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The Integration of Medical Education and Health Care Services in the I.R. of Iran and its Health Impacts

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Abstract

Prior to the Islamic Revolution, there was hardly a health care "system" in Iran. Preventive health care was very limited, and a fairly decent curative care could only be found in Tehran and, to a lesser extent, in a few large cities where a great majority of the 12-14 thousand Iranian physicians were practicing. In 1985, according to the law, all health-related schools and institutions were taken away from the Ministry of Higher Education and were integrated into the Ministry of Health, forming the Ministry of Health and Medical Education. In 1994 provincial health organizations and the universities of medical sciences were integrated, and universities of medical sciences and health services were established. Since then, the chancellors of these universities are not only responsible for education and research, but also for the health care of their entire province. As a result of the integration, research has become more public health oriented and medical education more community oriented. The integration has also led to an improvement in the health situation of the country; particularly in the villages, remote areas and less developed provinces.

Introduction

Prior to the Islamic Revolution, there was hardly a health care "system" in Iran. Preventive health care was very limited, and a fairly decent curative care could only be found in Tehran and, to a lesser extent, in a few large cities where a great majority of the 12-14 thousand Iranian physicians were practicing. Those people living in small towns and large villages had to seek the advice of expatriate physicians speaking a different language. Poor people in general and particularly the residents of over 65,000 villages had virtually no access to medical care.

When the Islamic Revolution materialized, naturally people began to expect better health care; however, before long the imposed war began, leading to heavy daily civilian casualties on the one hand and the emigration of a fair number of Iranian physicians, on the other. To achieve **Health for All**, the Ministry of Health started to establish a primary health care system throughout the country, but the main problem was inadequate health humanpower.

The number of medical schools, including the newly established ones, was nine and the number of students admitted annually was 1,207, which was far too low and despite all its efforts, the Ministry of Higher Education was unable to increase the number of admissions. Also, every year the country was losing a large number of medical school graduates to the U.S. and a few European countries. The ratio of physicians to the population of the country was 1/2800. With the exclusion of Tehran, the ratio was 1/4000, and in some provinces, it was as low as 1/18000. In a number of provinces, there was not even a single practicing obstetrician, anesthesiologist, etc.

At this point, the High Council of Cultural Revolution was established, with the main goal of bringing about major reform in higher education. The medical branch of the High Council, which consisted of university professors, and health and education experts, gave consideration, in detail, to the future of health and medical education. They reviewed nearly 200 proposals received from university professors and other experts. The Council finally concluded that one of the main obstacles depriving people of appropriate health care was the fact that the health care system was separated from medical education. Therefore, the final decision

was to integrate the entire health-related education program into the Ministry of Health.

In 1985, according to the law, all health-related schools and institutions were taken away from the Ministry of Higher Education and were integrated into the Ministry of Health, forming the Ministry of Health and Medical Education (MOH & ME). Almost simultaneously, at least one university of medical sciences (UMS) was established in each province.

The chancellors of these universities were appointed as representatives of the Minister of Health and Medical Education, who in turn had the authority of appointing the director general of the provincial health organizations.

Finally, in 1994 provincial health organizations and the universities of medical sciences were integrated, and universities of medical sciences and health services (UMS & HS) were established. Since then, the chancellors of these universities are not only responsible for education and research, but also for the health care of their entire province.

As a result of the integration, research has become more public health oriented and medical education more community oriented. The integration has also led to an improvement in the health situation of the country; particularly in the villages, remote areas and less developed provinces.

Medical Education before the Revolution

Prior to the Islamic Revolution, there were nine medical schools in Iran, two of them fairly newly established. Three schools were located in Tehran, and the rest in the larger cities of Iran. The total number of students admitted to those schools was 1,207 annually. The number of other health-related schools such as dentistry, pharmacy, nursing, and midwifery were even more limited. Those health-related schools were also located mainly in Tehran and a few larger cities of Iran. The total number of health-related faculty members was 2552.

