

EUROPEAN COMMISSION ACTIVITIES IN eHEALTH*

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ABSTRACT

Health-care is an information-intensive and knowledge-demanding sector, which is why eHealth solutions are so important in this field. The European Commission (EC) has been initiating and funding research and development activities regarding Information and Communication Technologies (ICT) for health, or "eHealth", since 1988. These programmes covered priority topics like electronic health-care records, regional and national health networks, telemedicine in home-care and care-at-the-point-of-need to support continuity of care concepts, systems to support people to stay healthy, and systems and tools to support health professionals to work more efficiently and safely on patients.

During the 15-year span of the programmes, the European Union (EU) has contributed about 500 million Euro to approximately 400 R&D projects, support activities, best practice and studies covering technical, clinical, ethical, legal, organisational and market issues. eHealth has shown proven benefits in application fields like improved access to care, care at the point-of-need, citizen-centred care, improved quality and cost containment. Such applications were on show at the EU High Level eHealth Conferences in Brussels, Belgium, in 2003, and in Cork, Ireland, in 2004.

eHealth is now on the governmental agenda of EU Member States to be implemented on a broader scale. In line with this development, the Commission has taken a number of policy initiatives. A European Union Action Plan for a European eHealth Area was published by the Commission in April 2004 and endorsed by the EU health ministers in June 2004. This means that, for the first time, Europe has a coherent agenda for the implementation of eHealth.

This report will concentrate on eHealth activities initiated by the Information Society Directorate-General of the European Commission. (*Int J Circumpolar Health* 2004;63(4):310-316)

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Initial programmes

From 1988 to 1994, the European Commission developed the field of Advanced Informatics in Medicine (AIM) through the programmes "Exploratory AIM" (1988-1990) and "AIM" (1991-1994). These two programmes created a Europe-wide collaborative environment among stakeholders, such as industry, research institutions, authorities, health-care providers, professionals and administrators.

The next phase, the EC Fourth Framework R&D Programme (FP4) 1994-1998, focused on the needs of users and took advantage of the explosion in Internet technologies. This programme reinforced the Health Telematics position in Europe and achieved further developments in fields like Electronic Health Records (EHR) applications for collaborative work of health professionals, medical imaging, and health information for citizens. Another priority of this programme was to move from isolated applications, towards the integration of telemedicine solutions and regional health secure networks for seamless care applications. Several support projects covered regulatory issues, industrial aspects and technology assessment. In total, about 130 projects were cofunded.

Latest completed eHealth R&D programme

The most recently completed R&D programme is the Fifth Framework Programme (FP5) 1998-2002. Within its thematic area "User-friendly Information Society", eHealth was represented by "Applications Relating to Health" activities. Three main societal needs were identified and they constituted the main priorities for R&D: a) Systems for health professionals, b) Systems for patients, and c) Systems for citizens.

In total, with a budget of approximately 175 million Euro in EU contribution, about 135 projects were funded. These projects represented some 750 partners (universities, institutes, industries, and health-care establishments). Over 35 countries took part in the work.

Examples of projects in FP5 include CHRONIC, which focused on developing a technical platform for supporting patients with chronic diseases (respiratory, cardiac and neurological conditions) in open integrated care. PARREHA addressed patients experiencing Parkinson's disease by developing a virtual reality application for better orientation and walking ability of the patients, and IERAPSI developed an interactive computerised simulator for planning and rehearsal of surgery of the inner ear.

Mobile devices connecting hospital information systems for enhancing mobility of health professionals were addressed in the MOBI-DEV project. The integration of biomedical sensors into textiles, so as to facilitate monitoring of vital signs and mobile telecommunication, was the challenge of the WEALTHY project. The development of healthy nutritional plans with the support of information technology was addressed in the HEALTHY-MARKET project. Grid technologies are being explored in the MAMMOGRID project, so as to integrate mammography image databases to support physicians in solving difficult diagnostic cases.

In addition to the EC eHealth units' projects (referred to above), some 100 other eHealth-related projects were carried out in other EC programmes, such as e-Ten, e-Content, EUMEDIS, and @LIS.

eHealth in the current R&D programme

The overall objective of the eHealth part of the ongoing Sixth Framework Programme (FP6) 2002-2006, is to develop an intelligent environment that enables an ubiquitous management of citizens' health statuses and assists health professionals in coping with some major challenges, risk management and the integration of advances in health knowledge into clinical practice.

So far, one call for proposals regarding eHealth took place in 2003. As a result of this first call, some 20 projects with a budget of 85 million Euro in terms of EU contribution have been selected and their activities started in January 2004. There are currently three areas of research work: a) Integration of biosensors and secure communications into wearable, or implantable systems that provide citizens and their health professionals with ubiquitous management of health status, b) Development of reliable software tools to support health professionals in promptly taking the best possible solution for prevention, diagnosis and treatment, and c) Support of networking of researchers in medical informatics, bioinformatics and neuroinformatics, with the objectives of advancing health knowledge leading to a new generation of eHealth systems and assisting in the "individualisation" of disease prevention, diagnosis and treatment.

