

Inter-hospital teleconsulting project between Cairo and Palermo

FRANCESCO SICURELLO¹ - ESSAM AYAD² - SALVATORE CORRAO³ - GIUSEPPE MARINO⁴

¹ President of @ITIM (Italian Association of Telemedicine and Medical Informatics); University of Milan-Bicocca (Italy)

² Italian Hospital Umberto I, Cairo; University of Cairo (Egypt)

³ Civic Hospital - ARNAS, Palermo (Italy)

⁴ Scientific Attaché, Italian Embassy Cairo (Egypt)

Introduction

The Telemedicine project between Italian Hospital Umberto I in Cairo and ARNAS-Civic Hospital of Palermo (in the frame of a scientific cooperation and of the agreement signed by the two Institutions at the end of 2002), wants to create an health network for medical teleconsulting, in order to support diagnosis and treatment of relevant pathologies. Moreover, exchanging of medical and epidemiological data on difficult clinical cases, coming from the two health structures, could create health data banks useful to biomedical research.

Finally, the exchange of medical knowledge (diagnostic-therapeutical protocols, guidelines, etc.) could be published in web sites and shared between health operators of the two hospitals and of others health structures.

Background

In the frame of Scientific and Technological Bilateral Cooperation between Italy and Egypt, in the field of scientific research and technological innovation, telemedicine represents a great instrument to improve the quality of care and the diseases prevention, increasing the solidarity among Countries and people in such important fields as health, diseases treatment and health promotion (with this aim Italian Hospital Umberto I in Cairo was built a century ago).

During these 100 years, important evolutions in medicine and biomedical technologies allowed to understand and to treat many and different pathologies.

The remarkable developments in pharmacology and in diagnostic-therapeutical field, the important changes in the health services organization, in medical treatments and, more recently, the development of Information Technologies and Telemedicine generated a big revolution in healthcare organization and in

the relationship "doctor-patient" (tele-consulting, tele-diagnosis, tele-assistance, tele-training, etc.).

ICT (Information & Communication Technologies) systems in healthcare, also using satellite communication, could permit to provide teleconsulting and tele-monitoring for socially relevant pathologies and can interest very much biomedical research (cardiology, oncology, neurosciences, etc.). Telemedicine also offers opportunity to medical doctor and others health operators to cooperate and provide tele-training sessions.

Many studies on telemedicine demonstrate that it can offer to citizen more efficient health services, improving the delivery of care, rationalizing services, reducing costs and favouring a faster circulation of medical information.

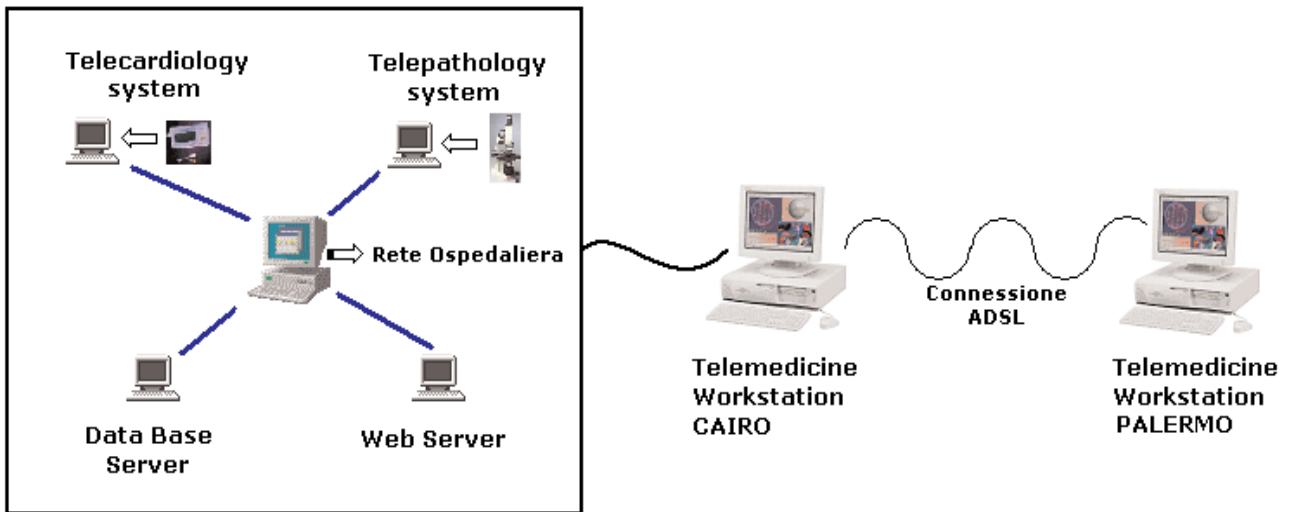
An evident vantage of telemedicine consists in the reduction of the distance between doctor and patient, transferring information only, not the patients, which -at the moment and considering the international crisis- may have many mobility problems.

In particular, networked health care and telemedicine patient services can provide access to the expertise of prominent medical institutions, with consultations and second opinions being returned much more quickly than in the past. Physicians anywhere in the world who need a primary diagnosis or second opinion can consult a leading hub specialist.

