The international skeletal society outreach programme in Tunisia 2011

Ali Guermazi • Daniel Vanel • Hatem Rajhi •
Najla Mnif • Frank W. Roemer

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An ISS outreach program was held in Tunisia in June 2011, in collaboration with the local organizers Prof. Najla Mnif, Chair of the Department of Radiology at Charles Nicolle Hospital in Tunis, and Prof. Hatem Rajhi, Vice Chair of the same institution. Charles Nicolle Hospital in Tunis is a general primary-care hospital and with 1010 beds, the largest in Tunisia. The hospital is named after the winner of the 1928 Nobel Prize for medicine; Charles Nicolle identified lice as a transmitter of epidemic typhus while working at the Pasteur Institute in Tunis. The ISS outreach meeting was held in Gammarth, which is in the north of Tunisia, 20 kilometers from Tunis, and is surrounded by a dense forest to the south, the Sebkha of Ariana to the west, and the Gulf of Tunis to the north and east, on June 24–25th 2011. Gammarth is only a few kilometers from the great ancient city of Carthage, one of the most historic places in Africa and a UNESCO World Heritage Site [1].

The meeting took place in the Carthage Palace Hotel. Initially, it was feared that the meeting might need to be postponed, following the national instability after the

Tunisian revolution on January 14th 2011, but through the determination of the organizers of the meeting, everything went ahead as planned. On the first day of the meeting, introductory talks were given by Profs. Mnif and Rajhi, followed by an introduction to the outreach program and the ISS given by myself. Eight talks, mainly on bone tumors and further presentations on clinical cases of bone tumors, were given during the two-day meeting. Speakers included Prof. Daniel Vanel from Bologna, Italy and Ali Guermazi from Boston, USA, in French, and Dr. Frank Roemer from Augsburg, Germany, in English. The meeting was a huge success, with 78 enthusiastic participants. Of these, 76 were Tunisian, mostly from Tunis and Ariana, but also from other, more distant cities, such as Monastir, Bizerte, Sousse and Sfax. It was also a great pleasure to see international attendees, i.e. two Algerian colleagues who traveled all the way from Oran. Such high attendance was certainly thanks to Profs. Mnif and Rajhi, who had advertised the event very enthusiastically in advance. The attendees expressed their gratitude to the ISS for the opportunity to share knowledge with experts in the field of musculoskeletal imaging.

Tunisia is a country with a highly diverse culture. After long periods of Ottoman and then French rules, large populations of Jews and Christians have lived among a Muslim majority for centuries [2]. As of 2009, the country had a total population of 10,272,000 and a life expectancy of 73 years for men and 77 years for women. Total expenditure on health per capita was \$524; spending on health as a percentage of GDP was 6.2 % [3]. The living standards of the population in general are modest. The country's national health system is purported to provide nearly all of its population with access to medical care [2]. However, in reality, the public healthcare system only covers expenditures for healthcare services delivered at public institutions, which

A. Guermazi (✉)
Department of Radiology, Boston University School of Medicine,
820 Harrison Avenue, FGH Building 3rd Floor,
Boston, MA 02118, USA
e-mail: guermazi@bu.edu

D. Vanel
Department of Imaging Research, Istituto Ortopedico Rizzoli,
Bologna, Italy

H. Rajhi • N. Mnif
Department of Radiology, Charles Nicolle University Hospital,
Tunis, Tunisia

F. W. Roemer
Department of Radiology, Klinikum Augsburg,
Augsburg, Germany

are not quantitatively or qualitatively sufficient to provide care to the population in total. The majority of Tunisians, who cannot afford to pay for private medical care, have to rely on the public hospitals. Only a fraction of the population who are affluent can afford healthcare service in private hospitals and institutions. Many Libyans, and Africans in general, come to Tunisia to be treated in the private sector, and private hospitals profit. There is a huge discrepancy between the supply and the demand of healthcare service, as evidenced in Tables 1, 2, 3 and 4 [4]. In the case of radiology, many more radiologists are working in the private sector (61 %) and the vast majority of medical imaging equipment (about 70 % of CT and MRI scanners) is also based in private institutions. However, the number of patients who are treated in public institutions is much larger than in the private sector. As a result, rural areas especially are underequipped and understaffed with hardly any practicing radiologists. To date, no rationalization of healthcare expenses has been introduced, despite these very limited resources. For example, one hospital in one city may possess multiple CT or MRI scanners with similar specifications, while other hospitals in areas covering half of the national population may have none at all.

