

## TELEMEDICINE AND TELENURSING – REALITY OR SCIENCE FICTION?

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**Abstract:** *Telemedicine, the method by which medical services are provided at a distance, has become a basic component in many health systems. Among its areas, telenursing experienced an impressive development in recent years due to its major benefits, which include reducing health care costs, saving time for the trip home, patient comfort, reduced days of hospitalization and medical units addressability, increased availability of the medical services in remote or difficult to reach geographical areas.*

**Cuvinte cheie:**  
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**Rezumat:** *Telemedicina, metoda prin care sunt furnizate servicii medicale la distanță, a devenit o componentă de bază în multe sisteme de sănătate. Între domeniile sale, telenursingul a cunoscut în ultimii ani o dezvoltare impresionantă datorită beneficiilor majore, printre care se numără reducerea costurilor îngrijirilor medicale, economisirea de timp necesar deplasării la domiciliu, confortul pacientului, reducerea zilelor de spitalizare și a adresabilității unităților medicale, accesibilitatea crescută a serviciilor medicale în arii geografice îndepărtate sau greu abordabile.*

“Watson, come here I want you!” said Alexander Graham Bell on 20 March 1876, when he spilled battery acid on himself, while making the world’s first telephone call. We can say this was also the world’s first telemedical consultation!(1) Telemedicine has come a long way since then.

Telemedicine, a method by which patients can be examined, investigated, monitored and treated by health-care remote providers is slowly becoming an integral part of the health-care delivery systems. Using available hardware and telemedicine software, establishing connectivity through ISDN lines, broadband or VSATs (very small aperture terminals), telemedicine do away geographical barriers and distance. Clinical information can be transmitted by peripheral medical devices. These include stethoscopes, blood pressure monitors and heart rate monitors type ECG, spirometers etc. This clinical data could initially be evaluated electronically by a nurse at a remote place, thus allows time saving required travelling to patients' homes.

Telemedicine customarily uses two methods to transmit images, data and sound - either “live”, real-time transmission where the consulting professional participates in the examination of the patient while diagnostic information is collected and transmitted, or “store and forward” transmission, where the consulting professional reviews data asynchronous with its collection. Many programs employ both transmission capabilities, to maximize efficient use of resources appropriate to the medical services being provided.

Patients with long-term conditions such as chronic pulmonary diseases, diabetes mellitus or cardiovascular diseases represent a major health-care problem for the public health-care systems. A recent study (2) showed that over 27 000 patients died from chronic obstructive pulmonary disease (COPD) in 2004 in the UK and the costs allocated to their treatment amounted to 6.6 billion pounds.(3) The spiralling health-care budgets and the economic downturn we are facing in our days

are forcing health-care providers to look for new cost-effective solutions to provide the best possible care. Information technology (IT) and particularly the new ways of delivering care remotely through telecare interventions seem to be a pivotal aspect in this direction. IT can be implemented as web-based applications (4,5), mobile phone and alert systems (6,7) or as telephone and videoconferencing to be used by patients with chronic diseases who are at their homes.(8,9)

Patients with chronic respiratory diseases frequently have exacerbations of their conditions. While some of these events remain unreported doctor (10), others require addressing the emergency services and usually require hospitalization.(11) It has been reported that about one-third of these patients will be seen again or admitted to hospital within subsequent 2 months.(12) A good home control of patients with chronic respiratory diseases would make possible early detection of exacerbations of their condition, which in turn would reduce hospital admissions and slow disease progression.(13)

Realizing the major implications telehealth services can make to economic and population level, the European Commission issued in 2008 a Communication to the European Parliament, the European Economic and Social Committee on telemedicine for the benefit of patients, healthcare systems and society. This act states that telemedicine can facilitate the provision of specialized care in areas burdened by the lack of medical expert or in areas where access to healthcare is difficult, and that telemonitoring can improve the quality of life of patients with chronic diseases and reduce the number of days of hospitalization. Also, services such as teleradiology and teleconsultation can shorten the waiting list of patients and optimize use of resources, enabling increased productivity. Telemedicine can bring a substantial improvement of the EU economy.(14)

Romania is the first country in Europe if not the world regarding telemedicine system used in emergency medical

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services, Raed Arafat said recently as President of the Foundation for SMURD. A pilot project has started in 2003 to equip 100 ambulances with video transmission systems that allow live footage on the accident places, so remote doctors can better coordinate specialized interventions. "That technology has made. If we have had to wait a physician to perform a defibrillation, that can now be done by a fireman or a nurse, coordinated remotely. Many cardiac arrest were resuscitated in this way. At an accident scene I am interested to see what happens. Video solution is critical," said SMURD President.(15)

Currently, there is a significant number of health professionals involved in telehomecare setting suitable for use in some patients with chronic diseases. Among them, physicians and nurses are the most relevant. Most studies regarding the use of telemedicine are assessed either from the doctor or a technological point of view. Although nurses have an important role in home health services, they are commonly neglected in these studies. Using IT to provide nursing services in health care is known as telenursing, part of the telehealth, along with other similar areas such as telediagnosis, teleconsultation and telemonitoring.

The International Council of Nurses (2007) has defined telenursing as the use of telemedicine technology to deliver nursing care and conduct nursing practice (16). Telemedicine in this case is defined as tele – "distance" and mederi – "healing", definition that includes the use of phone, internet, sensors, video, remote diagnosis and/or other interactive technologies that allow information exchange between patients and health or between nurses and other health care providers. Telenursing Working Group of the International Society for Telemedicine and e-Health has endorsed the necessity for the increased adoption of telehealth/telemedicine by nurses to ensure collaboration across disciplines (physicians, therapists, other health-care team members) and contact with patients. Telenursing would also "export" nursing knowledge and expertise to patients who need care, according to the required standards of nursing practice in countries using this telesystem. Nurses are the single largest group of health-care providers worldwide. Therefore, it is crucial that nurses are involved in the development, planning, implementation and management of telemedicine/telehealth and e-Health programs and policies at all levels.

Telenursing is rapidly developing in many countries due to factors such as the need to reduce medical costs, increase the number of older patients or chronic diseases, improving health care in isolated geographic areas. About 72% of people over age 70 live alone, but 90% of them want to be independent, so they require (tele) monitoring at home. (17). One of the distinct applications of telenursing is home care. For example, patients who are bedridden, located in remote areas and have chronic or debilitating diseases can stay home and be "visit" and regularly assisted by a nurse via videoconferencing, internet or videophone. It is estimated that 56% of home visits can be replaced by virtual visits.(18) Among many benefits, telenursing include decreasing number of nurses, saving time for the trip home, low addressability patients to health care units, substantial savings in health budgets.

While telemedicine already exist in many countries in some forms, telenursing is still in his infancy. However, I stress that telenursing is a reality, not just a futuristic projection, drawn from science fiction scenario. It was Victor Hugo who once remarked that there is nothing more powerful than an idea whose time has come. Perhaps the time is now ripe for telenursing.

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