The curricula and quality of medical education was unrelated to the health situation and the needs of the community. In fact, the quality of education was measured on the basis of the percentage of the medical school graduates passing the ECFMG Exam and being accepted in U.S. residency training programs. The Medical School of Shiraz University (then called the Pahlavi University), was proud to have an average of 91% of their graduates accepted in U.S. residency programs. The Medical School of Tehran University, as the oldest and the largest medical school in the country, accepted 300 students annually, and was second in the percentage of graduates lost to the U.S. residency programs. Unfortunately, at that time the road to the United States and a few Western European countries was a one-way road and almost none of our graduates returned. Due to the fact that medical students were being trained mainly in sophisticated university hospitals, they were not capable of responding to the everyday needs of the community. In other words, the medical schools did not feel responsible toward or accountable for the broader needs of the country. Due to the loss of so many Iranian physicians, foreign physicians, who did not even know the local language, had to be hired.

The Health Care System before the Revolution

Prior to the Islamic Revolution, there was hardly a health care "system" in Iran. Preventive health care was very limited and services was not accessible to everyone particularly the poor and underprivileged. A fairly decent curative care system could only be found in the capital city of Tehran and, to a lesser extent, in a few large cities where a great majority of the 12-14 thousand Iranian physicians were practicing.

Those people living in small towns and large villages had to seek the advice of foreign physicians who for the most part spoke a different language. Poor people in general and particularly the residents of over 65,000 villages had very limited access to medical care.

Establishing the PHC System

When the Islamic Revolution materialized, naturally people began to expect better health care services; however, before long the imposed war began, leading to heavy daily civilian casualties

on the one hand and the emigration of a fairly large number of Iranian physicians, on the other. To achieve *Health for All*, the Ministry started to establish a primary health care system throughout the country, in spite of a severe shortage of health humanpower.

At that time the ratio of physicians to the population of the country was 1/2800. With the exclusion of Tehran, the ratio was 1/4000, and in some provinces, it was as low as 1/18000. In a number of provinces, there was not even one practicing obstetrician, anesthesiologist, etc.

A Great Opportunity

At this point, the High Council of Cultural Revolution was established, the main goal of which was to bring about major reforms in higher education. The medical branch of the High Council, which consisted of university professors, and health and education experts, gave consideration, in detail, to the future of health and medical education. They reviewed nearly 200 proposals received from university professors and other experts. The Council finally concluded that one of the main obstacles depriving people of appropriate health care was the fact that the health care system was separate from medical education. Therefore, they decided to propose the integration of the Ministry of Higher Education's entire health-related education program into the Ministry of Health.

Since the Ministry of Higher Education was against the idea of integration, before sending this proposal as a bill to parliament, the Ministry of Higher Education was asked to increase the number of health-related students in general and medical students in particular. To help this happen, the Ministry of Health made special efforts to transfer every facility, including hospitals that the Minister of Higher Education had requested as a pre-requisite for increasing the number of students. As anticipated, the efforts of the Ministry of Higher Education did not amount to a proper solution to the problem; therefore, the Ministry of Higher Education also agreed to proceed with integration.

A Major Event

In 1985, with the approval of parliament, all health-related schools and institutions were taken from the Ministry of Higher Education and integrated into the Ministry of Health, forming a new ministry called the Ministry of Health and Medical Education (MOH&ME). Almost simultaneously, at least one university of medical sciences (UMS) was established in each province.

At first, the provincial health organizations (PHO) continued to function and cooperate alongside the Universities of Medical Sciences in each province. During the second stage of the transformation of the Ministry, the chancellors of these universities were appointed as representatives of the Minister of Health and Medical Education, and had the authority of appointing the director general of the provincial health organizations.

Another Major Step

Finally in 1994 provincial health organizations and the universities of medical sciences were integrated, and universities of medical sciences and health services (UMS& HS) were established. Since then, the chancellors of these universities are not only responsible for education, student affairs and research, but are at the same time responsible for the health care of the population of their entire province.

Gradual Changes for the Better

Many of the university faculty members were taken on tours of the community to study the primary health care system, and particularly to see health houses, where the auxiliary health workers (called Behvarz/es) offer fairly effective primary health care services to the villagers, and at the same time, collect a variety of health-related information about the population under their care.

The visiting faculty members, who were often critical of integration at first, became very impressed and some of them even became advocates of the system. As a result some gradual changes began to take place:

Education

Some of the faculty members became involved in teaching the students in the community and within the Primary Health Care System. The more exposure the faculty members had, and the more experience they gained, the more community-oriented their education became. As time passed, even the curricula began to change, and in some universities (such as Shahid Beheshti U.M.S. & H.S.) the curriculum changed dramatically, so that now the students spend a good portion of their time in the field of PHC.

