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ORIGINAL RESEARCH

Occupational Health Services Integrated in Primary Health Care in Iran

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Abstract

INTRODUCTION A healthy workforce is vital for maintaining social and economic development on a global, national and local level. Around half of the world's people are economically active and spend at least one third of their time in their place of work while only 15% of workers have access to basic occupational health services. According to WHO report, since the early 1980s, health indicators in Iran have consistently improved, to the extent that it is comparable with those in developed countries. In this paper it was tried to briefly describe about Health care system and occupational Health Services as part of Primary Health care in Iran.

METHODS To describe the health care system in the country and the status of occupational health services to the workers and employers, its integration into Primary Health Care (PHC) and outlining the challenges in provision of occupational health services to the all working population.

FINDINGS Iran has fairly good health indicators. More than 85 percent of the population in rural and deprived regions, for instance, have access to primary healthcare services. The PHC centers provide essential healthcare and public-health services for the community. Providing, maintaining and improving of the workers' health are the main goals of occupational health services in Iran that are presented by different approaches and mostly through Workers' Houses in the PHC system.

CONCLUSIONS Iran has developed an extensive network of PHC facilities with good coverage in most rural areas, but there are still few remote areas that might suffer from inadequate services. It seems that there is still no transparent policy to collaborate with the private sector, train managers or provide a sustainable mechanism for improving the quality of services. Finally, strengthening national policies for health at work, promotion of healthy work and work environment, sharing healthy work practices, developing updated training curricula to improve human resource knowledge including occupational health professionals are recommended.

KEY WORDS health care system, occupational health services, Iran, primary health care

INTRODUCTION

The 18th largest country in the world in terms of area at 1,648,195 km, Iran has a population of 77,447,000, which makes it one of the most populous countries in the Middle East region. It is a country of particular geostrategic significance as a result of its location in the Middle East and central

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Eurasia. Iran has borders on the north with Armenia, Azerbaijan, and Turkmenistan. Because Iran is a littoral state of the Caspian Sea, which is an inland sea and condominium, Russia and Kazakhstan are also accounted as Iran's direct neighbors to the north. On the east Iran is bordered by Afghanistan and Pakistan, on the west by Iraq, on the northwest by Turkey, and finally on the south by the Persian Gulf and the Gulf of Oman. Tehran is the capital, the country's largest city, and the political, cultural, commercial, and industrial center of the nation. Iran is a regional power and has an important role in international energy security and the world economy as a result of its large reserves of petroleum and natural gas.[1,2]

Health Care System in Iran. Health care in Iran primarily is divided in 3 main sections: the public-governmental system, the private sector, and nongovernmental organizations. The health care and medical sector's market value in the country was almost US$24 billion in 2002 and then raised to US$31 billion by 2007; total health care spending was expected to rise to $50 billion by 2013, which reflects the increasing demand on medical services. Total health spending was 6.7% of gross domestic product in Iran in 2013 and more than 90% of the population has access to primary health care. According to the World Health Organization (WHO), in 2000 Iran ranked 58th in health care and 93rd in health system performance worldwide. In 2013, Bloomberg ranked Iran the 45th most efficient health care system, ahead of United States and Brazil. The report also states that life expectancy in Iran is 73 years with $346 per capita spending on health care. Data show the health status of Iranians has improved over the last 2 decades, and Iran was able to extend its public health preventive services through the establishment of an extensive primary health care (PHC) network. As a result, child and maternal mortality rates have fallen significantly and life expectancy at birth has risen remarkably.[3–5]

Health Network. Iran has a well-structured health care system; basic health care is available to the entire population and guaranteed by the Iranian Constitution. According by a WHO report, since the early 1980s, health indicators in Iran have consistently improved, to the extent that it is comparable with those in developed countries.[6] Life expectancy is estimated at 75.9 for women and 72.1 for men, an increase of more than 20 years since 1975,[7] and infant mortality in rural areas has quartered over the same period.[8] In fact, the Iranian health care system is highly centralized; most decisions are directly made by the Ministry of Health, Treatment and Medical Education (MOHME), which is in charge of provision of health care services through its network, medical insurance, medical education, supervision and regulation of the health care system in the country, policymaking, production and distribution of pharmaceuticals, and research and development. Therefore, the MOHME is the main policymaking body, and it has a directorate responsible for preventive programs; its performance has been very good in recent years.

