years ago to stand at 28. To meet public need for less available medicinal drugs, drug emergency centers began to pop

up across the nation in 2000. The number of these centers is on the rise.

In the 12 months to March 2007, the value of the medicine market in the country stood at \$1.5 billion. During the same period, the average medicine consumption per capita was \$20. A national committee on rational use of drugs (RUD), a center to register adverse drug reaction (ADR) and a number of Drug and Poison Information Centers (DPIC) have been launched across the country to keep an eye on the trend of prescription and consumption.



Medical Education & Research



Integration of Medical Education and Healthcare Service

The plan to create a health and treatment network and integrate medical education into the healthcare system was designed to revolutionize the health machine in the country. The plan which was meant to administer social justice in the wake of the Islamic Revolution by making health services available to members of the public was adopted in 1984. One year later, medical science universities emerged to help train workforce for the health system and to promote health services and standards across the country. The newly-emerged universities could use the valuable technical experience of international organizations such as United Nations Fund for Population Activities (UNFPA), the UN children's agency UNICEF and the WHO. The move which was originally designed to give education and research a shot in the arm and bring academics and field workers closer in pursuit of a lofty objective began to gather momentum immediately afterwards.

It was so successful that the former chief of the World Federation of Medical Education professor Walton – during a visit to Iran in 1993 – described the Iran model which sought closer interaction between academics and field workers as “a model for the 21st century”. He said that an interested world is eyeing Iran's unprecedented integration of medical education into healthcare. The move has drawn admiration time and again from medical experts and international organizations.

In 2001, the World Federation of Medical Education accepted a proposed project involving Shiraz and Shahid Beheshti Universities of Medical Sciences as a pilot project, citing its integration of medical education and healthcare.

At present there are 42 medical and healthcare universities up and running across Iran. They are classified as type I, II, and III. Depending on the focus of their activities, they have different educational, health and treatment divisions and render various services to the public.

Among the achievements of the project the following stand out: training physicians and members of academic boards, improving the overall status of medical education, decreasing organizational positions by 20% to 21,989 and bringing down mortality rates.

Training Needed man-power in Medical Field

In the wake of the Islamic Revolution of 1979, medical education underwent much change. In 1980 and '81 the need for greater medical workforce was badly felt because in some areas there was only one physician per 18,000 population. That was why foreign doctors were on the ground to render medical services to people. In addition, medical students were being trained in specialized hospitals with no affiliation to the healthcare ministry and society at large. That translated into failure of medical education to take account of social aspects of the job. Formation of the Cultural Revolution Headquarters in 1980 saw its medical arm take up the task of reviewing the medical education scheme. After years of survey and research, eventually in 1985, the Ministry of Health and Medical Education was formed. That was followed by emergence of medical sciences universities in 1986. That was how new blood was injected into the health machine and a strong relationship was forged between universities and the healthcare system.

As years passed, the number of medical science universities and faculties in underdeveloped areas began to increase; so did the number of admissions and faculty members. At present the number of medical science faculties across the nation shows a 10-fold increase over 1978 and stands at 150 including 77 which focus on medicine, pharmaceuticals, and dentistry. The number of students who were admitted to medical science universities registered a steep rise in the 80s. In the 90s though, the number of admissions at public and private universities steadied to between 3,500 and 4,500 a year. It takes an MD student seven years to complete the program and at any time some 29,000 students study medicine, pharmaceuticals and dentistry across the country. As for specialized fields, the number of courses and admissions has grown. At present each year some 1,780 residents, 400 sub-specialty and fellowship students, 320 PhD candidates and 820 MS students are receiving training in a wide array of fields. When compared with the total number of students across the country, the percentage of post-grad medical science students stands at 6.5%.





University entrance exams are held each year to admit students across the nation. In 2004, out of 1,437,000 aspirants who took the exam, 564,000 (39%) were admitted. Of that figure, 32,000 (6%) were admitted to universities of medical sciences. During the same year, the total number of university students stood at 2,118,000 and the number of medical students working for public universities was 91,000 as compared with 14,000 in 1978.

In the first decade following the victory of the Islamic Revolution, the ratio of students to people in the 18-24-year age group – who form the central core of university admissions – was in the single digit territory whereas in 2004 it rose to 18.2%. It is expected to rise to 30% in three years time when the Fourth Development Plan comes to an end. During the same period the index involving the number of students rose from less than 500 in 100,000 population to 3,139. Besides, the percentage of those who are admitted after taking the entrance exam has risen to 39% from around 10%. Presently the number of physicians, dentists and pharmacists in the country stands at 90,577, 18,063 and 12,528 respectively (1.3, 0.265, and 0.184 per 1,000 population).

