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EUROPEAID

CO-OPERATION OFFICE

Telemedicine

The European Commission EUMEDIS Programme focuses on the impact of the latest IST tools used in healthcare as a priority in the implementation of pilot projects in the MEDA region. Telemedicine is on the cutting edge of health sector technological improvements, a sector revolutionised by the new digital environment.

The impact of the Digital Revolution for the Health sector

The use of digital communication networks to transfer health care information has already begun to initiate far reaching industry changes. The term "Telemedicine" has come to mean the use of communications and information systems to conduct a clinical process remotely. It is therefore unsurprising that developments in Telemedicine are interlinked with new developments in information and communication technology (ICT). As medical images have become increasingly advanced in digital format, the means of communication have changed accordingly. Today, telephone lines, DSL and satellite links are routinely utilised.

Telemedicine is without boundaries. Equal access to medical expertise, irrespective of the geographical location, is clearly a motivating factor. The ability to transmit high quality medical images to remote locations will enable reliable diagnosis to be formulated by the expert at the receiving site. Successful implementation of these developments depend on a number of factors, including access to affordable, yet sufficiently high, bandwidth and intelligent data compression modules to minimise the use of bandwidth.

The Digital Divide as a constraint

Innovations in ICT over the last decade risk creating or amplifying the world's 'digital divide', creating disparity between the northern and southern Euro-Mediterranean area. With this in mind, in 2002 the EUMEDIS Programme has funded 5 Euro-Mediterranean healthcare pilot projects, all of which have encouraged the use of the most advanced IT tools in the implementation of new heath care activities.

One of these projects, **EMISPHER** (**E**uro-**M**editerranean **I**nternet-**S**atellite **P**latform for **H**ealth, medical **E**ducation and **R**esearch), has Telemedicine as its main focus. Implemented over the course of the last two years, it has launched and deployed a dedicated internet-satellite platform, incorporating 10 sites in 5 MEDA countries (Algeria, Egypt, Morocco, Tunisia and Turkey) and 5 EU countries (Germany, Greece, France, Italy and Cyprus).

Key Features

The EMISPHER network hosts three key applications in the field of medical **e-Learning** (the EMISPHER Virtual Medical University), **real-time Telemedicine** (second opinion, demonstration of new technologies, Telementoring, etc.) and **e-Health** (medical assistance for tourists and expatriates).

These applications require an innovative integrated Internet-Satellite service platform: **MEDSKY**. Specifically designed for health professionals, the platform is developed, operated and maintained by EUTELSAT, Europe's leading satellite operator, and Telemedicine Technologies S.A., a software engineering company specialised in electronic clinical trials and telemedicine systems. MEDSKY presents a number of features that make it unique and particularly

well adapted to the requirements of the wider Euro-Mediterranean health community:

- **low cost deployment over large geographical areas**, providing immediate and low cost access to second opinions, multimedia medical databases, electronic records etc.;
- **bi-directional broadband communications by satellite**, providing powerful satellite communications adapted for high quality video-conferencing and broadcasting, creating a powerful "medical network of excellence" in 10 major hospitals and facilities in the EMISPHER programme countries;
- **quality of Service**, implementing both on-demand and automated satellite bandwidth allocation processes to guarantee the required *quality* of service and *continuity* of service, through a hotline, an automated email and SMS alert system and an on-line user support service;
- **multilingual user interface**, offering English, French, Spanish and other languages on a weeks' demand;
- **security and confidentiality**, hosting the server in a highly secure environment, utilising authentication and encryption systems;
- **flexible, evolving and interoperable solution**, continuously adapting to increasingly challenging user requirements in a low cost, zero-maintenance system.

The Future

Projects in remote regions and countries lacking telecommunications infrastructure have proven that satellite connections are an appropriate aid to the medical services for tasks such as: Telediagnosis, Teleradiology, Telemetry, Teletraining and Video Conferencing. Furthermore, via satellite connection, medical establishments can now develop networks for remote medicine applications, educational institutions can communicate across countries and cultures, sharing libraries and databases of research information, or offer distance learning services.