Research

As faculty members became more familiar and involved with the Primary Health Care System, some changes were noticed in the types of research they were conducting. The research topics and methodologies became more applied, and more community-oriented. The success of programs related to Iodine Deficiency Disorder, neonatal screening for hypothyroidism, Phenylketonuria, and G6PD deficiency is the results of such changes in the direction of academic research. The same is true about many of the communicable disease- related studies.

Health Care and Management

As faculty members became more knowledgeable about the national health situation and its problems, the Ministry of Health and Medical Education developed many different scientific committees related to a variety of health-related issues. Faculty members were invited to become members of these committees, which have helped the committees to become more sound, scientific, and convincing in their discussions and decisions. Different health-related programs/departments in the MOH & ME benefited from the active participation of faculty members. In this process, the faculty members became strong supporters and advocates for the health-related programs/interventions at the country level. The very successful program of family planning and population control is a good example of cooperation between faculty members and health care providers. As the ministers, deputies, director generals, chancellors of the universities of medical sciences and health services, deans of the universities, advisers, and practically all managers are usually selected from among faculty members, having candidates experienced in public health work lead to wiser choices.

As mentioned previously, the integration and unity has made decision-making and coordination in the area of health and health manpower training much easier and it has led to many achievements in the following areas:

Achievements and Strengths

- **Health Humanpower Training**

- The number of medical schools has increased from nine at the time of the Islamic Revolution to 51 at present, 37 of which belong to the MOH&ME.
- There are currently 40 Universities of Medical Sciences and Health Services in the country with at least one located in each province.
- The total number of students admitted to the UMS&HS in 2007 was 17,700, of which about 60% were girls.
- The number of faculty members increased from 2,552 in 1979 to 10,744 in 2007, about 30% of them are female.
- The ratio of faculty members to the 100,000 students is now one to 9.9.
- Faculty members have become more involved in community problems.
- By modifying the curricula, more attention has been paid to the different aspects of health.
- Not too long after integration, the following educational programs were either developed or expanded throughout the country:

  - The development and expansion of twenty-five different specialty care-training programs. Out of 5,542 residents, 48.5% were female.
  - The creation of twenty-one different subspecialty-training programs. Out of 462 fellow residents, 46% were female.
  - The establishment of thirty-five fellowship-training programs with 193 fellows.
  - The creation of forty-five PhD programs in health-related areas. Prior to integration, there

was only one such program.
- Students spend one month of their training and also one month of their internship in a variety of community settings and particularly in PHC centers.
- Skill laboratories have been established in all of the UMS&HS to better prepare the students for clinical courses.
- In addition to regular exams, medical students must go through a comprehensive exam after their completion of the basic sciences as well as prior to their internship, residency and fellowship program, for annual promotion during residency training, and finally the specialty and sub-specialty boards. Almost all of these tests are regularly performed on a national basis.
- Educational Development Centers have been established in all UMS&HSs.
- Continuous structured training courses have been provided for faculty members.
- The law for Continuous Medical Education has been passed and is being implemented.
- 174 research centers have been established in different UMS&HSs. More attention is being paid to applied research as well as health system research.
- The number of published articles in ISI and PUBMED which was 300 in 2001, has increased to 3,456 in 2007. The score of indexed papers in the international data basis per academic member rose from 0.02 in 2000 to 0.3 in 2007.
- Research methodology workshops are frequently being held in all UMS&HSs.
- Twenty two Social Development and Health Promotion Centers have recently been established.
- Following integration, the High Council for Community-Oriented Medical Education was established and is chaired by the Minister of Health and Medical Education. Unfortunately, this council has not been functional for a number of years.

Results

- The country has become self-sufficient in health humanpower.
- Integration has also created an opportunity for the Ministry of Higher Education to increase the annual admission rate of its universities.
- Almost all districts have become more or less self-sufficient in the area of specialty care, and the provinces are self-sufficient in sub-specialty care.
- Establishing UMS&HSs in each province has contributed significantly to the development of the provinces in general and their health services in particular. In 1977 the literacy rate was 35.5% among women and 58.9% among men. In 2006 the adult literacy rate was 77.2% for women and 87.2% for men, and the basic literacy rate was 80.5% for women and 88.8% for men.