Number of Admissions, Graduates, and Students in 2004-2005

Field	Public/ Private	Admissions	Graduates	Overall No. of Students	No. of MD Students	No. of Specialty Students
Medical Sciences	Public	23,000	24,000	91,000	22,000	8,000
	Private	9,000	7,000	41,500	7,000	800
	Total	32,000	31,000	132,500	29,000	8,800
All groups	Public	253,000	141,500	975,500	30,000	14,000
	Private	311,000	221,400	1,142,500	11,000	3,000
	Total	564,000	362,900	2,118,000	41,000	17,000

Expanding Medical Specialties



Training residents first started at the Medical Science Faculty of Tehran University in the 1950s. The program was then expanded to other major medical faculties. Up until 1985 when the Ministry of Health and Medical Education was founded, the expansion scheme was very limited in scope. Between 1975 and 1985, that trend registered a 20% growth and annual admissions of residents stood at 510. Nowadays, each year some 14,000 general practitioners enter a tight competition to secure a berth among 1,780 who are admitted to 28 specialty courses.

Besides, fellowship specialties and medical subspecialties have grown remarkably. Back in 1978, there were no such courses on offer. But today the number of fellowship courses stands at 41 while the figure for subspecialties has reached 22.

In 1978, PhD courses would be offered in a single field but today 12 universities offer PhD programs in 35 specialized fields. Each year, some 1,600 students are admitted to PhD programs and the number of dentistry specialties has risen to 10. At the same time the number of MS courses offered at 28 universities has risen to 42 with some 820 students admitted each year from a field of 38,000 candidates.

It takes students four years to complete their PhD and specialty programs. Whereas specialized fellowship courses take one year to complete. All those who wish to pursue specialty, PhD, fellowship, subspecialty and MS programs need to take specialized exams. These courses are free of charge. In addition, medical and dentistry residents receive salaries. It should be noted that introduction of new MD and PhD programs comes at the suggestion of medical science universities, after approval by the Supreme Planning Council which takes account of existing rules and standards to give a new course the go-ahead.

Sending Students Overseas; Exchange Programs

The Ministry of Health and Medical Education always tries to introduce courses which are crucial to meet

local needs, but at times students are sent to take courses overseas; such a measure should be in keeping with a parliamentary act of 1985.

Each year between 40 and 60 students are sent overseas on long-term scholarships. Since 1990 a total of 2,007 students have been sent abroad to take various courses. That figure includes 227 students who have gone abroad for specialty and subspecialty courses and 1,260 for PhD programs. Recent years have seen a rise in the number of specialized course offered in Iran and as a result the number of students who go abroad on long-term programs has decreased. Instead more emphasis has been placed on sending specialty students and faculty members overseas for short-term courses.

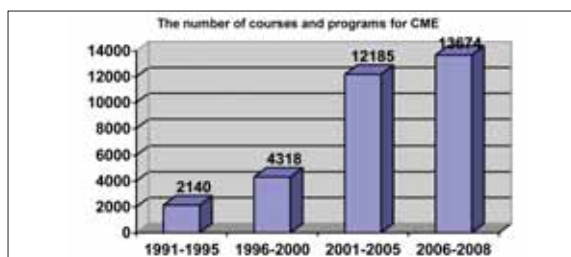
At present PhD candidates and the students who rank high on subspecialty programs are sent overseas for a 6-month complementary program. In parallel, the number of students who receive local scholarship is on the rise. Students who are sent abroad should take a test first. They are then offered four years of free of charge services. Of course these students are just allowed to further their education in universities approved by Iran.

Approval of foreign universities requires repeated inspections and evaluation and their strict compliance with educational standards. The number of medical universities which meet Iran's criteria stands at 300. They are located in 30 countries. Most of the Iranian students have been sent to Britain (810), Canada (340) and Australia (221).

To promote scientific and cultural exchanges, Iranian medical science universities play host to a number of non-Iranian students each year. At present there are more than 2,200 students – 589 of them have been offered scholarship – from 44 countries studying medicine in 15 Iranian universities. In 1997, the figure stood at no more than 400. The amount of money allocated to foreign student programs has risen 35 times over 1989 and in the past four years some 13 billion rials has been spent on such programs.

