Telemedicine and ethical dilemmas

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Abstract: Telemedicine is still under development and the main goal is to deliver medical care at distance. The application of telemedicine and telecommunication – telematics – in the healthcare system is the privilege of the rich countries, where reliable and secure satellite connections are available at high speed transfer rate, and its use is limited by the necessity to exist the highly sophisticated equipment. To facilitate telemedicine applications for all countries is one of the goals for the next years. In the same time, educational programs in the field and ethical analyzes are not only a trend for the next years but a real necessity. In this respect, in this paper, we will consecutively pay attention to the ethical aspects of telemedicine correlate with patients, health care services, communication or biomedical literature.

Key Words: ethics, telemedicine, health care

1. Introduction
In this paper we reflect the phenomena of telemedicine, its implication and the common problems develop by this new way in medicine.

Telemedicine can improve the lives of European citizens, both patients and healthy people, and also integrate at a higher level the activities of health professionals, while tackling the challenges of healthcare systems. [1] (fig.1.) According to WHO statement made in Geneva in December 1997: “Telemedicine is the delivery of health-care services, where distance is a critical factor, by health-care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, and for the continuing education of health-care providers as well as research and evaluation, all in the interests of advancing the health of individuals and their communities.” [10]

European citizens are getting older and life expectancy is greater because we are developing better and new treatments and we can use better and better drugs. In that context there are a greater number of people living with chronic diseases. Their health condition often requires enhanced medical attention. Medical support may not be available in remote areas as easily or as frequently as their health condition would require.

“Telemedicine can radically improve chronically ill patients’ quality of life and give people access to top medical expertise. It is our duty to make sure patients and health professionals can benefit from it,” said Viviane Reding, EU Commissioner for Information Society and Media. "At the same time, the provision of remote healthcare services through ICT can optimize the use of scarce human and financial resources in the medical field." [10]

2. Changes in Health care environment?
Introducing telemedicine could help doctors and patients access health care from distance, but there are also many considerable problems that must be solved in order to successfully implement telemedicine in medical systems (fig.2).

There are a number of challenges generated by changes done in the health-care environment like: [2, 4, and 5]

- population mobility and continuity of care,
- increasing the number of female who work,
- conflict between home care and care in special units,
necessity of distant monitoring of health status, including between hospital and home,
- the grievance of political and economical to reduce the expenditure in health sector
- increasing the role of bioinformatics and electronic evidence
- developing new concept of e-Health and evidence based medicine

- to use advanced diagnostic and therapeutically technologies (CT, MRI, etc.) for a large number of patients/citizens
- to develop a health promotion system

ICT and Telemedicine can contribute to win these challenges by improving the level of health maintenance and reducing costs. (fig.3)

3. Telemedicine – medical aspects

Telemedicine (fig.4.) use ICT, in situations where the health professional and the patient are not in the same location. Also it can be used when a doctor like to receive an advise from other colleagues. In that context, telemedicine encompasses a wide variety of services, like: telemonitoring, telepathology, teleconsultation, and telesurgery. [9]
The effects of using telemedicine could be:

- re-organization and re-deployment of healthcare resources
- increase quality of care for patients
- a coherent partnership between patients, health professionals, healthcare providers
- optimize the patient's monitoring and treatment protocols

4. Ethics and telemedicine.
Telemedicine and its branches put a number of ethical problems, which must be solved for giving a high level of trust in these methods.

Virtual consultation, virtual libraries, telepharmachy, teleradiology and of course, security issues are only few elements connected with ethical dilemmas. [3, 9]

![Figure 5](image_url)

The most important problems (fig.5) develop in the telemedicine ethical fields are:

- how is certificate the competence of medical doctors involved in telemedicine
- how is assure the confidence in telemedicine
- how is achieved the confidence and acceptance of telemedicine solutions by health professionals, patients and health authorities
- how is assessed the efficiency of telemedicine
- how are respected the rights and fundamental freedoms
- how is influence the health professional – patients relationship
- how safety are the patients records
- remote real-time examination, remote real-time assistance, remote robotic surgery

Telemedicine means to practice medicine at the distance, but not at distance of competences. For example, in order to certificate the quality of medical sites it becomes obvious that it must be found a way to certificate the competences of people who use telemedicine services, and also to certify the quality of connection. [8]

Telemedicine consultation is one of the high challenges for medicine today; the doctors must have very good abilities, adequate knowledge and to accept the virtual community. Tele-monitoring could be very useful for people who live in inaccessible areas, but generating this process could be unwholesome.