- ***Public Health***

- The social accountability of universities has increased.
- UMS & HSs are increasingly involved in the process of community leadership, intersectoral collaboration and partnership building for health improvement.
- UMS & HSs have brought advanced health services to even the most deprived provinces.
- Academic experts and faculty members hold managerial and policymaking positions in the health system from the ministerial level down.
- Almost simultaneous with integration, the Primary Health Care network was developed and expanded throughout the country. This network consists of 2,407 rural health centers, 17,325 health houses in the villages, 1,666 health posts in slum urban areas, 2,196 urban health centers and 328 district health centers. As part of the PHC network, a referral system was planned from the beginning, but due to a shortage of medical humanpower, its implementation was postponed until, recently when an adequate number of physicians have become available. At present 95% of the rural and 100% of the urban population have access to health services.

- Safe drinking water which was a luxury for much of the urban population in the past was available to 98.5% of the urban and 91% of the rural population, or 95% of the total population by 2004.
- By 2005, almost 84% of the people had access to sanitation.
- An appropriate data gathering system (Vital Horoscope) has been developed at the level of health houses and rural health centers as a tool for assessing the health status of the villages and, ultimately, planning. Medical students and researchers can also benefit from this information for their studies.
- The children's immunization rate against individual vaccines stood between 2 to 25%, while it currently stands between 95- 100%.
- The Infant Mortality Rate has declined from 120 per thousand live births in 1974 to 28.6 per thousand in 2000.
- The mortality rate of children under 5 years of age has been reduced from about 174 per thousand live births in 1974 to 36 per thousand in 2000.
- The Maternal Mortality Rate has decreased from 255 per 100,000 live births in 1976 to 25 per 100,000 in 2005.
- The Population Growth Rate, which was 3.9% in 1986, has been reduced to 1.6% in 2006.
- Life Expectancy, which stood at 57.44 and 57.63 years for women and men in 1977, increased to73.2 and 70.1 years respectively by the year 2003.

Although one can not claim that the only factor leading to such a dramatic improvement in the health situation and the health statistics in the I.R. of Iran was the integration of medical education into the health services, there is no doubt that it was the most influential factor.

The presence of faculty members in the field and their close cooperation and collaboration with health experts and health workers, their involvement in different national and provincial health committees, and their involvement in the different levels of health management, led to major changes in medical education and even more importantly in the health situation of the country.

Challenges© and Recommendations®

To increase the enormous benefits of integration, the challenges should be identified and appropriate measures taken:

- **© -**The High Council of Community Oriented Medical Education (COME) is not fully functional.
- **®-**This council should be reactivated, and every effort made to make health related training, including medical education, as community-oriented as possible.
- **©-** There is still an insufficient link between the community and the local health facilities.

®-Community and health care providers at the local level need to be educated and made into partners in local health planning processes.

- **©-**The medical curriculum is not completely community-oriented. In addition a lack of incentives for participation of faculty members are among the major challenges.
- **®-**To overcome this problem, the medical curricula needs to be revised and proper facilities and incentives should be provided for faculty members in order to facilitate their active participation in the field, and also the ambulatory care training activities.
- **©-** The engagement of faculty members in their own private practices.

®- Full-time work should be made attractive enough for faculty members to give up their private practice.

- **©-**Full integration has not materialized at every level of education, health care and management yet.
- **®-**Integration should be implemented at every level of education, health care, and management.
- **©-**The weak referral system is not responding to the needs of the community.
- **®-**The stratification of the services and referral system needs to be dramatically enhanced.

- ©-Insufficient involvement of universities in community participation and intersectoral collaboration.
- ®-Universities should be made more accountable to the community as well as more interested in community participation and intersectoral collaboration and should be encouraged to play leadership roles in these regards. Research on community ownership for health development and intersectoral action for health needs to be encouraged.
- ©-The quality of health care is not desirable and an adequate number of well trained health manpower are not available in some health care facilities.
- ®-To improve the quality of health care and health manpower training, a much higher percentage of the national GDP should be allocated to the health care system and also to the medical education.
- ©- Inequity in access and utilization of health services is still a major challenge.
- ®-To move toward health equity, health insurance should improve and out-of- pocket payments should be sharply reduced. Also as an incentive for physicians and other health workers to reside and work in the remote and deprived areas, living conditions in those areas should be made attractive for them.

