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## History of Contemporary Medicine

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### Shiraz University School of Medicine: Its Foundation and Development

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#### Abstract

The history of Shiraz University School of Medicine (the former Pahlavi University School of Medicine) is important if we are to understand the development of medical education in Iran during the 20<sup>th</sup> century. This medical school took a unique path to its development including full-time faculty members, use of English as its institutional language, and emphasis on self learning. However, the most important of all is that it applied scientific method and modern knowledge to the problems of Iran and that it emphasized the importance of relevance of medical education to the problems of the region.

This article summarizes the foundation and process of development of this school, emphasizing its unique features. This is not the history of individuals who were critical to its development. Nor a history of structures and buildings. Rather, it is the story of its intellectual development, and its process of change as the University became relevant.

**Keywords:** Medical School • Shiraz

#### The foundation of Shiraz School of Medicine

The medical school in Shiraz was established in 1952 by Dr. Zabih Ghorban (1903 – 2006), a graduate of American University of Beirut. From the inception, it was based on a unique foundation, making it different immediately from other medical schools in Iran. Established as a medical school in 1952, the most unique characteristic of this new institution was the selection of English as its institutional language. This immediately opened a larger scientific world to students and faculty

members. Then, there was little to no up to date scientific literature in Persian language. This decision, enforced by Dr. Ghorban and the faculty members, allowed access to recent scientific information at the same time that it allowed recruitment of more up to date faculty members fluent in English. English, as the institutional language, therefore, became an important pillar of Shiraz School of Medicine.

Another important pillar was the development of a modern and well-equipped hospital—the Nemazee Hospital, which eventually became a major teaching hospital of Shiraz Medical School. Haj Mohammad Nemazee, the founder of this hospital, initially wanted to buy and bring a 25-bed World War II prefabricated hospital to Shiraz. Then, he was living in the United States. He contacted Dr. Torab Mehra, a US-trained Iranian who had a strong commitment to the care of the poor and the underserved populations. With Mehra's input, the Nemazee project grew up into a 250-bed hospital. What was the most impressive was the planning that went into this project. This was 1948 and for those who remember, water was being brought into homes in buckets and "doroshkeh" (carriage) was still the major mode of public transportation. Haj Mohammad Nemazee, with the help of Dr. Torab-Mehra, established the Iran Foundation to implement the Nemazee project. This foundation was overseen by a board that included some of the most prominent Iranians in the US as well as selected American academicians such as then the Chairman of Pediatrics of Harvard Medical School and a prominent surgeon from Columbia College of Physicians and Surgeons. A review of the minutes from the Board's meetings shows that they followed a very scientific approach to the development of Nemazee Hospital. This is best seen in the decisions to start the school of nursing and to build housing for physicians prior to

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building of the hospital. Planning extended beyond just the facility to the training or hiring of clinical as well as administrative personnel for the hospital. This was truly very unique for the post-World War II period in Iran. The physician staffs were initially selected from the prominent US faculty or from Iranians who were trained in outstanding programs in England or the US. Although it initially only offered a one-year internship, over time, this first rate modern medical facility became a major training site for the school. Through this affiliation, Nemazee Hospital became the second pillar of Shiraz Medical School.

The third pillar was the bylaws that were enacted with establishment of the former Pahlavi University. This related to the desire in Iran to establish or promote one of its existing universities into a great regional university. A committee of international experts recommended the selection of Shiraz University, partly because of its unique medical institutions. For this purpose, the committee also recommended that this institution become affiliated to a major university in the US, namely University of Pennsylvania. Establishment of the former Pahlavi University also required development of new bylaws, essential for such a modern University. Amongst the bylaws was the requirement that all the faculty members be full-time, a truly new concept for Iranian universities. The full-time system was created to allow the faculty members to dedicate their full attention to teaching and research while providing care to patients. It was hoped that this full-time scheme would also allow the faculty members to focus on the development of the University, becoming the instrument of change so critical to the creation of an excellent educational institution.

Following creation of the former Pahlavi University, Nemazee Hospital became incorporated in the Shiraz School of Medicine. This, however, was not without a fight. Although Namazi Hospital was supported by the income generated from Shiraz waterworks, it was unable to support itself financially and, therefore, depended on the subsidy from the government. Government's continued financial support was conditional on the Nemazee Hospital becoming integrated with the University. Despite some strong opposition, this was finally accomplished creating an alliance between a world class hospital and a newly-organized medical school with progressive bylaws. This alliance attracted some of the best trained Iranian physicians and scientists.