It seems highly probable that such projects will become common practice sooner rather than later. Thanks to EUMEDIS funding, EMISPHER had the opportunity to successfully implement its dedicated service platform for real-time Telemedicine, E-Health and medical E-Learning. It has, at the same time, raised and mobilised the scientific and political interest of the stakeholders in the participating countries to evolve this project into a Virtual Euro-Mediterranean hospital as the foundation for a lasting and sustainable cooperation for improved healthcare in the region. The VEMH would facilitate and accelerate the interconnection and interoperability of the various services through a process of assimilation and integration. Social, human and cultural dimensions will be taken into account, striving for a common approach to this initiative. Activities will include real-time telemedicine services to support the implementation of evidence-based medicine, as well as funding Fellowship programmes for the training of young doctors across the Euro-Mediterranean region.

> **Telemedicine links:** www.eumedis.net/en/project/3 and http://info.emispher.org/virtual.htm

"Congratulations!" to EMED TEX NET

First EUMEDIS Pilot Project reaches its contractual end

EMED TEX NET, funded by the EUMEDIS Programme on Sector 4, Small and Medium Enterprises support, reached its contractual end on November 27, 2004.

The project aims to strengthen the cooperation of the operators in the Mediterranean textile/clothing sectors, which will face considerable challenges after January 1, 2005. In effect, this date marks the end of the quota system in international textile trade that has existed for the last 40 years and means that markets, producers and consumers will be in a new globalised environment, where every operator will have to face increased competition.

The textile/clothing sector in the MEDA region is important, comprising a total revenue of EUR 250 billion and some 7.7 million workers. In a number of MEDA countries, it is still one of the major sources of exports.

The project, led by the **CCIP, the Paris Chamber of Commerce**, uses the new IT technologies to offer the textile enterprises in the MEDA region new instruments to be prepared for the changes: Thanks to the CCIP's competent management, 10 countries, 18 professional and research organisations and a group of textile enterprises have worked together successfully now for over two years.

The portal emedtex.net is the most significant output of the project, offering three main services to textile sector operators:

- **business intelligence** (information on the different markets, major trends in global sourcing, laws and regulations, technological innovations, etc.)
- **business contacts and trade** (a forum to meet, plus a complete set of tools as standard forms, textile dictionary in 5 languages, etc.)
- **business bench marking and improvement** (special features will allow the operator to benchmark their enterprises against EU and MEDA leaders; supplemented by an online training system to bring technical and management skills up to date).

Access is now free for all operators introduced by a project partner, but to achieve long term sustainability, the partners are preparing the portal business plan that defining access rules and costs.

The other 4 EUMEDIS Healthcare projects still active are:

⟶ EMPHIS

### *Euro-Mediterranean Public Health Information System*

EMPHIS aims to develop an efficient health information system at local, national and regional Euro-Mediterranean health levels. It enhances the exchange of relevant information among its partners by networking Information and Communication Technology (ICT) experts and health sector professionals, acting at all levels of the health system. Its overall goal is the improved monitoring of preventable diseases by enhancing the exchange and dissemination of relevant data and experiences at regional level through the use of ICT to improve communication and networking.

> *More details found at:* www.emphis.org

⟶ EUMED CANCER

Euro-Mediterranean network for Genetic Medicine and Cancer Prevention
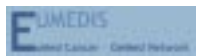
EuMedCancer aims to create a Euro-Mediterranean network which will pool scientific expertise and resources. It aims to improve healthcare in two priority areas: Genetic Medicine and Cancer Prevention.

The first goal of this project is to train health professionals from the 12 MED countries through nine specialised courses, three practical workshops and 21 individual stages of practical training.

The second goal is to transform specialised courses into Internet courses, at the same time establishing a Euro-Mediterranean network of clinical geneticists who will assist each other in making diagnoses on problematic cases using simple and robust Internet technology. The increase in knowledge in Genetics will contribute to the prevention of all genetic disorders, including cancer, in the 12 partner countries.

The third goal of the project is to test and compare new technology (in particular DNA chips) for laboratory diagnosis of genetic diseases, which represent common health problems in Mediterranean countries.

> *More details found at:* www.eurogene.org

⟶ PARADIGMA

Participative Approach to Disease Global Management

PARADIGMA applies a **PAR**ticipative **A**pproach to **G**lobal **DI**sease **MA**nagement in order to develop and demonstrate an Internet based reference framework to share scientific resources and findings in the treatment of major diseases. The project defines and disseminates a common methodology and optimised protocols to support service functions directed to patients and individuals on matters like prevention, post-hospitalisation support, and awareness.

PARADIGMA provides a platform of user-orientated information services, supporting the Health Care Global System of the Euro-Mediterranean Community.