At the provincial level, the universities of medical sciences and health services are responsible for providing health services occupational and environmental health. Beside the universities of medical sciences, part of the services are provided by insurance companies and social welfare organizations' provincial and district units. The peripheral units (health houses/rural health centers) offer health services free of charge. An elaborate system of health network has been established that has ensured provision of PHC to the vast majority of the public. There are also many nongovernmental organizations active in health issues in Iran, primarily in special fields such as pediatric cancer, breast cancer, diabetes, and thalassemia.[6,9]

Primary Health Care. PHC was established in Iran in 1978 and is known as part of the national infrastructure for providing health care services. In this system, the health house, the most peripheral rural health facility, covers approximately 1500 people who live in the main and satellite villages. The number of villages covered by a health house depends on population, cultural, climatic, geographical conditions, and especially routes of communication. Each health house is staffed by a female and a male *behvarz* (community health worker).

Rural health centers (RHCs) are public health facilities run by a general physician and a number of health technicians. RHCs monitor and guide the activities of the health houses, provide outpatient care, and refer cases, if needed, to the district hospitals. It is estimated that 19,000 health houses and 3000 RHCs are responsible for delivering PHC services to the rural inhabitants throughout the country.

Basic PHC includes 4 levels of services: urban health centers; urban health posts (HPs); rural health centers, which have a physician and other health workers (eg, nurses, midwives, dental technicians, environmental health workers) supervising a number

of health houses with a population base of 9000; and finally, rural health houses, which cover populations of 1500 and are staffed by *behvarzes*.

Urban health centers (UHCs) are established in cities and cover 1 or more HPs, depending on population density. UHCs are similar to rural ones and have HPs under their supervision, staffed by midwives and public health technicians. The main difference between urban and rural health centers lies in the fact that patients may directly attend the former (without referral from an HP). HPs/UHCs are responsible for training volunteer female health workers (WHVs) who each cover 50 families in the neighborhood and are responsible for health education, data collection, encouraging families' utilization of health services, contributing in research activities, and conducting social and development activities. At present it is estimated that approximately 1000 HPs, 3000 UHCs, and 120,000 WHVs deliver PHC services to urban inhabitants.

The UHCs' main duties are data collection, assisted by WHVs (who have influence on the speed and accuracy of data); classification of data and reporting to the higher stage District Health Center; monitoring, follow-up, and implementation of the health programs in responsible area; participation in orientation of the medical students with Demographic and Health Surveys (DHS); performing the required laboratory tests (if the private sector is unable to deliver such services); assisting in antenatal care; visiting patients and, if necessary, referring them to the hospital; undertaking primary oral health care services (especially for school-aged children); and performing epidemiological surveys. HPs, with facilities similar to the health houses, are established in cities; all the health services provided by health houses in villages are the responsibilities of HPs in urban areas, with some modifications.

Duties of RHCs can be summarized as collection, control, and classification of data and reporting to upper level management; monitoring, following up, and implementing health interventions and programs; conducting outpatient visits; participating in educational activities; dispatching mobile teams to outlying villages; and cooperating in research activities (Fig. 1).

Occupational Health History in Iran. At present, the Environmental and Occupational Health Center is responsible for supervising occupational health programs and activities at national level. With approval of the new labor law passed in November 1979 and to invoke Article 85 of this Act, MOHME was responsible for overseeing on health issues of workers and workplace and Ministry of Labor and Social Affairs was responsible for inspection of safety and protection of workers.

Occupational Health Services as a Part of PHC. Currently a number of countries are reforming their health systems based on the values and principles of primary health care to improve service delivery and cost efficiency and also to ensure equity. Therefore, the main objectives focus on the following principles: universal coverage, people-centered

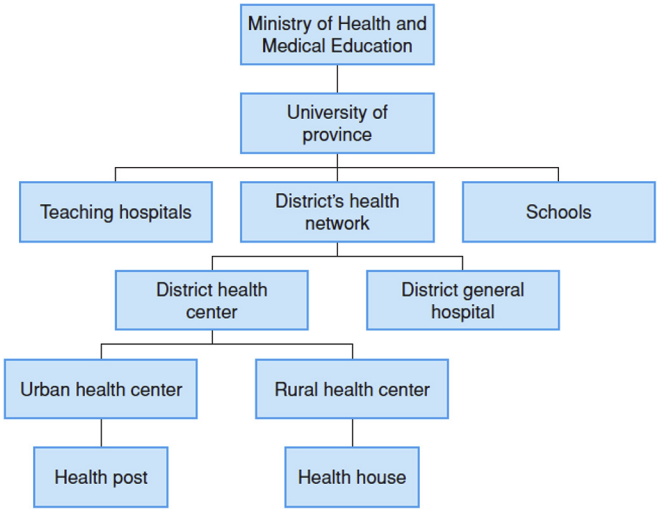

Figure 1. Health System in Iran. (Reproduced with permission from Mehrdad 2009.[3])

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care, participatory leadership, and health in all policies. The Hague conference emphasized a strategy of reaching more workers by integrating basic occupational health care within primary health care.[10] On this basis, the main elements are summarized as (i) training primary health care professionals to recognize early work-related ill health and to advise about improving working conditions and health at work; (ii) linking primary health care centers and occupational health care services under local primary care; (iii) financial arrangements for human and technological capacity; (iv) the setting of a research agenda and promotion of good practices; (v) developing national plans for the health of workers, involving professionals of primary health care and occupational health care and key stakeholders in society.