Recent Evaluations of the Integration

Similar to most new actions or reforms, the integration was very controversial from the very beginning. Its opponents even tried more than once to disintegrate the MOH&ME through the Parliament, but with no success.

By and large, the main arguments voiced by the opponents of the integration seem to be unscientific and often based on rumor. Some opponents somehow believe that if health manpower training is moved to the Ministry of Higher Education, then all financial, managerial, and educational problems will be solved.

A number of years ago, a newly appointed Minister of Health and Medical Education and his deputies (who were, at the time, strong opponents of the integration), conducted three different researches regarding this issue. The results of all three were very convincingly in favor of continuing the integration. Those results along with the experience gained by the Minister's team changed their minds completely and they became very strong supporters of the integration. They made their opinion known to H.E. the President, and also the Parliament.

In spite of the results of those investigations and researches, some faculty members continued their efforts in favor of disintegration. As a result, the Ministry of Health and Medical Education asked for the support of the WHO Eastern Mediterranean Regional Office in order to carry out a comprehensive and impartial evaluation of the integration. An evaluation team was formed composed of a national advisory team and a group of international consultants. The aim of the team was to study the country's:

- health services governance, delivery, resources and partnership;
- medical education governance, process-output-outcomes, resource management, and partnership; and
- Interests and expectations of major stakeholders.

More than 200 major stakeholders, including opponents and proponents, participated in the study. Different methods, including open discussions, small (focus) group work, site visits, individual approaches and questionnaires were used.

At the end of the evaluation, the concluding statements by the international team was that the "strengthening of the existing system and improving performance is more likely to benefit the country and population at large." They also stated that "the separation of the medical education from health services will exert a huge negative impact in strategic, technical, financial and logistic terms."

They strongly recommended that "the Government should support the system of integrated health services and medical education, and to

urgently review and upgrade the current curriculum through the introduction of community oriented, problem-based and other effective learning strategies".

The Way Forward

As defined by the World Health Organization: "Health is a state of optimal physical, mental and social well-being, and not merely the absence of disease and infirmity." According to this definition, health personnel are responsible for prevention and protection along with the promotion of health for the individual as well as the community. However, graduates of medical schools traditionally see themselves as only responsible for curative medicine. This is not necessarily an individual choice, but is largely related to how medical doctors are trained.

Usually the trend is, the sicker the patient, the more sophisticated the equipment, and the more unusual the circumstances, the higher the pride and prestige for the physician. The main reason for this is that almost the entire training program for medical students and residents takes place at the bedside of patients; very little, if any, takes place at appropriate ambulatory care facilities and none happens at the community level.

After being cured, patients regularly return to the same conditions they faced before their illness. They are not equipped with the knowledge of how to take care of them, nor are they properly informed on how to prevent similar situations in future, let alone how to live and enjoy a better life and how to promote their health along with that of their families and community. Mental health is neglected to a great extent, and social well-being is not seriously taken into consideration.

If this global picture is to be changed, among other important steps, the curricula of health-related education in general, and that of medical students in particular should be revised, and training should take place under different settings. To bring about such a major change, universities and health services must work together harmoniously.

The experience of the I.R. of Iran shows that the integration of medical education and health services has not only made the country self-sufficient in health humanpower resources, but it is also the most appropriate, durable and at the same time economic method of achieving community health at the highest level. Although integration has not yet evolved completely, especially in the periphery, and the situation is still far from being ideal, the results are still very encouraging. Even limited exposure so far has helped faculty members and students to become more familiar with the state of health in the community. Their realistic understanding of the environment, culture, traditions, problems, needs and potentials creates an environment for better management and opportunities for solving health-related issues. Therefore, it is anticipated that longer and better-structured exposure for students as well as faculty members to community needs, the revising of the curricula, along with the creation of proper incentives for full-time faculty members, will bring about more progressive changes in the outlook of faculty members as well as students. This in turn will lead to a more community oriented medical education, and help resolve many of the country's health problems.

Although no one can claim that integration is the only solution or that it can by itself solve all of the country's health problems, it definitely is the most economic and realistic solution available. Of course, effective monitoring and evaluation has to be a continuous and integral part of the system.

As the integration concept has been found to be effective and forward looking, WHO should be supported in its attempts to advocate the adaptation of this approach in the countries of the Eastern Mediterranean Region in accordance with the political, cultural and economic conditions of these countries.

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