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Medical Imaging in Iran



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Please Tell us About Your Career in Medical Imaging.

Prof. A. Sedaghat: I originally graduated in general radiology from Tehran University of Medical Sciences (TUMS) and then passed a postgraduate course on MRI at the University of Miami, Florida. My professional areas of special interest are diagnostic neuroradiology and musculoskeletal radiology. Over the past 25 years of my career, I've held several positions in management, for example:

- General Director of Health organisation in and General Director of Red Crescent in Bushehr Province;
- Chairman, Medical Imaging Centre in Imam Khomeini Hospital;
- Deputy of Education in Gorgan University of Medical Sciences;
- Founder of the first Medical Imaging Centre in Karaj, Alborz Province, since 1999;
- Member of Board of Directors and President of Iranian Society of Radiology since 2003; and
- Member of Board of Directors and Head of Medical Council organisation (IRMC) in Karaj since 2004.

Dr. M. Fatehi: I studied medicine in TUMS (1986–1992), and later passed a radiology course at the same university (1994–1998). I began my practice in a community hospital, where I later established my imaging center. After achieving a fellowship on the subject of imaging informatics and musculoskeletal imaging from the University of Maryland in Baltimore (2009–2010), I was certified by the American Board of Imaging Informatics. Although radiology practice is not yet subspecialised in Iran, I am currently trying to focus my practice on musculoskeletal imaging. I spend part of my time attending activities organised by the Iranian Society of Radiology, of which I am a board member and Vice-President for Education and Research, while I also give lectures in universities in Tehran from time to time.

Please Give us an Overview of the Department of Radiology Where You Work.

Prof. A. Sedaghat: At present, I'm working in the private sector, in the Medical Imaging Centre (MIC) in Karaj. The MIC was founded in 1999, and is spread across five floors, each 450 m² and including all digital and advanced imaging instruments, including MRI, CT, radiology/fluoroscopy, DDR, mammography, BMD, ultrasonography, echocardiography, gamma camera and cardiac rehabilitation systems. At present, this centre employs eight radiologists, eight cardiologists, two nuclear medicine physicians and two GPs working alongside 16 radiologic technologists and more than 55 employees in different services who make up the remainder of the workforce. The number of patients admitted to the centre is more than 400 per day and a total of over 120,000 per annum. The institute is equipped with PACS. Our next plan for development is founding a large, modern radiotherapy centre in Karaj.

Dr. M. Fatehi: Like most Iranian radiologists who prefer to work in more than one single institution, I am practising privately, working in groups. Our groups cover a wide range of clinical services, both in hospitals and in out-patient radiology centres. We provide diagnostic and interventional radiology services, using rather high-end equipment, to more than 100,000 patients per year. One of the main institutions I work in is Pardis Noor Imaging Center of Tehran, where I am a shareholder. This centre has six floors, covering 1000 m² space, and employs 45 staff members, including 10 radiologists.

How Are Imaging Centres Spread Around the Country and Are There Areas That Are Underserved?

Prof. A. Sedaghat: Now, most of the large cities in Iran are equipped with advanced and new technology; however, Tehran is more equipped than others. None of the Iranian cities suffer greatly from a particular lack of imaging services. Naturally, small cities in remote places in our country do not have specialised services, for example MRI, CT or digital radiology.

Are Teleradiology and Remote Imaging In Use In Iran Today?

Prof. A. Sedaghat : At this moment, teleradiology and web-based PACS are used in several imaging centres in Iran, but they are in the early stages and need further time for development and deployment. Both the Karaj and the Noor Medical Imaging Centres are involved in such projects at the moment.

How Is The Education of Radiologists Structured In Iran?

Prof. A. Sedaghat: More than 14 medical universities provide radiology residency training in a four-year training course in general radiology. The number of radiology residents is more than 100 at this moment. Some physicians who are interested in radiology and cannot find a position in Iranian universities are obliged to travel to other countries in order to get their career started, while other residents travel to the domestic cities to learn more and gain more professional experience.

Dr. M. Fatehi: The curriculum of radiology residency programmes is set by the Iranian National Board of Radiology. There are about 15 residency programmes in the whole country, run by medical universities that all act as governmental institutions. The duration of the course is four years, and acceptance onto the programme is very competitive. There is no private centre for radiology training in Iran.

For post-graduate training, all these radiology departments provide some yearly refresher courses; however, the role of the Iranian Society of Radiology is dominant in organising dedicated training courses and holding annual meetings, which cover diverse content and subject matter. Currently, there are no official fellowship training programmes in subspeciality areas and everyone who wants to get trained in one of these must apply for an international training course. The Iranian Society of Radiology has recently decided to establish an Imaging Informatics Training and Research Centre, with the aim of disseminating the knowledge and skills of informatics required in the radiology department. I am the Director of this center.