PARADIGMA will integrate "point solutions" in a reference structure, so that a knowledge-based platform can be continuously enhanced to meet renewal and learning needs of all actors, through the concept of participation.

Its goal is the deployment of a network based information system to interconnect the actors at all levels in the Health Care Systems of the Euro-Mediterranean region, using user-friendly, flexible and affordable solutions.

> *More details found at:* www.paradigmamed.org

⟶ BURNET

Interconnection of Mediterranean Burns Centres
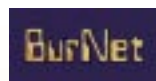
BurNet aims to interconnect the Mediterranean Burns Centres (BCs) through an information network. This has the effect of standardising courses of action in the prevention, treatment, functional and psychological rehabilitation of burns patients and co-ordinates interactions between BCs and emergency departments in peripheral hospitals using training/information activities to optimise first aid provided to burns patients before referral to a BC. Shared procedure protocols for the prevention, care and rehabilitation of patients, both at individual and mass level, will help to create an international specialised database and a web-based teleconsultation system.

Linking Burns Centres through a network aims to reduce the number of burn accidents, to reduce the number of deaths of burn patients, to reduce the number of patients functionally and psychologically invalidated owing to burn injuries, and to reduce the suffering of people involved in fire disasters.

> *More details found at:* www.burnet.org

Telemedicine: Achieving Cross Cultural Solutions

An interview with the EMISPHER Coordinator for EUMEDIS-MDP, Dr. Georgi Graschew

A graduate of the faculty of Mathematics and Biological Sciences at the University of Dresden, Dr. Georgi Graschew has, since 1993, been the Scientific Coordinator of the Surgical Research Unit OP 2000 at the Max-Delbrück-Centre for Molecular Medicine and the Robert-Rössle-Klinik and MDC, at Charité, Berlin.

How have you found coordinating a project with so many partners?

Notwithstanding the relatively short common project target time of 2 years, managing and coordinating a project with 16 partners, from both MEDA and EU countries, poses a real challenge. Multicultural cooperation requires cross-cultural solutions that are respectful to cultural differences.
EMISPHER has succeeded in creating a community feeling among the participants. The consortium has developed into a real team and relations among partners have become rooted in personal friendships. Everyone concurs that what is now needed is to continue our work to consolidate the network.

Has the project succeeded in its aims to set up a flexible infrastructure and still meet the expectations of the medical community?

Yes, the current platform allows for various telemedical services to be run and developed and, at the same time, is sufficiently flexible to adapt to the needs of the various groups of medical end-users. In addition, the interaction between medical needs and enabling ICT technologies might feedback on the perception and definition of the former.

Is this system modelled on U.S. advances in telemedicine?

No, in the field of real-time interactive telemedical applications, the status in Europe is more advanced than in the United States. EMISPHER is rooted in the advances made in previous European Commission funded pilot projects such as ET-ASSIST (1994-1998), PANORAMA (1995-1998), GALENOS (1999-2000), DELTASS (2001-2002) and MEDASHIP (2002-2003).

Can we expect this type of project to be utilised more widely in other areas in the near future?

Yes, the same platform technology can be used for similar content in networks in Latin America, South-East Asia, in those Mediterranean countries not yet included in the network, as well as in Central and Southern Africa. Also, the next step would be to inter-connect these networks, leading to a real global network and integrated platform for various telemedical services. Such a global approach could also include the new Eastern European Member States and its neighbours where, at the moment, the communication infrastructures do not yet allow for this kind of real-time telemedical service to be provided.

What will the benefits of the scheme be to those not in MEDA countries? Tourism, for example?

The EMISPHER platform also allows for the deployment of Virtual Polyclinics, in which tourists, expatriates etc. could get access to medical expertise from their "home fronts" in the way, language and quality that they are used to. The platform produced by EMISPHER can be used already for these interventions.

Is Telemedicine a real development priority?

Currently, telemedicine needs implementation in daily routine, rather than pure technological developments. So, telemedicine should be considered an implementation priority as an enabling technology for improved healthcare for the benefit of all citizens/ patients.
EMISPHER has been rated by the European Commission as very successful and is recommended as a solid basis for a far reaching approach to telemedicine in the longer term. Not only the partners involved, but also the various national governments and other stakeholders, like W.H.O. and ESA, have clearly communicated their interest in development and implementation of a Virtual Euro-Mediterranean Hospital as a future challenge.