An Overview to Ethical Problems in Telemedicine Technology

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Abstract

Transfer of information from one point to another by using electronic signals to provide medical services is defined as telemedicine. Today, many people and intuition who want to get health care service through telemedicine consults the internet. Technically it would be possible to reach the database from the outside that contains the information so the protection of personal information and maintaining the confidentiality seems to be so difficult. Ethical problems usually emerge in the phase of protection of privacy. Therefore, on the one hand the use of technological means as scheduled, on the other hand the risks that may arise should be evaluated in terms of ethics.

Keywords: Health, Ethics, Technology, Telemedicine, Internet

1. INTRODUCTION

Increasingly, the Internet has become a part of our daily lives, the number of internet users in the world is nearly two and a half billion as of June 2012 and it is approximately close to 36.5 million people in Turkey (http://www.internetworldstats.com/stats.htm.). As internet usage is growing rapidly over the years, the internet brings a rapid increase in crimes and ethical violations with it. However, despite this, one of the leading uses of it is in health during daily life.
2. TELEMEDICINE

2.1. Description:
Telemedicine has been described in the form of ‘use of information and communication technologies to transfer information the correct diagnosis, treatment, disease and injury prevention, continuing education of health professionals, individuals, or in any case affect the development of community health’ by the World Health Organization (Feroze, 1996).

Also telemedicine is described by ‘United State Institute of Medicine’ in 1996 as ‘Where the distance is a problem, the use of electronic information and communication technologies (two-way video, e-mail, smart phone, cordless tools and other telecommunication technologies) to provide and support healthcare (Milli Eğitim Bakanlığı, 2008).’

According to Ministry of Health of the Republic of Turkey, telemedicine is ‘With the widest range of definition to present the remote health services. Telemedicine includes providing services in the fields of radiology, pathology, and ultrasonography in information and communication technologies in health service delivery through the distance between the secondary and tertiary health care institutions. (http://www.saglik.gov.tr/ SBSGM/belge/1-15487/tele-tip.html).

2.2. Development:
Over time and with the development and getting cheaper of information and communication technologies, telemedicine has steadily expanded the range of applications. As a result of this expansion the boundary between the disciplines has obscured partly (http://halilaktas0.tripod.com/odev/teletipnedir.htm). Looking across application areas in medicine today, cardiology, ophthalmology, radiology, pediatrics, dermatology, psychiatry, pathology, pulmonology, neurology, gastrohepatology, surgery stands out as the branches (Ertek, S., 2011).

Nowadays medical informatics which is almost become an essential concept at the past it was a concept if there would be better (DeShazo, J.P., LaVallie, D.L. & Wolf, F.M., 2009). Telemedicine applications not new in the world also have an increased importance in our country recent years. In applications of telemedicine especially Radiology plays an important role such rate of 57%. This applications provide an easy and fast access to information for health professionals (Erdoğan, P. & Erdoğan, B., 2003). It is reported that approximately 70% of all radiology practices in the United States is made in the form of teleradiology (Binkhuysen, F.H.B. & Ranschaert E.R., 2011).

The first application to telemedicine in the medical literature was created in the form of teleradiology system in 1950, by Canadian radiologists from Montreal Jean-Talon Hospital (Field, M.J., 1996, pp.36). In this regard, Ruggiero who conducted the world's first application said that, inspection results sent by the Jutra using coaxial cable In Montreal in 1959 (Ruggiero, C., 1998). Then, at the end of 1960 between The Logan International Airport Medical Center and Massachusetts General Hospital in East Boston Information communicated by establishing a microwave transmission line (Murphy, R.L.H. & Bird, K.T., 1974). The first application in Turkey was realized between Günmar MR Center, Gaziantep and Medart Medical Center, Ankara in 1997 (Erdoğan, P. & Erdoğan, B., 2003).