A new call for eHealth project proposals has been launched in November 2004. The overall objective of this call is to invite research and development projects on innovative ICT systems and services that process, integrate and use all relevant biomedical information. The aim is to improve health knowledge and processes related to prevention, di-

agnosis, treatment, and personalisation of health-care. To fully understand the context of this call, please visit http://www.cordis.lu/ist/workprogramme/fp6_workprogramme.htm and you will find the IST work programme 2005-2006. In short, the focus of the research and development asked for in this call includes:

- › Methods and systems for improved medical knowledge discovery through the integration of biomedical information using, for example, modelling, visualisation, data-mining and grid technologies. Biomedical data and information should not only include clinical information, but also information at the level of molecules and cells, such as that acquired from genomics and proteomics research.
- › Innovative systems and services for disease prevention, diagnosis and treatment based on integrated biomedical data and information on several levels, including, for example, molecular, cellular, tissue, organ and person levels. The R&D work should exploit advances in cognitive modelling, grid, mobile, imaging and micro- and nanotechnologies.

Project proposals to this call will be evaluated in spring 2005 and successful proposals are expected to start their R&D work at the end of 2005.

Collaboration in eHealth with countries outside EU

The EU R&D programmes strongly encourage international co-operation. For the Information Society Technologies Programme (to which the eHealth activities belong), a budget is also available for participants from Russia and Newly Independent States, Mediterranean Partner Countries, Western Balkan Countries and Developing Countries. The EU has also signed scientific collaboration agreements with more than 10 countries, including, for example, Canada, China, India, Russia and USA.

During 2000-2003, a collaboration initiative on eHealth was set up by the European Commission and governmental authorities in Canada. Calgary University was the project co-ordinator. The initiative resulted in five working groups on different eHealth subjects from the following seven countries: Canada, Belgium, Finland, Germany, Italy, Norway and Sweden. The eHealth subjects included support for home-care and self-care, privacy protection, and diabetes management.

Other EU-Canada R&D collaborations include the MITTUG project, focusing on minimally invasive therapy for tumours, and the eUSER

study for developing evidence-based support for the design and delivery of user-centre public services, including eHealth.

For some years, collaboration on eHealth has been established with the Telemedicine and Advanced Technology Research Center (TATRC) in the United States. TATRC belongs to the US Army Medical Research and Materiel Command. The collaboration includes reciprocal participation of research projects in seminars, conferences and meetings between officials from both sides.

Collaboration between international and European organisations on eHealth has been initiated in the EU-supported project "TM-Alliance". In this project, the World Health Organisation (WHO), the International Telecommunication Union (ITU) and the European Space Agency (ESA), work generally on eHealth and, in particular, regarding visions for personalised medical networks.

The EU programme EUMEDIS, which targets the Mediterranean Countries, and @LIS, which focuses on the Latin America countries, have contributed to EU international collaboration in the IST fields.

Since eHealth is on the health-care agenda globally, further international collaborations have been encouraged during major events like the EUROCHINA2002 Co-operation Forum on Information Society, organised in Beijing, and the EUROINDIA2004 Co-operation Forum on Information Society, organised in New Delhi.

Support to deployment and EU eHealth Action Plan

To support all EU Member States, and associated and candidate countries to the EU, in the adoption and implementation of eHealth in their health systems, a High-Level European eHealth Conference was launched in Brussels in 2003. Over 30 ministers (from health and telecommunication and/or industry ministries) and 800 participants attended the meeting. An important part of the conference was the exhibition of 40 real-life eHealth applications, selected among 180 proposals. The exhibition focused on the following four areas, a) National and Regional e-Health Networks, b) eHealth Systems and Services for Health Professionals, c) Telemedicine and home-care eHealth Applications, and d) Empowering Citizens in Management of Health and Well Being.

During the conference the Ministerial Declaration on eHealth 2003 was adopted. As part of the Declaration, ministers expressed their commitment to the development of national and regional eHealth implementation plans as an integral part of the eEurope 2005 action plan.

Ministers declared their willingness to work together towards best practice in the use of ICT as tools for enhancing health promotion and health protection, as well as insisting on quality, accessibility and efficiency in all aspects of health-care delivery.

The second High-Level European eHealth Conference, jointly organised by the Irish EU Presidency and the European Commission, took place in Cork, Ireland, in 2004. Over 400 persons attended the conference, including European health ministers. The focus of the conference was "Empowering the citizen through eHealth tools and services". The specific aim of the conference was to make a major contribution towards demonstrating where Europe stands in this fast-evolving and competitive field. Thirty real-life eHealth applications, selected from more than 100 proposals, were on show. The conference identified the eHealth tools and services for citizens that are now available, and illustrated how, today and in the years ahead, European citizens will benefit from such service provision.

During the 2004 conference in Cork, the communication from the Commission, entitled "eHealth – making health-care better for European citizens: An action plan for a European eHealth Area", was presented. In June 2004, this communication was endorsed by the EU-25 health ministers. The aim of the Action Plan is to support EU Member States to materialise the benefits available from eHealth, and to respond to the growing need for coordinated activities in eHealth. The eHealth Action Plan addresses several demographic, socio-economic, epidemiological, and technological challenges. The nine main areas of the Action Plan addressing common challenges cover the following domains:

- › Health authorities leadership
- › Interoperability of health information systems
- › Interoperability of electronic health records
- › Enhancing infrastructure and technologies
- › Conformity testing and accreditation
- › Legal and regulatory issues
- › Dissemination best practices
- › Benchmarking
- › International collaboration

The eHealth Action Plan means that, for the first time, Europe has a coherent agenda for the implementation of eHealth. The implementation of the Action Plan will, among other things, lead to greater support for the mobility of patients, facilitate citizen-centred health systems, provi-

de health professionals and administrators with the tools and systems required to improve the quality and efficiency of health-care and, finally, allow greater work flexibility with regards to information and knowledge exchange and retrieval. As a result, European health-care will be more efficient, accessible, productive, of enhanced quality, and will provide greater and more effective cost containment.

RELEVANT LITERATURE

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