Telemedicine in Turkey: Potential, Initiatives and Obstacles

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Abstract: Large cities in Turkey have well-equipped hospitals with experienced doctors, whereas health services in some cities are poorer and especially eastern and south-eastern regions have limited facilities in terms of medical equipment and staff. Since most doctors don’t prefer to work in these cities, ministry of health has made it necessary for recently graduated practitioners and specialists to work there for a reasonable period. Although this obligatory task aims to promote health services in underdeveloped cities, it imposes an undemocratic compulsion. The solution of this problem lies in telemedicine. Since the introduction of the internet to Turkey in 1993, a fast growth in the internet use has been observed. Today 41.6% of residences are connected to the internet and Turkey is the 12th county in terms of internet use. The speed of the internet connection is 5Gbps among three big cities, whereas each city has an internet connection. The internet speed provided today and interests in the Internet use are promising factors for telemedicine in Turkey. Several telemedicine attempts have been initiated by the government, academicians and civil society organizations since 1997. The first telemedicine attempt was the National Medical Communication Network Project (UMEDIA) which was initiated by the joint effort of Scientific & Technological Research Council of Turkey (TUBITAK) and a civil organization. Unfortunately this project has failed due to financial problems. Several preceding attempts have been performed by the academia and the government (e-Health Project), resulting in advances in tele-radiology and tele-pathology. However technological, organizational, financial and legal obstacles have prevented widespread adoption of telemedicine for different disciplines. For instance, no legal measures have been set for data protection and information security of the internet yet. In addition, initial investments for investigation of technological aspects introduce financial obstacles. Finally, several recommendations are given for Turkey to benefit from telemedicine. Firstly security and privacy issues introduced by internet and telemedicine should be set on
legal bases. Afterwards interest in telemedicine studies should be promoted in the academia by establishing a ‘telemedicine engineering’ discipline that forms a technological workforce nationwide. On the medical side, medical training should be developed so as to capture informatics teaching.

Introduction

Telemedicine is considered to be a promising tool for serving health-related activities in the developing countries, where resources are scarce in terms of health personnel and equipment [1]. Turkey, which is considered as a developing country, has a great potential and need for telemedicine. The aim of this study is to present an overview of telemedicine potential for Turkey, the initiatives undertaken in Turkey up to now, the inherent obstacles and recommendations to overcome these obstacles.

Telemedicine Potential

Turkey is a large country located between Europe and Asia accommodating 72 million people in an area of 783,000 km². Large cities in Turkey have well-equipped public or private hospitals with experienced doctors. On the other hand, health services in some cities are poorer and especially eastern and south-eastern regions have limited facilities in terms of medical equipment and staff. Hence, most doctors don’t prefer to work in this undeveloped region. The ministry of health has made it necessary for recently graduated practitioners and specialists to work in cities with limited resources for a reasonable period. Although this obligatory task aims to promote health services in underdeveloped regions, it imposes an undemocratic compulsion. The internet speed provided today and the interests in the internet use are promising factors for telemedicine in Turkey.

Initiatives

Several telemedicine attempts have been initiated by the government, academicians and civil society organizations (CSO) since 1997. The first telemedicine attempt was the National Medical Communication Network Project named as UMEDIA, which was initiated by the joint effort of TUBITAK and Ankara Chamber of Medicine in 1997 [5]. After the UMEDIA Project, several attempts that have been performed by the academia that focus on remote consultations [6-9], distant medical education [10], a national medical database for journals [11], internet usage by civil care organizations [12], security and ethics on the internet medical sector [13] and telemedicine applications on various disciplines: tele-
pathology [14], tele-radiology [15], tele-dermatology [16-19], tele-cardiology [20, 21]. Today, nine universities in Turkey have graduate programs on medical informatics. Moreover, the Ministry of Health initiated the second group project named e-Health Project in 2003 and a civil organization named Turkish Medical Informatics Association, which is a member society of the International Medical Informatics Association and European Federation for Medical Informatics [22].

Obstacles

Technological, organizational, financial and legal obstacles have prevented widespread adoption of telemedicine for different disciplines. For instance, no legal measures have been set for data protection and information security of the internet yet. In addition, initial investments for investigation of technological aspects introduce financial obstacles. The attempts that have been performed up to now resulted in advances especially in tele-radiology and tele-pathology. Although much has been done since 1997, telemedicine studies in Turkey are conducted separately by the academia, government and a civil organization. These independent and small scale studies shift the realization of telemedicine in Turkey to a further date. For success in telemedicine a collaboration of the government, universities, medical institutions and civil organizations is required.

Recommendations

For Turkey to benefit from telemedicine, security and privacy issues introduced by internet and telemedicine should be set on legal bases. Secondly, the technological barriers might be considered by detail and efficient ways to overcome them must be encouraged. Thirdly, strong leadership is needed to conduct telemedicine studies. The government, industry, and academia should work together and with professional associations with experience in health and information technology to educate the broader health and health care communities about the ways the internet can benefit them. Finally, quality initiative associations must be formed and standards developed to rate and control health related web sites.

Conclusions

Turkey has a great potential and need for telemedicine and many initiatives are performed in order to realize telemedicine since 1997. However, there exist technological, organizational, financial and legal obstacles that prevent widespread adoption of telemedicine. Several recommendations are presented in this paper for the success of telemedicine in Turkey.
References


Canan Aydogdu received her BS degrees with honors both in Electrical and Electronics Engineering Department and Physics Department in 2001 from Bogazici University, Istanbul, Turkey, and MS and Ph.D. degrees in Electrical and Electronics Engineering from Bilkent University, Ankara, Turkey, in 2003 and 2010, respectively. Her current work focuses on Bluetooth, IEEE 802.11, energy-conserving protocols in wireless adhoc and sensor networks, wireless technologies for telemedicine applications.