

MORNING SESSION

WELCOME ADDRESSES

E-HEALTH R&D ACTIVITIES AND SUPPORT TO IMPLEMENTATION

Silas OLSSON

ICT for Health Unit – DG Information Society and Media

ABSTRACT

European Commission, ICT for Health programme, has supported developments in the fields of health informatics / eHealth since 1988. About 450 projects have been supported with a contribution of about 650 million euro. The presentation will give an overview of the ongoing programme for support to personalised health systems and biomedical informatics as well as the eHealth Action Plan that was endorsed in 2004 and is currently the instrument to support implementation of eHealth in EU Member States.

CURRICULUM VITAE

Silas Olsson has a back-ground in medical engineering, technology transfer and health technology assessment including public health. He has been working for Swedish and international companies, in a government research institute in Stockholm and since 2001 for European Commission, ICT for health unit, in Brussels. His research is mainly in the field of health technology assessment.

He has a long international experience in the field of health informatics / eHealth, both from development and market point of view.

Silas Olsson has published about 150 articles in professional health care and technology related journals and books.

HEALTHWARE: IMPROVING CONNECTIVITY WITH REMOTE AREAS FOR EQUITABLE ACCESS TO HEALTH SERVICES

Pascal LOCHELONGUE

Alcatel Alenia Space

ABSTRACT

HEALTHWARE is the major telemedicine via satellite project on a European scale, over the next few years. The European Commission has entrusted ALCATEL ALENIA SPACE with the coordination of this project within the context of the European Union's 6th Framework Program (Aeronautics & Space – 2004).

HEALTHWARE's purpose is to contribute to the development of telemedicine use and solutions via satellite, especially based on DVB-RCS technologies (star or mesh). DVB-RCS guarantees high speed transmission capacity from any medical institution (hospital, clinic, retirement home, dispensary, etc.) and offers new possibilities for high interactivity applications (tele-expertise, surgical video-assistance, etc.).

The project also addresses technology interoperability, integration with mobile and land solutions, and standard-based, therefore open, application and service platforms, to reinforce the flexibility of service deployment and operation. Particular attention will be paid to the quality of service in order to render the services reliable and secure from start to finish.

Healthware addresses 4 fields of medical activity dealing with chronic respiratory illnesses as well as cardiac and oncological diseases:

- Medical training,
- Teleconsultation,
- Second opinions,
- Home services.

Through the HEALTHWARE project, ALCATEL ALENIA SPACE is coordinating a consortium of 19 partners including Telespazio, Eutelsat CNES, ... as well as health care professionals in Italy, Greece, Cyprus, the United Kingdom, Poland and the Czech Republic.

The project began in May 2005 for a 3-year period. The compilation of user needs, definition and specification of network and telecom modules, management and applications will be consolidated through an industrial validation and then operated on pilot networks throughout Europe.

CURRICULUM VITAE

Pascal Lochelongue is in charge within Alcatel Alenia Space of design and development of broadband e-health solutions based on satellite telecommunication technology. He is working for about ten years in the field of telemedicine applications and has participated to a wide range of related projects like Deltass (ESA), Galenos, Medexis, Ursafe (EC), Artemed (French Army). He is now the coordinator of the Healthware project -EC FP6 « Aeronautics & Space ».

He is graduate from the Electronic & Computing Engineering School, Angers, France and has a general background in telecommunications.

SESSION A

TELEMEDICINE IN EUROPE : ACHIEVEMENTS AND PERSPECTIVES

MARKET AND REGULATORY STUDY OF TELEMEDICINE VIA SATELLITE

Nathalie RICARD

ESA / ESTEC

ABSTRACT

The Market and Regulatory Study of Telemedicine via Satellite, carried out by Eutelsat SA (France) and its partners Avienda Limited (UK), D'Appolonia SpA (Italy) and Telemedicine Technologies SA (France) has been funded under an ARTES contract.

The objective of the study was to provide ESA with a comprehensive analysis of the market potential in Europe and Canada for telemedicine services that are based upon satellite communication technologies, and to provide a specific insight into the legal and regulatory barriers.

The study covered:

- 1 - the categorisation and review of the "state of the art" in telemedicine, a review of the main telemedicine technologies, applications, services, projects and organisations.
- 2 - the development of a generic value chain model to compare telemedicine services with traditional healthcare approaches
- 3 - a market analysis of the commercial opportunities
- 4 - an identification of the potential legal and regulatory problems associated with implementation of a satcom-based telemedicine business

The study provided a database of key actors on the demand side ("the application side") and on the supply side ("the services side"), and the evaluation concluded that Disaster Relief Telemedicine, E-learning/Tele-training, Home Monitoring, Rural Area Telemedicine and Maritime/Offshore/Aviation telemedicine were the most promising areas.

While analysing the telemedicine value chain, the study clearly separated the medical from the technical components of the value chain by introducing the concept of "Medical Service Provider" versus "Telemedicine Provider" seen as the provider of the technical service. A cost model has been proposed for the comparative analyses for each selected application, based on existing case studies. It has been concluded that for all projects except maritime cruise, the benefits over five years will exceed the investment and that, for all case studies and scenarios, yearly spending on telemedicine and telecommunications recurring costs are very small percentages of the marginal cost of providing medical services.