These faculty members were not only competent but also highly dedicated to teaching. These young energetic full-time faculty members became another important pillar of Shiraz University.

The fifth pillar was Shiraz, the City itself. Shiraz was not only an attractive city, but it also openly welcomed non-Shirazis. Very few Iranian cities at that time had this welcoming attitude toward outsiders, including foreigners. Some came to Shiraz and stayed a few weeks to many years. It is difficult to define what it was that made this city so attractive. Was it the poetry, the gardens, or the history? Whatever it was, Shiraz had it.

The last pillar were the students. They were not only smart, but also willing to accept change. They were enthusiastic about learning and were able to keep up with all the educational challenges that came their way.

These were the major pillars that shaped this School of Medicine. But all did not go smoothly. For example, the physicians at Nemazee Hospital wished to keep their independence while the University was set to bring Nemazee Hospital into the University system. Those involved in this "battle" were some of the very best physicians in Iran, and unfortunately some left Shiraz.

### **Development and achievements (1968 – 1979)**

It was during this period that I came to Shiraz. ...., The development in this period was the product of not a single individual but a group of people who had been there before and during this period. Therefore, any credit should go to all the faculty. For this reason, I have decided not to name anyone in this paper. When I arrived in Shiraz, similar to others, I immediately felt comfortable in the city, the medical school, and especially the Department of Medicine. The Department of Medicine had a small but highly competent faculty members, but very few residents. The patient floors were managed by externs and interns. My first year in Shiraz happened to be the odd year with only 16 or 17 interns. I remember that on my first rotation as an attending, I was caring for nearly 25 patients with only one extern. But, all the right ingredients were there. We, the faculty of the Department of Medicine, agreed to focus on creating an educational organization that would serve the mission of the department. Included were morning reports at 7:00 AM to review patients admitted overnight, weekly grand rounds and, other organized teaching conferences. We were aware

that Iranian physicians had traditionally preferred the surgical specialties, making a career in internal medicine less attractive. But, we felt, perhaps correctly, that internal medicine must take the lead in innovations in medical education. This meant that we had to first develop an excellent residency program. Over the next few years, with recruitment of several outstanding faculties, the Department was able to build strong educational foundations. Among this group of faculty members were the new chair and associate chairs of the Department who became a major force in the development of the medical school. Within 10 years, the Department developed an impressive educational program for training of residents and students. This allowed the Department to become the “Core Educational Department” leading the educational innovations at the medical school. These changes were the main reason that for the first time we had a turnaround in students going abroad for their residency training with some of the best choosing to remain in Iran. At the same time, other clinical departments moved along similar lines developing excellent training programs. The dramatic improvement in the residency programs reflected the overall improvement in the quality of the departments in the medical school. This could not have happened without the full-time system.

Although the full-time system was relatively successful, it faced a major challenge in early 1970's. This was the beginning of a financial boom in Iran resulting in a rapid increase in spending in the healthcare sector. This included availability of government-sponsored or private health insurance to a large sector of the population. This resulted in a marked increase, as much as tenfold, in the income of physicians working in the private sector. The increase in salary of full-time faculty members was, however, much more modest. Therefore, a good number of clinical faculties left the University for private practice in Tehran or Shiraz. This loss was compounded by our inability to successfully compete with the private sector or other medical schools in recruiting new faculty members. One obvious solution was to abandon the full-time system and accept the part-time scheme used in other medical schools by allowing the clinical faculty members to enter private practice in Shiraz. This, we felt, would have destroyed the medical school as we knew it. Therefore, a unique system, the so-called “physician's fee” system was created. I will present details of this program because it was a

unique solution which evolved through extensive discussions in faculty forums. Our major potential source of income was Namazi Hospital which cared for a large number of paying or insured patients. The physician's fee system was based on sharing the total clinical income among all clinical faculties independent of their site of practice. The system recognized a difference in income between surgical and medical specialties allowing 3:2 ratios between them. This allowed calculation of total clinical income for each department. Each department was empowered to divide its clinical income amongst its faculty based on an internal formula. For example, if a faculty member wished to commit more time to research compared to another faculty who spent more time in clinical activities, the department could credit them differently and take into account the total activity of each faculty regardless of the money generated by clinical activity of each. Similar credit for clinical activity was given to activities in Saadi and Namazi Hospitals, although Nemazee Hospital was where the money was being generated. This allowed us to continue to provide care to the poor at Saadi Hospital without punishing the faculty who provided this care. This physician's fee system saved our full-time program. It nearly doubled the income of clinicians, decreasing the rate of faculty departures while making us more competitive in recruiting new faculty members. I should add that the physician's fee system also improved the financial well-being of Nemazee Hospital.