At present new regulations are being drawn up as far as admission of foreign students is concerned. The tuition fee for language courses attended by foreign students is paid and special facilities are on offer.

Under provisions of the Third and Fourth Development Plans, universities are allowed to admit foreign students by no more than one fifth of their official capacity. Such admissions should be paid for by the foreign students themselves.



Promotion of Medical Education Quality

After planning to meet local need for medical workforce, in the 1990s officials decided measures were required to ensure quality and make proper evaluation. As many as 11 articles of the Third Development Plan called for promotion of medical education qualitatively and put forth executive recommendations to pursue that objective.

To that end organizational changes were introduced at the health ministry and medical science universities. Creation of medical education development centers in 1997 and establishment of skill labs in most universities were followed by emergence of several secretariats, workforce studies units, planning committees, a headquarters to render better services to faculty members, etc.

Also to improve the quality of medical education, recent years have seen the implementation of programs to moderate the admission capacity, develop new post-grad and PhD programs, set the stage for faculty members to go on sabbatical, review the education syllabus, employ new education techniques, review educational regulations, modify testing standards, and activate specialized associations.

The number of faculty members in universities has registered a 440% hike over 1978 to stand at 13,108 while the ratio of students to faculty members is 10. In the late 1980s, the figure stood at 17. Organizing between 200 and 250 medical seminars, congresses and workshops, increasing the number of medical journals and raising the salary of faculty members by 300% have also been meant to give education a shot in the arm. As compared with the decade ending in 1994, the number of university hospital beds showed a 600%

increase and stood at 68,000 as the ratio of university hospital beds to students rose from less than one to two. In 2001, the number of beds in university hospitals stood at 75,000 and has since grown remarkably. In pursuit of the overall objective, several measures have been taken in recent years among them implementation of a national plan to improve the quality of education, a comprehensive scheme to maximize the effectiveness of faculty members, a grading program involving medical education services – the results of which have been published in 10 volumes – a plan to standardize specialty medical education, a program to pinpoint the scientific heavyweights of medical education, and another to evaluate the workings of universities. Creation of a distant learning network for faculty members is another such measure.

The fact that Iran accounted for 37 of the 174 articles and posters presented by scientists from 74 countries at a four-yearly conference of the World Federation of Medical Education in Denmark, shows Iran is quite serious in its bid to improve the quality of medical education. And the president of the Federation described the move as a sign of dynamism in Iran, expressing hope he would visit Iran to get a first-hand account of the medical education system here. Also in recent years, decentralization schemes, delegation of more authority to medical science universities, recognition of university independence, approval of a plan to create university board of trustees along with more curricular planning have been instrumental in improvement of education quality.



Continuing Medical Education (CME)

Taking into consideration the fact that medical education directly benefits members of the public, a motion to offer refresher courses to physicians was tabled in the Islamic Consultative Assembly in 1989. After being amended, in September 1990, the chamber gave it the green-light to be implemented on an experimental basis for five years.

When the first experimental run was over, the chamber evaluated the program and approved a final version in April 1995. During the first five years of its implementation – between 1991 and 1996 – quality was of paramount importance and all organizations, centers and universities were allowed to have their own programs to bring themselves up to date. During the 5-year period, more than 2,140 courses were organized. The number of such courses for general practitioners stood at 898, dentists 224 and pharmacologists 205. In all some 43,000 people attended those courses.

During the second 5-year plan (1996 – 2000) which focused on reinforced evaluation, officials reviewed the overall performance of the first period and took measures to further improve quality. During the second phase, 4,398 courses and programs were organized. The third stage of the plan which began in 2001 and is still ongoing has seen a significant jump in the number of programs. More than 12,000 courses were held in the form of seminars, scientific get-togethers, workshops, self-study programs and short-term vocational courses. In last three years (2006-2008), the number of these courses registered over to reach 13,674.

In recent years, research projects have been expended, universities have been urged to pay more attention to research, a national plan has been adopted to regularly evaluate the outcome of such education and most medical science universities have been authorized to hold such programs. Besides, the executive guideline for establishment and organization of continuous training courses was adopted in 2007 and since then the relevant courses have been carried out accordingly.

The plan to Continuing Medical Education is a major success for the Islamic Republic of Iran. It has drawn admiration from several international organizations and has played a key role in promoting the quality of medical education in the country. At present all physicians and medical specialists need to secure at least 125 points in a five-year period – 25 points each year – to have their private practice licenses renewed.