However, the scale of telemedicine investment seems to be limited to a narrow range of healthcare activities so far, such as groups of patients, geographic areas and service sectors, when its application to a wider scale could yield a financial and economic return.

The market analysis highlighted the areas that were most likely to provide opportunities for the development of satcom-based telemedicine services. The outcomes of this study help evaluate the level of risk and return that can be expected from any future investment and identify opportunities for the satcom industry in particular.

The review of the legal and regulatory framework affecting the delivery of telemedicine services via satellite identified specific legal and regulatory issues and proposed strategies to minimise or remove these barriers. The creation of funding and reimbursement processes for telemedicine services is widely acknowledged as being a vital condition for the growth of this market. Generally speaking, telemedicine services are reimbursed when there is a compelling, evidence-based for their clinical appropriateness and cost-effectiveness and sufficient political goodwill. It has been noted that the majority of technology

standards that are relevant to telemedicine (e.g., DICOM and HL7) have been produced by national, non-governmental bodies rather than international or European standardisation bodies. As a relatively new concept, telemedicine has not yet produced a critical mass of evidence-based guidelines and those which do exist show great variance in their scope and quality.

One key issue for satellite-based systems is that where telemedicine services cross the borders of one or more nation state, each nation state may regulate an aspect of that service. Hence a telemedicine service may be the subject of a number of conflicting and contradictory legal and regulatory demands, especially since the healthcare professions are supervised and regulated on a state-by-state basis.

The study team carried out extensive primary and secondary research in order to gather all the relevant information to be used to support analysis and to generate conclusions and recommendations. They concluded that, in general, both in Europe and in Canada, the majority of the telemedicine initiatives are still funded by academic research, government subsidies, EU- or federal-level programmes or as part of local government development plans. As such, it is generally perceived that telemedicine is 'on life-support' through this funding, which has been made available over the last 10 years. This funding is perceived to be a double-edged sword: it is a necessity to allow the benefits to be fully assessed and evaluated in what is a relative commercial vacuum, but it is postponing the 'reality check' that the level of demand for telemedicine remains low and dissimulating the real difficulties associated with implementing self-sustaining business models in this market.

Major industry players and key opinion leaders interviewed during the course of this study are in majority very optimistic about the future of telemedicine in Europe and in Canada. The general feeling is that telemedicine has great prospects and – after years of pilot projects not being rolled out into up-and-running applications – is ready to develop to its full potential.

In reality, however, telemedicine is still in its infancy and still only serves a limited number of patients/users. Telemedicine, and ultimately satellite-based telemedicine, must still overcome several barriers and challenges before being considered as a suitable alternative to traditional healthcare.

CURRICULUM VITAE

Nathalie Ricard is in charge of several Telemedicine pilot projects within the Applications Section of the Telecommunications Department at the technical research centre of the European Space Agency (ESA) in Noordwijk, The Netherlands. She joined the European Space Agency in 2001, and has since been managing ARTES-funded pilot projects as well as several studies of the Satellite Telecommunications market.

Before joining ESA, Nathalie Ricard began her career with Deutsche Telekom (Bonn, Germany), where she was Product Manager of a Satellite-based communications product within the international department of the Data Communication Directorate.

A French national, she graduated from the French Aerospace Engineering School ENSICA in 1998, and holds a post-graduate degree in Management from the French Telecommunications Engineering School ENST Bretagne. She is fluent in French, English and German, having lived and worked in Australia, France, Germany and The Netherlands.

INSIGHT AND EXPERIENCE GAINED FROM CLINICAL TELEMEDICINE APPLICATIONS

Alexander HORSCH^{1,2}, Gunnar ELLINGSEN¹, Gunnar HARTVIGSEN¹,
Per HASVOLD¹

¹*University of Tromsø, Norway*

²*Munich University of Technology, Germany*

Email: horsch@cs.uit.no

ABSTRACT

The major trends of globalization, demographic and socio-cultural change, rapid growth of medical knowledge and technology, ongoing specialization, increasing costs, digital divide, and the gap between rich and poor create big new challenges for the healthcare systems. In Europe with its huge diversity a demanding integration process is going on. The deployment of Telemedicine and eHealth services and applications on a national and on the global scale is considered to be a key means to support the health for all policy of the World Health Organization. So, telemedicine and eHealth have become major topics on the agendas of health and social care politics in many countries around the world.

After two decades of pioneering work from around 1975 to 1995, followed by a decade of transition with early adaptors using telematics applications to improve their daily work in health and social care in limited scenarios, the area has now clearly started to become an important issue for implementation, operational deployment of services and a promising market for industry. Great efforts have been undertaken and a great number of projects have been carried out in order to exploit the Telemedicine and eHealth potential. Most of these projects have not accomplished sustainability, but have created a large variety of different, in most cases insufficiently interoperable, applications. The current challenge is to aggregate the achieved pieces of evidence, to consolidate the results, to integrate approaches on the basis of international, open standards, and to drive them towards operational development.