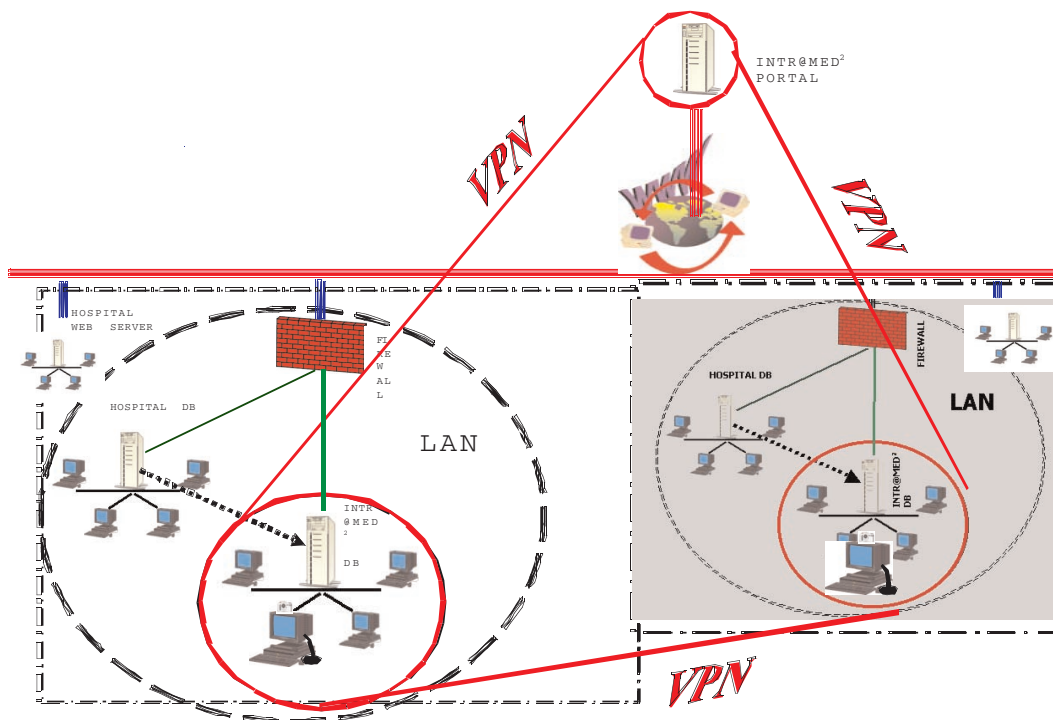
Project development

In the first phase, the project regards activities relating telepathology and telecardiology, by means the transmission of slides images and ECG signals, giving a "second opinion" service of tediagnosis and teleconsulting in real time (video-conferences) or in off-line (sending clinical information and signals to the web site for referrals and diagnosis).

The following figure represent a model of Network. The scheme of the network is:



Connection, through a VPN (Virtual Private Network), will guarantee data security during transmission of patients clinical information, using suitable and advanced technologies (as digital signature and smart card for medical operators). See figure below.



The heart of the network is a multifunctional medical/health web portal, which enables physicians and others researchers in biomedicine to access the whole network and share clinical information and knowledge. The web portal is the main gateway to a series of healthcare services. Doctors can use the system to access the information from a local Internet connected computer regardless of regional or national boundaries and constraints.

More specifically, the web portal can allow to:

- access the latest medical news;
- access clinical trial news;
- improve their medical education;
- have links to other useful internet services and sites;
- access clinical and new research opportunities;
- share diagnostic and therapeutic guidelines and protocols;
- organise telediagnosis sessions with specialists in excellence centres for specific pathologies.

In particular have been considered some fields of telemedicine relating to Cardiology/cardiosurgery and pathology useful for oncological diseases.

The main services, through the virtual network and the web portal are:

1. Forums for every subject relating to major diseases
2. Links to other sites with relevant information concerning major diseases
3. Medical journals
4. Information about the participating partners
5. A teleconsultation directory of the people (hospitals and specialists) available for teleconferences, teleconsultations, telediagnosis, etc.
6. A mail server for participating sites, which will store and then forward e-mail messages
7. Access to the special databases, (epidemiological registers) to be created within the project.

These services will enable users to exchange experiences, seek a second opinion, organise specialised regional databases, ensure the better follow-up of their patients and undertake cooperative training. Continuous medical education is very important for the practice of medicine and the project can achieve it through the services it provides.

Specific training modules are planned in order to

increase computer literacy among health professionals so that they can fully exploit the possibilities offered by the portal and thus improve the quality of their work.

Conclusion

The users of this project are primarily the clinical specialists and health operators (target group) of the hospitals involved.

For the target group, the project will improve their ability to access expert advice, the use of teleconsulting/telediagnosis service, especially live conferencing, support the building of partnership based on trust and closer understanding between clinicians, the extension of training and education in specialistic areas of medicine.

The network can establish an increased use of treatment protocols and standard methods of cure. This will tend to increase the use of more formalised protocols and patient care plans.

In the field of medical specialities it is possible to have: direct transfer of diagnostic results or diagnostic findings with integration in the relevant patient information systems using established communication standards; quality assurance based on clinical practice guidelines and through the integration of different health care facilities; tele-consultation, as a tool of joint diagnostics by remote experts.

In the field of health administration: electronic transfer of accounting data by several service providers, soon after the provision of the service; disease management, for example, through resource management; case management, for example, through online cost payment decisions.

In the field of health care information: public information for patients; anonymous case databases and online information services for medical topics.

At a more general level, this cooperating medical network can have some impacts and benefits and can contribute to following aspects:

- expanding telediagnosis and teleconsultation in peripheral healthcare institutions;
- improving the quality of healthcare in peripheral institutions;
- reducing healthcare costs and patient travel;
- reducing the overload of urban hospitals;
- coordinating treatment policies for major diseases;

- organising epidemiological surveillance groups;
- fostering cooperation between healthcare specialists;
- fostering educational programmes;
- improving the quality of life.

Other results are:

- standardisation of diagnostic/therapeutical (protocols) rules to improve the best care in some

major diseases;

- Training on Public Health
- Creation of epidemiological monitoring groups
- Development of methodologies for the integration of heterogeneous information
- Modern establishment of the health service as regards to managerial and planning problems