Expansion of Medical Researches

Although up until 40 years ago, some scientists and research institutes managed to improve the quality and quantity of medical research in Iran, research was far from institutionalized in universities and other institutes of higher education and most research activities were carried out individually.

Foundation of the Ministry of Health and Medical Education and subsequent creation of a research division, paved the way for health system research. To that end, a number of measures were taken across the nation, particularly in medical science universities. Increasing the research budget from 0.1% to 0.4% during the course of the First Development Plan and subsequent rise of that figure to 2% in the Second Development Plan, creating national scientific research councils, establishing an office to liaise with the industry sector, setting up student research committees, promoting the culture of research and offering better services to the elite and top researchers have been among those measures.

In the past four years alone, some 8,800 medical researchers have attended 275 educational workshops. In 1991, following a decision by the Scientific Research Council, a charter was drawn up to establish research centers across the nation. That decision paved the way for emergence and subsequent development of medical research centers in the country. At present there are more than 203 medical research centers across Iran, up from a mere four in 1994. There are also 11 medical research networks focusing among other things on molecular medicine, biotechnology, nanotechnology, cancer, neurology and traditional medicine. Each of these networks has a number of affiliates. Clinical research centers were first launched in 2002. In 2006 alone, 24 such centers were established in medical science universities across the country. Currently 30 clinical research centers are doing their job in the country. Besides the population research bases were expanded and seven centers were set up to produce medicinal, biotechnological genetic engineering products and equipment used in medical research.

In recent years, an annual average of between 4,500 and 6,000 MDs, 700 to 1,800 specialists and sub-specialists, 300 to 750 MS and PhD students have graduated from medical science universities across the country. The ranks of faculty members have swollen 4.4 times over 1978 to stand at 13,108. This, in turn, has resulted in a remarkable increase in the number of researchers.

The stage has been set for top researchers and faculty members to go on sabbaticals. Nine research centers play host to faculty members who are on sabbaticals inside the country. The quality and quantity of medical articles are among top indicators when it comes to evaluation of research. In the three five-year periods following the victory of the Islamic Revolution medical articles accounted for 9, 28 and 63 percent of all articles presented in the country. The number of medical journals posted a dramatic rise too. In 1997, the number of such journals stood at nine; it has now risen to 142. It comes as the number of Iranian medical articles published by world-known journals has posted a 1,000% increase over a six-year period to stand at 7,347.

Among other measures taken to shore up research are increasing the amount of money spent on purchasing foreign medical journals for faculty members, allocating more funds to medical exhibitions, improving the medical information dissemination system, establishing a modern statistics system and holding medical research festivals.

In addition to medical science universities, Iran's Pasteur Institute and research centers affiliated to University Jihad play a role in medical research. Development of various vaccines and the stem cell technology has been among their major achievements. It is to be mentioned that in relation to the health, management and resources development an applied secretariat has been established which is in charge of carrying out relevant applied research activities.

Information Technology in Medicine

Since putting information to good account is a key pillar of scientific and social development, creation and development of a well-organized information network to improve the healthcare system has been on the agenda. In order to make as much data available to those who seek medical information, the Ministry of Health and Medical Education has taken a number of measures to support education, information dissemination and research, boost libraries and create networks that offer such information.

So far 62 medical information centers have been set up in the country. Schemes to create a national e-library, make resource sharing possible and render document delivery services are being implemented as pilot projects in some universities across the nation. Medical information is available on the web in 23 universities and in three others the document delivery service is on offer. The ratings of universities on the basis of their compliance with standards have changed and a healthcare e-library is in the making.





Commissioning the ministry's portal system, establishment of the administrative automation system and development of the management system for disseminate information on the health and treatment sector (MIS) is one of these activities.

Medical databanks are being created. The information system already has ten major and four secondary bases. The base allocated to foreign medical publications includes records of 24,000 books and journals. The one which brings together both Farsi and foreign books has 9,200 records. There are more than 4,000 dissertations in another base. The number of records in the laser disc and medical researcher bases stands at 3,600 and 11,000 respectively, while the library base has 430 records.

All medical science universities and health ministry divisions as well as their affiliates have their own websites. In addition, there are other websites dedicated to healthcare information, youth healthcare, food and drug databanks, and medical equipment information. The health and biomedical information (HBI) website has up to 5,000 pages and includes 270 books. New medical software is being developed as measures are taken to work out administrative automation systems and install a fiber optic network in pilot hospitals.