Various insights and experiences have been gained from projects and services in the north of Norway and in the south of Germany during the past two decades. These insights are considered on the background of a current shift from telemedicine applications as stand-alone, added-value component driven by the paradigm of technology-push, toward eHealth services emerging as one-of-many features in digital medical work environments driven by the paradigm of demand-pull. The experiences range from technically well-done applications without or with scenario-dependent acceptance by the users, to technically simple, out-of-the-box solutions with great acceptance and clinical impact. In some cases, telemedicine solutions have even initiated changes in medical best practice for e.g. diagnostic procedures. A carefully balanced distribution of benefits among the stakeholders; the general use of equipment required for telemedicine such as digital stethoscopes or digital cameras for daily work, not only for maybe rare use of a telemedicine service, so that the health professionals are familiar with the handling; the digitization of work environments with the side-effect of creating a good basis digital telecommunication; a good education and training of users; clear operational models for collaboration between health service providers; sound economical models not expecting single eHealth services to afford basic telematics infrastructures which rather have to be implemented on a national scale to serve all services – these have been identified as key success factors for sustainable, well-accepted services.

In order to gain a broad acceptance among users, telemedicine and eHealth services of the next generation must be safely working and smoothly to operate pieces of information and communication technology supporting integrated care processes inside and between healthcare providers. They must not put any further burden on healthcare professionals, but rather help them to work in a more efficient and effective way.

CURRICULUM VITAE

Alexander Horsch is currently head of the working group Telemedicine and Image Processing at the Institute for Medical Statistics and Epidemiology (IMSE) of the Munich University of Technology (TUM), associate professor (Faculty of Medicine) and adjunct professor (Faculty of Science) of the University of Tromso (UIT). Since 1986 he is working as a manager and medical informatics professional at the IMSE. He got his Dr.rer.nat. in computer science 1989. He was head of the medical computing centre of the university hospital Klinikum rechts des Isar 1987-1995. Since 1992 he is lecturer in medical informatics, and he was manager of several projects in telemedicine and computer-aided diagnosis. Since September 1998 he is chair of the working group Medical Image Processing of the German Society of Medical Informatics, Biometry and Epidemiology (GMDS). In 1999 he got his Dr.med.habil. in medical informatics from the medical faculty. From 1998 to 2003 he was adjunct professor in telemedicine of the University of Heidelberg. Since 2000 he is German representative in the Council of the European Federation for Medical Informatics (EFMI) and in 2001 he initiated and since then is chairing the EFMI Working Group on Medical Image Processing. He is member of scientific program committees of MIE and CARS as well as for other national and international conferences. He was/is co-organizer of BME tracks at the conferences of the German Chinese Society of Medicine (2002-2004) and of the annual German Workshop on Medical Image Processing (BVM). He is reviewer for various national and international journals, conferences and scientific societies. In 2004 he was member of the ESA Telemed Working Group, and recently he joined the editorial board of the newly founded CARS journal for computer-assisted radiology and surgery. Last summer he became professor in the newly established education for Master in Telemedicine and eHealth at the University of Tromso.

His main research interests are eHealth and telemedicine, medical image processing, computer-aided diagnosis, workflow optimization in health service chairs, and eLearning. He has led or was involved in projects for early recognition of malignant melanoma, quantitative measurement of tumor using tomography data, web-based multi-modal interactive teaching of tumor diagnostics, teleservices for gastroenterology, as well as case-based ophtalmological eLearning in the framework of the Virtual University of Bavaria.

SESSION B

SPECIFICITIES OF HEALTHWARE PILOT SITES

HEALTHWARE: A TELEMEDICINE STATISTICS FOCUS AND AN OVERVIEW OF THE USERS NEEDS

Dr Bernard COMET (MD)

CNES - MEDES

ABSTRACT

It will be introduced a short presentation about the worldwide telemedicine 2005 practices in the fields of cardiology, oncology and respiratory diseases. This presentation will be made in terms of statistics concerning the used applications, the used telecommunications, the use frequencies and the used telematic and biomedical devices.

Then, an overview of the HEALTHWARE users needs will be introduced; the foreseen European sites will be listed and shown, the anticipated used applications and devices will be listed.

CURRICULUM VITAE

Dr Bernard COMET is Doctor in Medicine and Aeronautics Engineer with an experience in Space Medicine, Human Physiology, Human Factors Engineering and Aerospace Engineering.

Actual position:

Since 1999, placed at full time at MEDES at the position of "Responsible of Applications Sector" directly attached to the Executive Director.

- Implementation of the I. DISCARE project (Satellite based application service to help logistic and medical humanitarian operations in disaster context) (2003-2005) and cooperation in the DELTASS project (ARTES 5 -2001-2002).
- Cooperation in the ESA Reglisse study since 2001, and the HUMEX ESA study (2000-2001). (Manned Exploratory Planetary missions)
- Prospecting activity in satellite-based support to logistic and healthcare applications. (Several projects in co-operations with CNES, and French Ministries of Health and Research).
- Since 1999 several projects of telemedicine conducted for CNES
- Definition and realization of Portable Telemedicine Workstations.

FAST TRACK OPTION FOR MEDICAL TRAINING USING DVB-RCS IN PREHOSPITAL EMERGENCY MEDICINE IN THE ISLAND OF CRETE : A USER- CENTERED APPROACH

D. VOURVAHAKIS, A. KOUROUBALI, C. CHRONAKI, M. TSIKNAKIS

Prehospital Health Emergency Coordination Center – Crete

ABSTRACT

The Hellenic National Centre for Emergency Care (EKAB) is the only public health organization in Greece offering prehospital care for chronic and emergency cases. In addition to its ambulatory function, EKAB provides educational services to the medical community through the Prehospital Emergency Medicine Program, and to the general public through training on basic CPR and life support. EKAB is divided in a central unit located in Athens and 11 regional units located throughout Greece, the region of Crete being one of them. Crete is the largest island in Greece located in the centre of the Mediterranean, a popular touristy destination with a population of 600.000 that more than doubles in the summer months.