Even if some computer scientists think that is possible to have a maximum security of data used in e-Health, unfortunately, our experience show that even most secure systems can be broke. But, of course using electronic data means to allow doctors to have access to medical records and databases and, of course, to assure the updating process of patients’ data.

Also are very important to development the telemedicine into benefit patients and society, make telemedicine information available to others, encourage development the doctors specialist in telemedicine, provide telemedicine services with a high accessibility or use telemedical resources to acquire new knowledge, to learn new skills, and maintain their levels of expertise. Recognized standard of telemedical care is an important step for developing the future medicine. [6]

5. Ethics and telemedicine – few dilemmas in students view
In order to see how telemedicine is perceived by our medical students we have design a survey based on a questionnaire. The study group comprises 174 students which have a minimum of 18 and a maximum of 47 years. The study was realised in December 2008-January 2009, in Transilvania University of Brasov and University of Iuliu Hațieganu Cluj.

One of the questions addressed to medical students was: In what scope we can use telemedicine? (fig. 6) They have the possibility to choose one or more answers:

- deliver the data between patients and doctors
- for the isolate regions, for regions affected by war
- for developing mobile applications useful in ambulance services
- for developing the application which permit consultation at home, facilitating the doctors access and reducing the time until the consultation is possible
- to reduce the expenditure of medical offices.
The students think that it is very important to use telemedicine especially for the isolate regions (geographical or political) this result being in accordance with the idea of medical doctors that telemedicine could change the communication process between medical staff and patients and that it is better to be used only if it is necessary.

One of the problem discuss with the student was: What are the principal ethical problems developed by telemedicine? The students were request (fig.7) to put in order the next affirmation, from 1 to 5 (5 being the problem with biggest importance):

a. not knowing the competence of the person who uses this facility
b. the change in the relation doctor-patients
c. confidentiality, reliability and security
d. possibility to obtain incomplete information, according with the level of education of patients or the people from their entourage
e. the manner of store and transfer of the information regarding the patients

As it could be seen in the next graphic the biggest problem is sought to be the risk of loosing confidentiality. Only on the second place is the possibility to modify the relation between patient and doctors. (fig.6)

Another problem discuss was: Confidentiality in telemedicine is in connection with ....? (fig.7)

a. to respect the patients rights so that the information about the patient is to be known only by the doctors or nurses involved in her/his treatment;

b. to assure the security of the information that is transmitted;

c. to respect the confidentiality rules not only by the medical professional group, but also by the specialist in telemedicine involved in medical activity.

The majority of the students think that the greatest problem in respect to confidentiality is to ensure that confidentiality rules are respected not only by the medical professional group but also by the other specialists in telemedicine which could be involved in this process. (60%)

Also, 17% of them think that confidentiality is in connection with more than one problem, being a complex process.

The lowest percentage was obtained by answer b), to assure the security of the way how is transmitted the information. (fig. 8)
8. Conclusion

Telemedicine is for the e-patients, for the real ones or for both?

Sharing the uneasiness is a good way for avoiding the ethical problems and to use in a safe mode the computers and electronic facilities.

Telemedicine needs abilities in medicine, telecommunication and information technologies sectors, which could be assure only in a multidisciplinary team. In the same time, the team who analyzes the ethical problems must be also interdisciplinary. Telemedicine applications have to be developed by the doctors, engineering and computers scientist together. [2] That means that telemedicine must evolve as a stand alone specialty, not only a medical competence. Even if the team is interdisciplinary, the physician must understand technical problems and the computer scientist must understand medical terminology.

The survey conducted among medical students, shows that they have a good opinion about telemedicine, but very few experience and real knowledge. The low percentage of interest obtained by the transmission security issue is an indicator of the need to find a way for students to assist to telemedicine experiments.

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