Creation of electronic health records, student health certificates, registries for patients who undergo heart surgery and those who suffer from chronic kidney disease as well as the people who wrestle with special diseases, establishment of a national health portal and inter-hospital information exchange systems, development of new telephone and postal services, installation of wide and local area networks (WAN and LAN) at the central headquarters and medical science universities as well as creation of wideband are among measures designed to bring information technology on board.

Development of Stem Cell Lines



In 1998 following stem cell research, the Council on Expansion of Medical Science Universities gave the go-ahead for establishment of Rooyan Research Center. The center which had 10 faculty members and 13 experts focused its attention on embryology, genetics and stem cells. It has so far had 29 articles published in international publications, and an additional 104 in local scientific journals. In addition, the center has had some 200 presentations at scientific conferences at home and abroad, conducted 108 basic and clinical researches, hosted 60 MS and PhD students completing their dissertation, released a scientific journal on cell research – both in Farsi and English – and compiled and translated seven books.

After a decade of activity, the stem cell division was established in 2001 – 2002. The focus of its attention was to divide embryonic stem cells into categories such as cardiac muscle cells, beta cells of pancreatic islets and nerve cells. The center brings together research groups focusing on mature and embryonic stem cells, nerve cells, beta cells, germ cells, cardiac cells, liver cells and on physicochemical factors. Experts working at this center have one goal in mind: turning Iran into a pioneer of stem cell research in the region and enabling it to make progress at the same pace as developed countries in the world.

Development of human and mouse embryonic stem cell lines, transplantation of these cells into heart, eye and liver, establishment of an umbilical cord blood bank, and cloning sheep and cow embryos and transferring them to the womb are among the most important achievements of the center. After years of efforts, the center is now able to apply its scientific findings to clinical studies involving treatment of patients. The center's first clinical study in 2005 involved the transplantation of bone marrow stem cells into 18 patients who had suffered acute strokes and volunteered to undergo cardiovascular surgery. Results of the study conducted in cooperation with Tehran Heart Center have been published in world-famous publications. Another study involving cells with CD34 has been successfully conducted on patients suffering from cirrhosis. Results show that the procedure is safe and effective. That means Iran does have the potential to implement clinical studies involving therapeutic cells. Presently the center is conducting seven studies in cooperation with different research centers on effectiveness of stem cells in treatment of diseases such as ischemia and conditions affecting the heart, peripheral vessels, the liver, kidneys and eyes.

The umbilical cord blood bank had two applications: 1. Registered volunteer women hand over samples of their umbilical cord blood to the bank after they have given birth to babies. If preliminary tests proved the sample effective, it would be stored in the bank. Three years after the inauguration of the bank, there

are some 1,700 samples stored in the facility. So far at least four families have asked to use the blood. The samples are stored for 15 years.

2. The umbilical cord blood which is normally disposed of at hospitals is made available to those who may need it. Of course storage comes after the go-ahead of parents has been secured.

Therapeutic cloning to transplant tissues and organs, establishing a stem cell lines bank and setting up a cytotherapy center are among achievements in this field.



References

1. Healthcare in the Islamic Republic of Iran by Dr. Alireza Marandi, Dr. Fereydoon Azizi, Dr. Bagher Larijani, and Dr. Hamid Reza Jamshidbeigi
2. Health Indicators in the Islamic Republic of Iran by Dr. Mohammad Esmail Akbari
3. Twenty-four Outstanding Projects of the Ministry of Health and Medical Education by Dr. Majid Akbari
4. National Report on Higher Education By the Ministry of Science, Research and Technology
5. The Ministry of Health and Medical Education in Mirror of Judgment published by the Public Relations Department
6. Performance Report of the Ministry of Health and Medical Education (1997-2000) published by the Public Relations Department
7. Outlook of Four Years of Service published by the Public Relations Department
8. Performance Report of the Education and Student Affairs Division (2001-2004)
9. Analytical Report of the Food and Drug Division (1997-2005)
10. Reports by different bureaus and departments of the Ministry of Health and Medical Education
11. HIV/AIDS in the Islamic Republic of Iran by Dr. Majid Akbari and Dr. Abbas Sedaghat
12. The Constitution of the Islamic Republic of Iran
13. The Fourth Development Plan of the Islamic Republic of Iran
14. The Third Development Plan of the Islamic Republic of Iran
15. A Report on the Performance Abuse Prevention & Treatment Office (SAPTO) by Dr. Mohsen Vazirian
16. Picture of Health in the Islamic Republic of Iran by Dr. Abbas Zarenejad and Dr. Majid Akbari