The regional unit of EKAB in Crete (EKAB/Crete) consists of the headquarters located in Heraklion and three peripheral units in the other three districts of Crete, providing accident and emergency services. EKAB/Crete covers a geographical area of over 8.336 square kms and services the resident population and visitors. EKAB/Crete operates daily and for 24 hours throughout Crete, 5 fully equipped ambulances with a doctor (mobile units) and 13 BLS and ALS ambulances. Additional ambulances also operate in primary care clinics located in rural areas. EKAB/Crete consists of a call & dispatch centre and manages the ambulance service over the whole island. The staff of EKAB/Crete includes doctors trained in prehospital emergency care, 120 paramedics, 13 operators/dispatchers, 5 technicians, and 11 administrative personnel.

Yearly, EKAB/Crete responds to approximately 24.000 emergency calls, most of which are trauma (around 40%) and cardiology (around 20%). It also handles about 200 medical evacuations by helicopter from the surrounding islands. EKAB/Crete uses advanced ICT technologies to respond to emergencies in a timely manner. An integrated prehospital emergency care management information system, supporting continuously updated triage protocols and advanced resource tracking, makes EKAB/Crete unique across Greece. Since 1997, its complete database of emergency episodes is a valuable resource in identifying any prevailing patterns in emergency episodes and assists in optimizing the positioning and management of available resources. In addition, EKAB/Crete operates, together with other health organizations in the island, a telemedicine network connecting the health emergency coordination center in Heraklion with ambulatory mobile units, the main district hospitals in Chania, Rethymnon, Ag. Nikolaos, and Heraklion, and the 16 primary health care centers distributed all over the island. All mobile units are gradually getting equipped with biosignal telemetry applications and GPS that enables resource tracking as well as efficient and effective handling of emergencies. This advanced technology infrastructure facilitates seamless incorporation of tele-activities in the daily operation of EKAB/Crete: a) telemanagement helps establish a clear first evaluation of the episode, b) telemonitoring allows the continuous monitoring of the episode while on route, c) teleconsultation permits the experienced doctor to provide directions to the paramedics, and d) telediagnosis provides resources for the effective and efficient handling of the episode by linking in a collaborating distributed care team, physicians from EKAB/Crete, crew of mobile ICUs and hospital staff.

The personnel of EKAB/Crete are undergoing continuous training. The medical doctors, after or during their specialty training, go through an additional year of training to receive an Emergency medical diploma. Furthermore, in Heraklion there is a school of Paramedics, which offers training of 2500 hours (duration 2 years), and continuous training throughout their service of 80 hours per year. Staff competency and performance is re-evaluated every year. EKAB/Crete is an authorized center of the European Resuscitation Council (ERC) for Basic Life Support (BLS) – Automatic External Defibrillations, not only for rescuers but also for the public. More than 10000 people have been trained or re-trained to date.

Due to the fact that both professionals and non-professionals are involved in health emergency interventions, it is important to provide proper training to a large number of first respondents. This training must make the trainees capable of recognizing the emergency situation at hand and deal it in the most efficient and appropriate manner. However, in most European Countries, such targeted and detailed training is still a critical issue. In general, training of non-professionals mainly addresses three issues concerned with: a) the content, i.e. “what to do” in the case of an emergency situation, b) the methodology, i.e. “what steps to take” for the specific emergency, and c) the improvement of one’s attitude, i.e. “the lowering of the psychological barriers” in the presence of an emergency. Traditional training methods do not explicitly address the third issue of attitude improvement. Trainees acquire empirically this third aspect when facing real-life emergency situations. In most cases, this psychological impact of accident scenarios on operators, such as the distress of the victim, the presence of blood and the behavior of the patient’s relatives, is not tested in advance.

Another important concern with the current training methods is the problem of “retention of knowledge”. According to Braslow et al. [1], “two months after the end of a traditional classroom instruction, only 36% of trainees were still rated competent in CPR”. Similar findings were also reported by Bossaert [2], who stated that “there is sharply decreasing skills retention after 6, 12 and 24 months following a CPR course” and that “a refresher course is needed to restore initial skills”. Finally, Morgan et al. [3] stated, “6 months after the CPR course only 6.8% could perform safe and competent CPR”.

Thus, emergency training encounters several barriers. People tend to have a poor retention of knowledge, therefore training needs to be repeated regularly. Training should be offered to large and diverse populations including relatives of high-risk people, people involved in emergency-related duties (firefighters, policemen, teachers), volunteers (red cross), health care professionals in primary care and remote areas. Finally, training needs to be continuous and of good and homogeneous quality.

eLearning technologies can provide significant solutions to support emergency care training efforts and help overcome existing barriers. eLearning technologies allow the provision of continuous training simultaneously to remote sites, education of large populations, timely evaluation of trainees, use of up-to-date and validated content (following the relevant standards, ERC recommendations and guidelines). These benefits can be provided through affordable solutions for the enhancement of emergency expertise throughout the island. Towards this vision, a webCD, already developed in collaboration with FORTH/ICS in the context of the EU funded project JUST, has been successfully used to enhance retention of knowledge in citizens.