In general, the term *occupational health service* refers to a department or other administrative unit in charge of occupational health and usually safety as well. In Iran, occupational health problems are among the main public health concerns; thus, integration of occupational health services into existing public health services at all levels is particularly important in the country. Providing, maintaining, and improving workers' health are the main goals of occupational health services in Iran, which are presented via different approaches and mostly through workers' health houses (WHH).

In this system, WHH *(behdashtyar)* are responsible for the workplaces with 50-500 workers, *behgar* for workplaces with 20-50 workers, and the labor health center for 500 and more workers. In workplaces with more than 25 employees, Technical Protecting and Work Hygiene Committees are responsible for providing occupational health and safety services.

Workers of health houses, as part of Iranian PHC, follow important goals that can be summarized as increasing first aid services and protective measures, reinforcing of governmental intersectoral cooperation (among Social Insurance Organization, Ministry of Labour, and Ministry of Health, Treatment and Medical Education in order to provide training, guidance, physical space and medicine supply for WHH and other facility supplement), increasing employers' belief in WHH benefits in a cost-benefit evaluation, improving knowledge of workers about the health and safety, preparing sufficient budgets for broadcasting programs in order to health promotional goals, and reducing accident rates and work-related diseases.

The objectives of an occupational health unit can be summarized as (i) to provide leadership, support, and technical services to employers and employees in all areas relating to health and safety at the workplace; (ii) to develop the standards, procedures, reporting systems, and policies necessary to promote occupational health and safety practices and to monitor compliance with them; (iii) to evaluate, treat, and limit temporary or permanent disability resulting from injury or illness occurring in the workplace; (iv) to detect health hazards and assist the responsible managers for the working units and employees to find proper solution for the hazards before an injury or illness occurs; (v) to assist employees in controlling personal health problems and living in healthy conditions to enhance their quality of life, productivity, and well-being.[11]

Data regarding Iran's occupational health organizations during the years 2009-2013 are compared in Table 1. Table 2 lists some indicators relating to occupational health programs in the country.[12]

In addition to these general indicators, every special program and agricultural health program has its own specific indicators. According to MOHME data,[12] a few of these indicators are as follows:

- Percentage of farmers who got training in occupational health (54%).
- Percentage of improved agricultural workshops (9.6%).

Table 1. Occupational Health Formation at the Workplace in Iran

Name	Year				
	2009	2010	2011	2012	2013
Behgar station	1806	1812	1732	1648	1772
Worker health house	1472	1598	1774	1990	2168
Health center	328	364	431	371	387
Protection committee	5324	6734	7610	7828	8184
Occupational health consultant	510	524	832	4997	5250

Table 2. Some Indicators for Occupational Health Programs in Iran

Indicator	Percentage
Workplaces with health license	77%
Workplaces that are covered with occupational health services	57%
Employees identified in the workplaces with occupational health services	81%
Employees covered with medical exams due to health surveillance activities	35%

- Percentage of farmers who make use of personal protective equipment (34%).
- Percentage of medical examined farmers (57%).
- Percentage of agricultural health committees to be held (provincial and district, 35% and 37%, respectively).

Occupational Diseases at a Glance. It is estimated that developing countries account for about 84% of global population, 90% of global disease burden, and 20% of global gross domestic product, but only 12% of global health spending. The ongoing health transition in many developing countries, which includes demographic changes such as lower fertility and longer life expectancy, as well as epidemiological changes, such as shifting burden of illness toward noncommunicable diseases and injuries, will have profound effects on the quantity and type of health services needed. These trends will increase cost pressures on health care systems in most developing countries.[13]

In Iran as in some other developing countries, communicable diseases are no longer major causes of mortality, accounting for less than 5% of deaths as a result of health transition, thereby changing patterns of morbidity and mortality. Ischemic heart disease and traffic-related accidents are responsible for one third of deaths in the Islamic Republic of Iran. The MOHME reports that heart conditions account for 38% of deaths and reduce life spans by 23.4%. On the other hand, about 18% of deaths result from injuries, which claim 50,000 lives each year. In 2008, the prevalence of cancer was estimated at 100 cases per 100,000 population, responsible for 11.86% of healthy life years lost. According to a review of risk factors for noncommunicable disease in 2005, lack of physical activity (69%) is the leading major contributor to cardiovascular diseases, followed by cholesterol levels of more than 200 mg (44%) and being overweight (28%). Smoking habits are mostly seen in men rather than women and are more prevalent in the 35-54 years age group. In terms of risk factors, obesity, arterial hypertension, inadequate physical activity, hypercholesterolemia, and addiction are the 5 risk factors causing the highest proportion of risk factor burden (68%).[14]