In my opinion, the major challenge in radiology education inside Iran is the suboptimal payment to academic radiologists leading to rather part-time positions. Another challenge comes from the lacking presence of high-tech modalities in academic institutions compared to private ones due to higher investment in new technology in the private sector. Residents, therefore, are not very exposed to the modern medical imaging world, and many seek training in this area after graduation, by working in private centres. Unlike governmental institutions, private sector radiology centres in Iran is rather up to date in terms of equipment.

How Does Involvement and Interaction With an International Community Help to Strengthen the Development of Both Education and Research in Medical Imaging, in Iran?

Dr. M. Fatehi: Being in touch with the international radiological community has brought many new openings to Iranian radiology. Gaining international level refresher training, having the ability to share local experience (which is not always exactly the same as other countries), and networking with special interest groups through attending international meetings are some of the things that can be achieved. Interactions have raised our profile in the international radiological community and this has led to international experts collaborating with our activities.

In what way are you involved in the professional development of research activities in Iran?

Dr. M. Fatehi: our role in the Department of Research and Education of the Iranian Society of Radiology is to boost research activities in academic institutions as well as support researchers who are not necessarily involved in academic radiology. The basic requirements of this role have been accomplished through a variety of means, including: defining a national radiology research roadmap; collecting grants from national institutions; providing financial support to researchers ,particularly young ones; running training courses on research methodology; and providing travel costs to those members who present their work in prestigious international meetings. One of our society's major activities has been to publish an English-language journal in joint collaboration with TUMS – The Iranian Journal of Radiology (<http://Iranjradiol.com>).

What is the Balance of Private to Public Medical Imaging Providers in Your Country?

Prof. A. Sedaghat: The private medical imaging providers are more advanced in quality and quantity than the public sector. It means that the public and governmental hospitals and centres are less equipped than private facilities which have newer and more advanced medical imaging technology at their disposal, though the government has recently invested in this sector.

Please Tell Us About The Iranian Society of Radiology: What Achievements in Your Role as President of The Society are You Most Proud Of, and Why?

Prof. A. Sedaghat: The Iranian Society of Radiology was founded in 1965. This society has more than 1,500 individual (radiologist) members at this moment and has some provincial branches inside the country. We have an annual congress of radiology which more than 2,400 participants and more than 30 - 40 guest speakers from around the world attend. Participants from the US, Europe, Asia and the Middle East, are present. Many workshops are held in addition, plus a select number of two to three day national conferences, symposiums and joint sessions with other radiology congresses such as the European Congress of Radiology (ECR) and the Turkish Congress of Radiology (TCR).

I believe that one of the most important contributions I have made to the Iranian Society of Radiology is in fostering a sense of unity in the face of a potential risk for division of regional societies and smaller divisions. To tackle this possibility, we decided to organise different committees for

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subspecialties such as: informatics in radiology, women's imaging, cardiovascular imaging, interventional imaging, etc. My other important role has been the provision of unity between the radiology society and companies who import or produce medical and radiological instruments in two important ways: economic and scientific. Another important role is our membership in the ESR and establishing a joint committee with the Turkish Society of Radiology.

What are the main professional challenges for a radiologist working in Iran today?

Prof. A. Sedaghat:

1. Interference of other non-radiologist physicians in radiology;
2. Low tariffs for radiology services (for example, the typical cost of some radiological services in Iran are: anatomical MRI = 90 US dollars, abdominal ultrasound = 25 US dollars, abdomino-pelvic CT scan = 100 US dollars and so on); and
3. International sanctions have resulted in several limitations for Iranian radiologists, including the purchase and import of equipment and spare parts, registration in international congresses or even the purchase of journals from them.

There are also troublesome visa procedures for visiting EU countries, the US and Canada when professionals wish to participate in congresses, courses or workshops that are so useful to our speciality.

Do You Anticipate Any Threats To The Profession in General, Both Inside and Outside Iran?

Prof. A. Sedaghat: Radiology in all countries is in danger of collapse in the future due to the great advances in medical imaging technology, which encourage other physicians and even non-physicians to interfere in the use of medical imaging modalities and reporting and interpretation of images, respectively. So, the union of radiologists and radiologic technologists within countries and regions, and the setting of special international rules and conventions for protecting radiologists from these dangers, should be something the global medical imaging community places high on the agenda.

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