The Healthware project aims to validate and promote the usage of a light and cost effective satellite technology (DVB-RCS) in geographic areas encountering difficulties with availability of broadband terrestrial telecommunication networks. For EKAB/Crete, Healthware is a significant opportunity to complement existing activities and effectively address the barriers of traditional emergency training reaching a wider community and providing regular and homogeneous training. In addition, close collaboration with Healthware partners in Cyprus, Alcatel Alenia Space will enable the creation of a homogeneous curriculum for prehospital health emergency training over satellite to be submitted for approval by the national authorities and the ERC.

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CURRICULUM VITAE

D. Vourvahakis MD, is specialized anesthesiologist with extensive experience in medical training. Since 2001, he is the Director of the Prehospital Health Emergency Coordination Center (EKAB) for Crete and a member of the board of EKAB Greece. Under his leadership, EKAB Crete has deployed advanced ICT technologies with resource management, triage protocols, GIS systems, and telemetry applications for the ambulatory care. He has been involved in the development of a European minimal data set for prehospital emergency care. He is the author of numerous publications, multimedia training material and a book on triage protocols for emergency care.

EXTENDING THE CURRENT CARDIAC AND CANCER CARE NETWORK ACTIVITIES OVER SATELLITE NETWORKS THROUGH THE HEALTHWARE INITIATIVE

N. SHASTRY, J. KABALA, P.J. RICHARDSON

*Clinical Radiology, Bristol Royal Infirmary,
United Bristol Healthcare NHS Trust, UK*

ABSTRACT

UBHT NHS Trust, through the Bristol Royal Infirmary, is a lead site in the electronic acquisition, storage and delivery of digital medical images and reports; as an Integrated Healthcare provider, at any authorized medical treatment point of presence over communication networks. That is, making patient information available for transmission locally, regionally, nationally and internationally over ISDN, terrestrial & wireless IPVPN networks. The BRI is one of the pioneers of integrated, electronic Multidisciplinary Team Meeting “eMDT or eMDMs” for Cancer care and cardiac care. Along with clinical activities, the same platform is used for teaching and training facilities capabilities as well.

The EU Healthware program allows us to build on our experience and expand the existing hybrid, cardiac and cancer care network activities over the EU Healthware Satellite platforms for clinical, teaching and training needs across Europe.

It has been imperative to focus on the broadest clinical benefit to the patient, at home or in the hospital, by doing away with the divide between the medical “haves & the have-nots”; by integrating isolated pockets of clinical excellence and avoiding islands of expertise. Through the use of open, standards based approach, it is possible to integrate and access all the patient information from any remote hospital or site across the satellite network.

We have identified six sites across the United Kingdom to establish the early clinical pilots for Cardiac and Cancer care. Of the six sites, four sites i.e. Bristol, Cardiff, Ashford and Edinburgh are in the finalization stages while Aberdeen and Belfast have been proposed as the other two. These two sites have to be finalized yet.

Strategically, these 6 sites will further link their existing terrestrial National networks through these satellite hubs, across the United Kingdom and then, the participating, European Centres.

The primary deliverables for the UK are Cardiac and Cancer care; however, we do need to ensure a maximum return on investment ROI, in terms of patient benefits, time, effort and the costs. Considering these points again, we are also maximizing on the inherent potential of each of the sites, which have more to offer than the stated deliverables of the EU Healthware project.

CURRICULUM VITAE

FRSM-Fellow of the Royal Society of Medicine (UK), CSci-Chartered Clinical Scientist (UK), SMIEEE-Senior Member of the Institute of Electrical & Electronics Engineers (USA), MIPEM-Member of the Institute of Physicists in Medicine (UK)

Due to my multi-domain (Engineering-IT-Medical) skills and qualifications (Electronics-IT-Medical Physics, Medical Imaging & Clinical Scientist) I have had an opportunity to work in Industry, Academia and Healthcare allowing me to contribute to various best-practices in Patient centred, Integrated Healthcare activities.

As a Professor & a Consultant, I have been associated with Healthcare, Academia & Industry Nationally and Internationally; this cross-domain combination has helped me in understanding the requirements of a specific domain while tapping on the useful resources of the various contributing domains.

I have been lucky to have the support of various Multinational Companies, Academic Institutes, Healthcare Institutes and Governments of different countries in the pursuit of providing the best, in Healthcare, to the Patient.

BRIDGING THE MEDICO-SOCIAL DIVIDE: HEALTHWARE / INSTITUT EUROPEEN DE TELEMEDECINE DEMONSTRATORS IN HAUTES PYRENEES

Pr. Louis LARENG, MD, PhD, Dr. Monique SAVOLDELLI, MD, Dr. Pierre RUMEAU, MD.

*Institut Européen de Télémedecine, CHU de Toulouse - Hôtel Dieu Saint Jacques,
2, rue Viguerie - TSA 80035, 31059 Toulouse Cedex 9*

ABSTRACT

Telemedicine aims at giving citizens worldwide equal access to quality care. Telemedicine has evolved from a way to address vital emergency situations to a way to provide highly specialised care over the territory. The latest evolution in the French law allows us to explore new practices that tend to ease the contact between a patient and his own doctor. The Institut Européen de Télémedecine will make the most of Healthware Projet, implementing to demonstrators that belong to this latest model. In Luz Saint Sauveur (65) France, a nursing home will be connected to the practice of its residents' doctors for improved access. In Bagnères de Bigorre (65) France, the local community psychiatry infirmary will be connected to the local public area psychiatric unit in Lannemezan Hospital (65) France, to improve the follow up of former inpatients at the stage of rehabilitation. Both demonstrators will be monitored for technical validation and to get the first clues to prove medical efficiency, social acceptability and economical feasibility.