2.3. Application Areas:
Telemedicine, not only is used with the aim of remote monitoring and examination of patients in clinical practice, but also of medical education, management, and is also used in scientific research. When we look at the world for the intended use, diagnosis, education, management, scientific research, medical monitoring and treatment protocols, natural disasters, mobile applications, public health and preventive medicine such areas see used in application (Milli Eğitim Bakanlığı, 2008).

2.4. Purpose:
Ministry of Health of Republic of Turkey described the objectives of telemedicine listed as follows;

- a. Collection of all images and information about a patient in a common electronic field.
- b. The creation of a safe and fast way to share the information by relevant physician.
- c. To Digitize hospital processes.
- d. Use of information and communication technologies in the remote delivery of health care services.
- e. The creation of a digital hospital concept.
- f. Alleviating the shortage of experts in the field of medical imaging.
- g. Complicated cases, made a quick consultation.
- h. The provision of information and experience sharing among physicians.
- i. The creation of tools that help diagnose accurately and quickly.
- j. Ensuring the quality and precision of the evaluation of patients.
- k. Reducing hospital costs and increase productivity (http://www.e-saglik.gov.tr/ERadyoloji.aspx)

2.5. Benefits:

Health care will be taken to the patients that away from medical centers; Remotely assess the condition of patients with the latest technology equipment and systems; Reduction in hospital costs and achieve savings in terms of time; Obtain information from the environment of the patients, and provide 24-hour service (İşik, A.H. & Güler, İ., 2010; http://www.teletip.com.tr/hak.asp); Bed due to shortening cycle more efficient use of the number of beds; Elimination of waiting periods will result in death; Specialist physicians able to reach a broader patient population and satisfied more patient; Provide expert support for health care personnel working in remote areas; Health-related statistical information can be obtained in a very short period of time (Milli Eğitim Bakanlığı, 2008).  

3. ETHICAL PROBLEMS

The main ethical problem areas are: Insufficient clinical information transfer to the opposite side, broken communication between doctor and patient, inaccurate and unclear reporting, security of personal health information maintained in electronic form, the reliability and risk of housing, How much the responsibility of the physician during the consultation with the patient will be, What will happen in the event of consultant physician disagree with the patient's physician, How to be and how to inform the patient informed consent (Gülhan, Y., 2006, p.138), the decrease in the control might be caused a defect in informing patients, using growing technology plays difficulties in autonomy, in own specific cases these technological developments might reasoning errors, decreases the concept of trust between doctor and patient (Doğan, H., 2006, p.103), During surgery applications who belong to the legal responsibility (Gülhan, Y., 2006, p.138).

Today, with telemedicine, many people and corporate who want to get health care consults internet site. As well as many health agency and health personnel which provides health services, share data and professional knowledge over the Internet offer. Technically, it may be possible to gain externally access to the database where the information is evaluated maintaining the confidentiality of the provided information and the protection of personal information seems to be difficult. Also the ethical problem arises in the stage of protection of privacy which stored on personal information. Capturing patient records by unauthorized persons may jeopardize the principle of the protection of private information of patients and may be able to misuse.

For one of the most important problem areas, to keep stored personal data that prepared electronically, the protection of health data and protection of private life have been various national and international regulations. According to this, The 12. Article of 'Universal Declaration of Human Rights declares that 'No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honor and reputation' (Resmi Gazete, 1949) and Article 8 of the Declaration of
Lisbon on the Rights of Patients Published in 1981 and revised in 2005, declares that "Patient's has a right to expect from physician, to respect the confidentiality of all medical information about his private life' (WMA Declaration of Lisbon on the Rights of the Patient, 2005). In the 4. Article of Declaration on the Promotion of Patients’ Rights in Europe, Amsterdam 1994, "Protection of personal information, even after death, protect the patient's identity, the protection of patients' records from third parties" subheadings are listed (WHO A Declaration on the Promotion of Patients’ Rights in Europe, 1994). Article 1 of the; Section 1 of the Convention on Biomedicine; it is specified that Protection of human dignity and the identity is given the responsibility of states and the rights must be secured (Resmi Gazete, 2003).