Furthermore, this program, as well as many other innovative programs, could not have been implemented without the strong support of the university Chancellor and Vice Chancellor. The physician's fee was strongly opposed by the Ministry in Tehran. But, we were able to successfully establish it because the Shiraz University leadership recognized that the full-time system was essential to the development of a great university. We needed the full-time system and the full-time system needed the physician's fee program to survive.

Another creative project program was the development of a visiting professorship program to complement our relatively small faculty. At any one time there were up to 12 outstanding visiting professors working in our medical school. Each visiting professor was paid a base salary similar to our own faculty, approximately 2000 U.S. dollars a month. We also provided a small furnished apartment in the Nemazee compound and access to

the Hospital canteen at no charge. We, however, did not pay for their travel cost. Through this program we were able to attract some of the most renowned physician scientists from all over the world, primarily from the US and England. The visiting professors made rounds, gave lectures, and spent time with our students and residents. Each became a long-term resource for our development. They all loved their experience in Shiraz and encouraged others to take advantage of this program. Their experience in Shiraz, working side-by-side with our own faculty coupled with their evaluation of our program gave a sense of confidence to our residents and students about the quality of the training they were receiving in Shiraz.

As stated previously, we felt that a strong residency program was essential to the development of a strong department. In Shiraz, we had some of the best students but they preferred to go abroad, often joining training programs in small community hospitals in the U.S. In reality, the residency program in many departments were weak despite the presence of a small number of excellent and highly dedicated faculties. But, as the residency programs in these departments improved over time, more students selected to stay in Shiraz for further training. One program that helped greatly was a unique faculty development program. Through this program a resident would spend three years in Shiraz and then would be sent to selected centers abroad for more specialized training, lasting two to three years. They were supported through continuation of their salary which was often supplemented by funds from the host institution. These residents were therefore able to enter outstanding programs which were partly established through the strong support of many of our visiting professors. Through this program our residency training improved tremendously. We had now taken a major step to become a modern progressive medical school, designing and planning for our future development and growth. By 1979, there were 40 such residents in our faculty development program, all in outstanding institutions abroad. One distinguishing element of this program was that the training was at a subspecialty level; this did not allow our residents to sit for their specialty boards and practice in the host country.

Another event that had a significant impact on our educational programs was selection of Shiraz School of Medicine by the World Health Organiza-

tion (WHO) as a WHO Regional Teacher Center for the Middle East and Eastern Mediterranean Region. At that time, there were six such centers in the world and to the best of my knowledge the center in Shiraz was the only one which has been considered "successful." One of our faculty members spent a year and obtained masters in education at the University of Illinois. In addition, eight other faculty members completed a one-month training at the same institution. The objective of our center was to train faculty to become better teachers, changing their focus from topic to relevant clinical problems and from teaching to learning. We developed training workshops for not only our faculty but for faculty members from over 20 countries in the Middle East and Eastern Mediterranean Region. In addition to nearly all our faculty, over 1000 faculty members from this region as well as other Iranian medical schools attended our workshops, including those on educational planning.

This process initiated a dialogue among our own faculty regarding the pedagogical principles of medical education. This discussion resulted in the development of objective-driven teaching units with and evaluation reflecting these same objectives. Since we were training physicians for patient care, the emphasis was to discuss real problems presented by real patients. We moved away from didactic teaching and our exams became problem-based using simulation of actual clinical problems. This approach changed all aspects of our educational programs. This evolutionary change also helped us recognize that medical schools should not be ivory towers separate from societal realities but rather should define their objectives in relation to these realities. This meant that our medical school had to identify and solve the problems of the region, i.e., Fars Province, by training the healthcare personnel for this region. It was evident to us that responsible organizations, such as Ministry of Health and the Red Crescent (formerly Red Lion and Sun), had not been successful in responding to the health needs of the region. Thus, by default our medical school had the responsibility to help find solutions to this enormous problem. This moved us increasingly away from the western university model that had served as our initial model. This sense of responsibility led us to develop a variety of programs. Our Department of Community Medicine developed programs for village health workers to train "*behdar*" for Iranian villages. This

required extensive research focusing on the health needs of the people living in small villages of Fars and the type of healthcare worker that could respond to this need. This included defining competencies needed by these individuals in both public health and therapeutic medicine. This program has now become the model for the health network in Iran and has been copied in other parts of the world.