Development of new technologies such as DVB-RCS, with multi-compatible architecture such as in Healthware Project, will help reduce inequalities in access to care between citizens.

CURRICULUM VITAE

Former Dean of the Paul Sabatier University of Toulouse

Former Chair of Anesthesia and Resuscitation - Teaching Hospital of Toulouse

Founder of SAMU French National Emergency Medicine network in 1967

Director of the European Institute of Telemedicine since 1989

Founder and President of the Groupement d'Intérêt Public Réseau de Télémedecine Régional Midi Pyrénées, regional telemedicine provision network.

President of the Supervising Council for Délégation Télémedecine, Telemedicine department of Toulouse Teaching Hospital.

President of Pilot Committee for the Personal Medical File in Midi-Pyrenees (2005)

Technical Adviser to the General Director of Toulouse Teaching Hospital

Member of the E.U. « Information Society Forum » 1995

French Expert for the G7 Health Program, Sub-Project 4 – 1995

Founder President of the European Society of Telemedicine

Founder Member of the International Society for Telemedicine

Citizenship:

Mayor of Ayzac-Ost (Hautes Pyrénées)

Member of the Midi-Pyrénées Regional Council (1981-1992, 1997-1998)

French MP (1981-1986)

OPPORTUNITY OF THE SATELLITE TECHNOLOGY TO SUPPORT MEDICAL TRAINING IN THE AREA OF PROCESSING OF MEDICAL IMAGE INFORMATION

Michal JAVORNIK, Otto DOSTAL, Vladimír ZATLOUKAL

Masaryk University, Brno, Czech Republic

ABSTRACT

Shared Regional PACS (Picture Archiving and Communication System) operated by Masaryk University in Brno, Czech Republic, was from its start designed to serve as a reliable and accessible communication node and also as an educational and research centre available to any hospital or other healthcare institution, including medical faculties, interested in participating.

In this paper we are focusing on applications running over the tailored educational and research PACS. This PACS and its database of anonymous medical image studies is the necessary basis for medical training and additional educational and research applications.

Images appropriate for teaching and research purposes are made anonymous (i.e. the personal data of the patient and other information that may disclose the identity of the patient is replaced with fictitious information or modified in such a way so as not to lose any relevant information but so as to prevent disclosure of the patient's identity) when sending into educational and research PACS. Every image study must be annotated with a detailed description in DICOM (Digital Image Communication in Medicine) Structured Report format and every image must also be assigned a set of key words describing all the medical findings and diagnosis for better retrieval of specific cases. Data on the real patient obtained from several hospitals uses the same fictitious identity, thereby offering students a more complex view of the evolution of the patient's health.

Every participating radiology department that teaches medical students or performs research is equipped with a specialized diagnostic workstation. This workstation is supposed to be primarily connected to the hospital PACS or other image generating equipment communicating in DICOM standard. The DICOM connection accessing the educational and research PACS is used when an appropriate image for teaching or research purposes is identified and incorporated into the database and also when retrieving image information.

Software for processing of medical Case Studies is one of such educational applications. Document of Case Study is special hypertext document describing a given medical case and referencing the relevant anonymous medical images. It will be used especially for training purposes of medical students and young physicians.

The Case Study can be accessible via standard web browser and if the users have DICOM diagnostic workstation installed on their computers, then the referenced image study can be manipulated and processed in all ways supported by the particular workstation. It means that medical students can access, from labs or lecture theaters, large amounts of systematized medical image information related to their subject. Labs or lecture theaters equipped with appropriate software can also serve as training simulators for those training to be radiologists. This way students can also learn new technologies and compare hardware and software capabilities of different diagnostic workstations.

The satellite technology supporting this application will enable other participants all over the Europe to take advantage of the educational or research applications.

All software tools are strictly based on DICOM standard so they could be easily incorporated into running systems of participating hospitals or other relevant institutions.

Authors & Institutions:

Dostal, Otto (Institute of Computer Science, Masaryk University Brno, Czech Republic, Brno, Czech Republic)

Javornik, Michal (Institute of Computer Science, Masaryk University Brno, Czech Republic, Brno, Czech Republic)

Zatloukal, Vladimir (Institute of Computer Science, Masaryk University Brno, Czech Republic, Brno, Czech Republic)

CURRICULUM VITAE

RNDr. Michal Javornik, born May 19, 1964, Krnov, Czech Republic. In 1987 graduated from Computer Science studies at the Faculty of Science, Masaryk University in Brno; awarded RNDr degree. Since 1987 engaged at the Institute of Computer Science, Masaryk University. Principal investigator or co-investigator of information systems, mainly in areas of economics and university administration. Presently the head of Medicine Applications Group.

Main Scientific and research activities: 1995-1997 “Hypermedia Presentation of Integrated Medical Data”, since year 2000 principal investigator or co-investigator of projects related to development of “Metropolitan Picture Archiving and Communication Centre” in Brno, Czech Republic.