According to the Global Burden of Diseases, Injuries, and Risk Factors study in 2010, "which is a collaborative project of nearly 500 researchers in 50 countries led by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington, the largest systematic scientific effort in history to quantify levels and trends of health loss due to diseases, injuries, and risk factors," occupational diseases in Iran were among the top 10 leading risk factors attributable to burden of disease expressed as a percentage of disability adjusted life years. The main risk factors were dietary risks, high blood pressure, high body mass index, physical inactivity, smoking, high fasting plasma glucose, ambient nighttime pollution, high total cholesterol, occupational risks, and drug use.[15]

Mehrdad et al carried out a survey related to epidemiology of occupational accidents in Iran.[16] They reported that in 2008 the occupational accidents rate was 253 per 100,000 workers, and 98.2% of injured workers were men. The highest percentage belonged to the 25-34 years age group. According to this study, most accidents occurred in the basic metals, electrical and nonelectrical machines, and construction industries. Falling from a height and crush injury were the most prevalent accidents. The authors proposed using appropriate protective equipment and establishing safety worker trainings as essential prevention strategies.

Another study by Vigeh and Mazaheri indicated that the most reported diseases according to the surveillance system are musculoskeletal disorders, respiratory disorders, and noise-induced hearing loss.[17] Occupational injuries remain an important problem, but under-reporting is an issue. They reported that in 2006, 20,000 workers had occupational injuries, with particularly high rates in Tehran and Isfahan.

DISCUSSION

Iran has fairly good health indicators. More than 85% of the population in rural and deprived regions,

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for instance, has access to primary health care services. In the past 3 decades, the Islamic Republic of Iran has adopted a policy aimed at more strongly addressing the needs of its population, and substantial progress has been achieved both in the social and economic sectors. Since the revolution in 1979, a PHC network has been established throughout the country. In rural areas, each village or group of villages contains a health house, staffed by trained community health workers. These health houses, which constitute the basic building blocks for Iran's health network, are the health system's first point of contact with the communities in rural areas. According to a WHO report about basic occupational health services in Iran, "collaboration between occupational health services and primary health care is important for serving workers in less organized sectors such as agriculture, small-scale enterprises, the self-employed and the informal sector, as well as migrants. It is important to recognize that the primary health care sector is already heavily loaded providing the key primary health care services; thus, sufficient resources, including secondary level support, need to be provided. The Iranian model uses primary health care units at different levels."

Service providers are community health workers in rural units and female volunteers and nonspecialist general practitioners in urban units.[18]

According to MOHME, the number of industrial units have increased rapidly in recent years, but the number of occupational health experts and inspectors has not increased respectively, and this is a challenge for occupational health care (eg, it seems that there are some limitations for providing occupational health services to miners and agricultural workers through PHC network). In Iran there are about 2 million work units with 16 million employees, including service workers (45%), agricultural workers (30%), and industrial workers (25%). Unemployment is estimated to be 11% and is particularly high among women and young workers. Overall, occupational health services is a complex system with overlapping responsibilities among the coresponders, and its improvement needs well-organized collaboration among medical universities, industries, and governmental agencies and reliable basic data.[19]

CONCLUSIONS

One of the main goals of integrating occupational health services in PHC in Iran, as mentioned also at the Hague conference,[10,20] is access to basic health services and prevention of occupational and work-related diseases and injuries for all workers at all workplace. In addition, further research in modern industries, occupational health management, and development of guidelines are becoming more important in the country. However, incomplete basic data regarding occupational health and insufficient control of workplaces will affect the research.

To improve planning, there is a need to provide and distribute data and information to decision makers at the national level. Another important issue is a simple training curriculum that must be provided to train health workers at workplaces. Development of occupational health standards, establishment of a registry system, and development of human resources and occupational health should be considered vital elements of the national health strategy. Strengthening of national policies for health at work; promotion of healthy work and work environments involving employer, worker, and government collaboration; and sharing of healthy work practices to develop updated training curricula to improve human resource knowledge, including occupational health physicians and occupational hygienists, are recommended. Establishing WHO collaborating centers to support and facilitate regional member states' development of employers' policies on occupational health and safety seems a priority.

Finally it is believed that the main core of sustainable development is human resources, which should be healthy and productive. We hope to achieve these goals by increasing workers' access to occupational health services throughout the country.

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