When we look at the national survey prepared for the protection of personal data we encounter the followings; Article 23 of the Patients' Rights Regulations entitled "disclosure of information" in 1998 (Resmi Gazete, 1998), Article 9 of Code of Professional Ethics in Medicine entitled "Confidentiality Obligation" and Article 31 entitled "Giving the patient on the patient and the use of information" in 1999 (Hekimlik Meslek Etiği Kuralları, 1998), Article 4 of Rules of Medical Ethics "Medical and dental surgeon, can not disclose the learned the secrets of the patients unless legal obligation" in 1960 (Resmi Gazete, 1960), 20th Article of The 1981 Constitution of Turkish Republic, entitled "Privacy and the Protection of Private Life" (Resmi Gazete, 1982).

With more cases in the forefront of technological opportunities, physician-patient communication and relationship between them was adversely affected. Because of this, physicians use of their own ability has decreased. This is manifested not only in the formless conversation with the patient, but also as a simple physical examination and diagnosis deprivation or to patients who may be treated to favor a more complicated treatment (Oğuz, Y., 2006, p.295). For example, today one of the most widely used methods for teleradiology patient and the physician are not talking a direct relationship with the clinical data disruption and feedback during the writing of this report and to be more sensitive to the physicians. Physicians are not faced with the patient and could not know the full details of patient's narrative, and even the need to stay away from relatively precise diagnosis and may wish to additional investigations. Thus, unnecessary labor, time and material loss arises (Gürkan, M., 2009).

Nevertheless the time spent and the cost is getting decreasing through telemedicine, also by leaving the classic methods in the physician-patient relationship decreases morale and confidence. By decreasing confidence the healing process negatively affected. This leads us to the technological methods can not be replaced, a well-established patient-physician relationship (Gürkan, M., 2009).

Another example is, in the classical system making it relatively difficult to falsify on radiographs and it can be perceived easy. However, the data generated in computer still can be changed via the computer, can be much easier than the conventional method. In addition, the presence of electronic data networks such as the internet or data during transmission over long distances where the security gaps that may occur in the form of unauthorized access so these information that should be kept confidential patient data seize by third parties or even offer of making changes on this data not only legal problems but also ethical problems (Gürkan, M., 2009).

In terms of medical ethics secrets of the patients can be contributed and we find a violation of the principle of "Confidentiality" (Gürkan, M., 2009). We can clarify this situation a few examples from real life. According to Gürkan; A health worker who may have access to medical information gave the information about four thousand HIV (+) patients to two newspapers. Elements of a company, the financial information of the patients were sold to another company that distributes data. In June 2008, a bone marrow donor bank which has about thirty thousand identity information has stolen by copying files from the computer. In August 2000, 858 patient records confidentiality has been violated by the improper appointment (Gürkan, M., 2009).
4. CONCLUSION

The personal health data, have attempted to ensure with a variety of national and international regulations. Thus, on the one hand envisaged the use of technological opportunities as possible, on the other hand the risks that may arise should be evaluated in terms of ethics (Gürkan, M., 2009).

Remote reporting or evaluation of patient information is a fast-growing and inevitable phenomenon, which includes a variety of advantages and disadvantages. It is considered to be a high potential of additives for the use in accordance. However related to the field of technical, medical, legal and ethical regulations is considered to be needed (Gürkan, M., 2009).

Because of all this these problems those may arise during the implementation of telemedicine there are no regulations about who neglect or who will be responsible for damages. This is another problem area. Therefore, to overcome these deficiencies constitute legal regulations and ethical basis for these analyzes shall be performed (Gürkan, M., 2009).

In the circular "Data Security" which was published by the Ministry of Health of Turkey, stated that; security policy within the scope of personal health records; about data security, confidentiality, integrity and accessibility that the three basic principles to be taken into consideration and in the context of "System Security" traceability, identity testing, reliability, and not to be denied the four basic principles should be carried out (Sağlık Bakanlığı, 2005).

REFERENCES