**AFTERNOON SESSION
ROUND TABLE**

**VISION FOR SATELLITE
TELEMEDICINE FOR EUROPE
CONNECTING PEOPLE THROUGH
INNOVATIVE TELEMEDICINE SOLUTIONS**

EVIDENCE ON ECONOMIC IMPACT OF EHEALTH AND TELEMEDICINE APPLICATIONS

Alexander DOBREV

empirica, Germany

ABSTRACT

Despite the current availability of many eHealth systems and services, they are not yet widely used in providing routine health care. One reason is that very little reliable, empirical evidence is available on their longer-term, sustainable impacts.

In this context, the eHealth Impact project team developed and is continuously applying a theoretically sound, but pragmatic model for economic assessment and evaluation of eHealth services, which is adaptable to various healthcare settings. The method is based on identifying costs and benefits to all stakeholders involved, changes in productivity, and utilisation levels of the eHealth application.

Citizens want more healthcare and better healthcare and do not want to pay more for it. This is a problem for healthcare providers in modern healthcare systems, especially for those serving remote areas, where travel time and low utilisation of specialised equipment push the costs of provision of some services beyond affordability. Telemedicine in particular, and eHealth in general, can help to solve this problem. Healthcare providers can use eHealth to improve quality and expand their capacity to meet the increasing demand, within a stable resource base. This is supported by the findings from the eHealth Impact study.

They show that the benefits from eHealth applications are better quality and improved productivity, which in turn, liberate capacity. The value of these benefits rises each year. Annual costs are broadly stable. As a result, the net benefits increase each year. The rate of increase is remarkable.

However, eHealth applications are not bound to show positive net benefits. Among the most important success factors are the appropriateness of the goals of the application, a collaborative team culture, organisational change accompanying the ICT component, an eHealth dynamic, as opposed to a one-off application with a fixed lifetime, and last but not least, a focus on either direct, or indirect benefits to citizens.

EHealth Impact project contacts:

Website: <http://www.ehealth-impact.org>

Email: ehealthimpact@empirica.com

CURRICULUM VITAE

Alexander Dobrev holds a Bachelor of Arts Honours Degree in Philosophy, Politics and Economics from the University of Oxford (2005). The emphasis in his studies has been on economics and international politics, with special attention to strategic behaviour and long term impact of decision making. He joined empirica as junior consultant for the eHealth area in 2005. He is specialising in studies on socio-economic effects of eHealth applications and strategic eHealth policy issues. His recent work has focused on the economic impact of eHealth. Alexander has an extensive record of experience in international work and education environments, including international projects and conferences in Germany, the UK, and Bulgaria. He has been involved in research and consulting projects with empirica as an intern in 2004, including contributing to the eUSER study: Evidence-based support for the design and delivery of user-centred online public services (eHealth, eGovernment, and eLearning; for European Commission, DG INFSO) and the European "eBusiness W@tch", a market observatory implemented for the European Commission DG Enterprise & Industry; this work covered also the European health services sector. Currently, he is working on eHealth IMPACT, a Study on the Economic Impact of eHealth; Good eHealth, Study on Exchange of Good Practices in eHealth; and eHealth for Safety, a study on the Impact of ICT on Patient Safety and Risk Management in Healthcare (all for the European Commission, DG Information Society and Media).

HEALTHWARE USER AND CITIZEN OPEN GROUP : GOAL, MISSIONS AND LAUNCH

Hélène MIGNOT

C2Team

ABSTRACT

Healthware is a project gathering numerous European partners, being organisations and private companies, representing high skills in telecommunications services, industry, research, medical applications and services, engineering and consulting. Furthermore, Healthware made the choice to involve, at the core of the consortium, some medical users, User and Citizen Associations and medical academics, representing here the Users and beneficiaries of telemedicine.

Healthware has been designed to validate and promote the usage of a light and cost effective satellite technology (DVB-RCS) to fulfill the needs of users located in areas where terrestrial telecommunication networks and transmission rates are insufficient to allow the setting-up of innovative e-Health applications or services.

Healthware's proposes a satellite-based solution to fill-in this lack and offers access to telemedical interactive applications over a satellite network that can be deployed anywhere in Europe. To reach this goal, Healthware's strategy fully relies on the user dimension, and on the real-environment implementation, experimentation and usage of such services.

The UCOG, the User and Citizen Open Group, is conceived as the umbrella tool to gather a maximum of expertise, feedback, expression of interest, warnings, orientations and information, and such from the most concerned actors of the chain towards, in order to design the most adapted and customised offer in the field of telemedicine services and networks by satellite. The involvement of users and Citizens in the project, through the pilots' evaluations and the UCOG's activities, is bound to provide Healthware's with concrete inputs that are crucial for the success and acceptance of such satellite-based telemedicine services and networks.

It has been granted with the following overall mission:

- To get feedback from the users (the project partners) on their experience with pilot sites and in particular on the benefit they can obtain in delivering health care due to the fact that satellite communication is connecting them to remote healthcare facilities.
- To create interactivity with the observers (the user experts) who are not actively participating in the project but are interested in this connectivity solution. This interactivity is to be created by providing them with the demonstration of what Healthware can deliver and with experience from the users and by collecting their user requirements and expectations.