The medical school and its facilities in Shiraz became the referral center for patients from southern and Central Iran as well as the countries bordering the Persian Gulf. Nemazee Hospital was expanded to 600 beds with an outpatient clinic designed to reflect its ability to provide specialized care. Hafez Hospital, specializing in rheumatology and rehabilitation, joined our other two major teaching hospitals namely Saadi and Khalili. An affiliation was also established with the newly constructed hospital called Shiraz Hospital which belonged to the Ministry of Health.

As most graduates of Shiraz/Pahlavi Medical School pursued training in highly specialized areas, there was a need to develop a different kind of medical school focusing on training of general physicians. We chose two cities, Fasa, and Mamasani (later on, Jahrom was also added) as the sites for development of this new type of medical school. If this experiment was successful, we felt it would allow us to train the full complements of healthcare personnel from village-based “*behvarz*” and “*behdar*” to general physicians and specialists for our region as well as potential faculty for other medical schools in Iran.

In Fasa, we designed a unique educational program. We selected students with average scholarship scores who were chosen on the basis of interviews focusing primarily on their interest in medicine and their ability to handle a challenging educational program that required a great deal of self learning. The first three years in Fasa Medical School was organized along three parallel tracts. One tract was devoted to the study of simulated patients, each reflecting a specific medical problem. The students were expected to do independent research, collect, synthesize and analyze the pertinent data, and discuss their findings with other members of their small group (four to five students with a preceptor). The simulated cases were selected so that in a three year period the students were expected to develop in-depth knowledge in all areas of basic sciences relevant to clinical problems. The emphasis was on

students learning on their own and in small groups. The second tract focused on the development of clinical skills. Once again, the students were divided into small groups, each with a clinical preceptor. Each group were assigned selected patients and were expected to gradually learn how to do a complete history and physical examination. Using library resources, students were also expected to develop differential diagnoses and management plans for each patient. The third tract focused on public health. Each group of students were assigned to a village and was expected to improve its health status in three years. They were expected to identify the major public health problems and develop strategies to deal with these problems. In all three tracts, the students were in groups of four to five with an instructor. The last three years was spent in the hospital and outpatient clinics as well as in an assigned village. The emphasis would not only be on patient care but also on public health.

The major philosophy underpinning this pedagogical approach was that the students under supervision of their preceptor, using research methodology, were able to independently learn the content knowledge and skills required to become a competent physician. This competency included therapeutic competence in managing individual patients as well as competence in community health through with an approach to health that would include prevention and public health. In addition, most importantly, they were expected to develop the skills to become life-long learners. It should be noted that this approach, which now has become universal, was very new and was only implemented in a few centers in the world. This is why WHO considered “Fasa Project” a major experiment in medical education. For us, it was the application of all that we had learned as educators. Education must identify and resolve real problems. The outcome was our way of dealing with the health challenges as we saw them in Fars Province.

We saw the solution in development of an integrated health network from village health centers to the tertiary care centers in Shiraz.

As the 1970's came to an end, our medical school had developed an educational program for students and residents which inarguably surpassed all other schools in Iran. Increasing international recognition through our WHO-sponsored Regional Teacher Training Center as well as innovation in education in response to health needs, the former Pahlavi Medical Congress and the former *Pahlavi*

*Medical Journal* allowed us to connect with the world of biomedical sciences on a regular basis. We also had begun to plan for our future needs. We had developed an architectural plan for a major university hospital with 900 beds and a research center, emphasizing highly specialized tertiary care. The plan for the research institute was to focus on selected areas or topics of local importance, such as immunity and infectious diseases, using a multispecialty approach. We expected that this research institute would become the backbone of our planned PhD programs.

And, as we looked to the future, we also looked at our governance. Faculty members had to feel that they played a major role in running their departments and school. We, therefore, put into practice the concept that the chair of each department would be selected by the dean from two candidates presented by the faculty's department. Each chairman would also have periodic reviews and a term limit. The same process was to be used for the selection of the dean, but this was not accepted by the Ministry in Tehran. Although this selection process may not be

ideal, we felt that this was the best solution for the time. We hoped that this would strengthen the sense of ownership of the school by its faculty, so critical to development of a great university.

In summary, Shiraz presented a unique challenge to a young group of faculty who applied science to education and related education to real problems. The outcome was training of a workforce to provide primary care network from the village healthcare worker to the tertiary care through highly trained specialist in Shiraz. It is important to record the events that allowed one medical school in Iran to use limited resources to deal in a creative way with multiple challenges at a unique time in our history. I hope that this history of our school will be of some use to educators and university leadership who find themselves dealing with similar challenges at this time.

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