The severity of problems within the Tunisian healthcare system was acknowledged by the current Health Minister, Prof. Slaheddine Sellami, who was quoted by the Tunisian News Agency as stating "the Tunisian healthcare system is sick" [5]. There are around 3,700 beds in private practice; these represent less than 20 % of the available hospital beds in Tunisia. On the other hand, private practice has 60 % of all the medical equipment in the country. Both the public health and especially the private sector should be able to employ more trained healthcare providers. There is an urgent need for job opportunities for the estimated 25,000 or more unemployed persons who could contribute to the healthcare system of the country [5]. However, the country seems to be heading in the right direction to improve the healthcare service. Tunisia became the first Maghreb country to ratify the Pact of the World Health Organization First Global Patient Safety Challenge "Clean Care is Safer Care" [6]. To improve the financial situation, the United States Government is providing 2.25 million dollars in assistance to the Tunisian Ministry of Public Health, to support infrastructure upgrades to public health facilities in

Table 1 Distribution of Tunisian radiologists in different practice types

	University Hospital	Other hospitals and Health Centers	Private Practice	Total
Number	44	50	148	242
Percentage	18 %	21 %	61 %	100 %

Table 2 Urban-rural distribution of private radiologists in Tunisia

	Total radiologists	Urban practice	Rural practice
Tunis	42	42	0
Sfax	25	20	5
Sousse	15	15	0
Ariana	10	10	0
Ben Arous	10	10	0
Bizerte	8	6	2
Medenine	6	6	0
Monastir	5	5	0
Kairouan	4	4	0
Beja	4	3	1
Mahdia	4	4	0
Gabes	3	3	0
Gafsa	2	2	0
Kasserine	2	2	0
Kef	2	0	2
Mannouba	2	2	0
Jendouba	1	1	0
Tataouine	1	0	1
Sidi Bouzid	1	1	0
Zaghuan	1	1	0
Total	148	137	11

southern Tunisia [7]. It is hoped that under the new Government, the long-awaited healthcare rationalization will take place in the near future.

The language of medical education, as well as residency training after graduation from medical school, is French throughout the country. There are four medical schools in Tunisia, and there is one national post-graduate training program for each specialty. The radiology residency program accepts 25 radiologists per year, and radiology residents are required to rotate through different radiology departments and hospitals across the country. The residency program lasts four years and ends with oral and written national examinations. At present, the board examination is conducted by Tunisian radiologists only, without involvement of external examiners.

Table 3 Distribution of radiology equipment throughout Tunisia

	MRI	CT
District of Tunis (Tunis City, Ariana, Ben Arous, and Manouba)	11	42
Sousse	3	11
Monastir	0	5
Sfax	3	12
Other regions	4	47
Total	21	118

*Data cited from [4]

Table 4 Distribution of radiology equipment in public and private sectors

	Public		Private	
	CT	MRI	CT	MRI
District of Tunis (Tunis City, Ariana, Ben Arous, and Manouba)	12	4	30	7
Sousse	3	1	8	2
Monastir	1	0	4	0
Sfax	2	1	10	2
Other regions	18	0	30	4
Total	36	6	82	15

*Data cited from [4]

In addition, each resident is required to participate in a six-month subspecialty training program in the corresponding accredited departments. Senior residents and new graduates have the option to pursue a specialized training course in France for one or two years. At the end of the four-year mandatory residency training, candidates undergo a national competition with written and oral exams.

At present, there is only one hospital, the *Institut Orthopedique Mohamed Kassab* in Ksar Said, at the University of Tunis El Manar, dedicated to musculoskeletal medicine. In the future, radiology departments in other general hospitals may also be accredited for musculoskeletal radiology, if they have on-site senior attending radiologists focusing on musculoskeletal imaging, but there is no established

formal fellowship program within Tunisia at present. Currently there are only nine academic musculoskeletal radiologists in the entire nation of Tunisia. The number of radiologists subspecializing in musculoskeletal radiology is limited.

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