CURRICULUM VITAE

Graduated in Business Law and Foreign languages - Master Degree (in Stendhal University for Literature and Pierre-Mendes France University for Law, Grenoble, France).

Helene Mignot has gained a great experience in both European projects and e-activities, focusing on the emerging new usages of the ICTs.

Since July 2003, she works as a Business lawyer in C2 Team, and as User Applications manager to manage and coordinate projects and partnerships at international scale, for the development of telecommunications solutions via satellite.

Her expertise in satellite systems helps her in managing Legal and regulatory issues in many European projects, as well as Ethical issues related to telemedicine and users communities.

She previously worked for the Sophia Antipolis Foundation with Senator LAFFITTE, and the MEDSAT association, together with Alcatel Space, as a project manager, and could participate and manage several

European projects, for telemedicine (Galenos - Ten Telecom) , e-learning (MedNet'U - Eumedis) and transnational industrial cooperation (Mecotech - Go Digital).

In the frame of the Galenos project, H  l  ne Mignot was responsible for the creation and coordination of the medical user network over Europe, Bulgaria and Tunisia.

She published many presentations and studies in this frame, such as the Final Galenos Validation Report, analysing users' feedback on telemedicine networks' usage and recommendations on the application usage and legal, ethical and regulatory aspects.

Tightly involved in the MediaSpace Alliance's creation, she is in charge of the communication, legal and user relations Commissions in this frame.

H  l  ne Mignot is responsible, together with UNESCO, of the User group management in the frame of the SpaceForScience project and more recently in the User Communities Open Group in the frame of the Healthware Project.

PLANS AND PRELIMINARY QUESTIONS FOR THE PANEL DISCUSSION : VISION FOR SATELLITE TELEMEDICINE FOR EUROPE :

Stephan H. SCHUG, MD, MPH (*Session Chair*)

European Health Telematics Association, Brussels

ABSTRACT

Telemedicine is today widely established as a means to facilitate the distribution of human resources and professional competences. More particular it can speed up diagnosis and therapeutic care delivery for emergencies, support virtual hospitals in patients' homes and allow primary healthcare providers in geographically dispersed locations to receive continuous assistance from specialised coordination centres. With the new technological options provided by the DVB-RCS technology there are not only added options for connecting professionals and patients, but also options for the design and implementation of new, integrated services and applications.

Within the Healthware project, users have an important role in the design and the modification of telemedicine services and applications. Following the official opening of the "User and Citizens Open Group", the open discussion panel will be a platform to voice various expectations and plans from the stakeholders involved in the project.

Questions to be highlighted will be:

- ⇒ Expectations of health professionals as users of telemedicine services
- ⇒ Expectations of patients and ultimate clients of telemedicine services
- ⇒ Added value of new, interactive satellite technologies
- ⇒ Integration of satellite based services, terrestrial (mobile) telecommunication networks and cable based internet connectivity
- ⇒ Visions for new integrated services
- ⇒ Smooth integration of the telemedicine services in daily routines
- ⇒ Support of primary care in rural and distant areas
- ⇒ Potentials for particular diseases, e.g. oncological and cardiac conditions
- ⇒ Potentials for new teaching settings
- ⇒ Interoperability and standards for satellite services as well as medical services.
- ⇒ Cost effectiveness of satellite based, mixed and integrated solutions
- ⇒ Contribution of satellite based telemedicine to bridge the digital divide in Europe.

Additional suggestions and contributions from the plenary will be welcome at any time of the panel discussion.

CURRICULUM VITAE

Current Positions:

- ⇒ Manager, EHTEL Association, M.E.P.S., rue d'Arlon 50, 1000 Brussels, Belgium
- ⇒ C.E.O., IQmed[®] Healthcare Consultants, D-60439 Frankfurt am Main, Germany

Summary

Stephan Schug studied Psychology, Medicine and Public Health in Bonn, Hamburg and Hanover. He has also received training in medical informatics and telematics.

Following appointments in clinical services in the university hospitals of Hamburg and Hanover, Dr. Schug has been involved since 1992 in international research projects related to medical documentation and classification. In 1994-1995, he ran the office of the German Working Group for Quality Assurance in Medicine and went on to head of the Information Centre for Standards in Oncology at the German Cancer Society, in 1996-1997. From 1997-1999, he was the Director of Healthcare Consulting at CON MOTO Strategy & Implementation Management Consultants. Since 1999 Dr. Schug is the C.E.O. of IQmed Healthcare Consultants, in Frankfurt am Main. From 2001-2003 Dr. Schug has been engaged at

the Centre for Health Telematics, Krefeld, finally heading the Health Policy & International Cooperation Unit. Since 2003 he is one of the Managers of the European Health Telematics Association headquartered in Brussels.

Dr. Schug has already served many high-ranking and high-impact working-groups and expert forums as moderator, coordinator and/or editor. He was appointed as external expert by the Health Telematics Action Forum for Germany (ATG) to work jointly with a team of ATG-representatives on "European and International Perspectives on Telematics in Healthcare" (published as bilingual book in 2001). In 2002 he prepared together with a team of German Federal and Länder (State) representatives a report on the state of health telematics in Germany. The report and the recommendations were adopted by the 75th conference of the German State Ministers for Health.

He is founder member of the European Health Telematics Association (EHTEL), Managing Director of the German Society for Health Telematics and President of the Health Information System Action Forum Germany.