



Cyprus



**Describe a successful or challenging e-health initiative your country has taken.**

*The Ministry of Health has decided to proceed with the implementation of a Health Care Information Support (HCIS) System in all government hospitals, outpatient departments and rural health centres. To this end, in 2004 the Ministry and the Department of Information Technology Services (DITS) jointly issued a Request for Proposal (RFP) for a turnkey ready-made application software which would provide an Integrated Health Care Information System. The vendor-selection procedure was completed two years later, in 2006. The HCIS tender contractual process has already begun with the computerisation of two flagship hospitals: New Nicosia General Hospital and Famagusta General Hospital. The project is now at the end of phase one.*

*The ICHIS project will be implemented in three separate phases, according to the roadmap below, which provides the key milestones of each phase according to the Initial Project Plan.*

*A further invitation to tender for consulting services, equipment and software development for a national health monitoring system was launched in August 2005. The project will develop an expandable, flexible comprehensive data warehouse to produce the required range of health indicators. The Health Monitoring Project was completed by the end of September 2007.*

*E-Health in Cyprus is intended to cover a wide range of products, systems and services. Examples of such applications are hospital information systems, a national health monitoring system (including the establishment of a number of disease registers in health), computerisation of primary care services, computerisation of the forthcoming Health Insurance Scheme, introduction of a patient card, a high-quality website for the Ministry of Health, information networks, electronic health records, standardisation of medical terminology, classification and coding of diagnoses, medical procedures, and causes of death, introduction of telemedicine services, and personal wearable and portable communicable systems and health portals.*

*The Ministry of Health then intends to roll-out the HCIS to all hospitals and medical centres under the public sector by 2010. Private doctors and clinics, where appropriate, will be given access to the hospital patient record. The recently constructed high-tech New Nicosia General Hospital will be the central node of the health institutions of Cyprus.*

**What were the financial challenges and costs associated with implementation of this programme?**

*The implementation of the computerisation of this phase is expected to cost more than 20 million euros.*

**What have been the main technological challenges to implementing e health in your country?**

*The lack of interoperability between current systems and administrations presents a big barrier in the development of the planned unification of the EHR. A robust gateway architecture is still needed to exchange and process data in a meaningful manner based on standardised data models and elements, common protocols for exchanging data and metadata standards; a prerequisite for which is the use of a uniform syntax. The architecture should also incorporate identity management, authentication, trust, security, data protection, etc. Standard activities and processes must be associated with baseline metrics.*

*We believe that this can be achieved through the introduction of a pan-European Health Information System, where all the information will be gathered at the place where it is generated and will be transformed and disseminated in an appropriate format. With regards to content, there will likely be different standard templates for each discipline, and also a uniform classification system of symptoms and diagnoses.*

**Have any ethical issues been raised during the design and implementation of e-health programmes?**

*The main ethical issues raised have to do with concerns about security and privacy. Also, both patients and doctors are accustomed to more traditional ways of interaction and work, which makes them hesitant to use new technologies.*

### Has the implementation of e-health programmes required any legal or regulatory changes?

*Yes, even though there is sufficient awareness of the need to develop an effective legal framework that should be in line with the EC directives (aiming to support e-Government and e-Health), the introduction of appropriate legislation is moving slowly. The lack of a solid legal framework towards ICT is a main barrier to e-Government and e-Health developments. As a result, timely implementation of scheduled services is difficult to achieve.*

*Legislation related to the Processing of Personal Data (Protection of Individuals) Law of 2001 has entered into law in November 2001 and is compliant with EU directives. In 2004, Cyprus adopted two primary laws – the Law on Electronic Communications and the modification of the 2002 Law on Radio-communications – to transpose the new EU regulatory framework. It has also introduced four pieces of secondary legislation in the field of radio-communications. Cyprus, however, has not yet introduced the necessary secondary legislation for the Law on Electronic Communications. The Legal Framework for Electronic Signatures and for Relevant Matters Law and the e-commerce legislation have been also introduced. The e-Commerce legislation addresses the Certain Aspects of Information Society, and specifically Electronic Commerce and for Relevant Matters Law of 2004 and the Distance Conclusion of Contracts Law of 2000.*

*We believe, with recent developments in Europe in mind, that because health-related data needs to be accessible from the place where a patient is being treated, and because European citizens are becoming increasingly mobile, legal and ethical issues have to be dealt with more systematically. Without clear guidelines and adequate legislation, health professionals will be reluctant to adopt e-health practices. The formulation of the necessary legal framework must be carried out at the European community level.*

### What have been the outcomes of your e-health initiatives?

*We do not have outcomes for our major project, but we have very positive results from various pilot projects.*

*The Ministry of Health has initiated the deployment of promising pilot projects in collaboration with the University of Cyprus. In particular, two projects are worth of mentioning.*

- ✦ *First, the successful 2003 ministerial e-health finalist project DITIS has been adopted by the government to support the community care program. DITIS is a project which has been in development since 1999. It has been successfully deployed by PASYKAF for the home care of cancer patients. It enables the effective management and coordination of healthcare teams for the continuous assessment, diagnosis and treatment of patients at home or wherever else they may be. Also, through DITIS, healthcare providers have access to electronic patient information from anywhere and anytime via their computer desktop at work or a variety of mobile devices when on-the-go. We expect DITIS to provide multiple benefits, such as improvement of the care and quality of life of chronic (and other) patients, savings on scarce resources for the healthcare system, and more efficient provision of care. The Ministry of Health will initially deploy the system into two medical centres at Aglantzia and Kyperounta.*
- ✦ *The second project addresses the provision of e-emergency services. In the context of two successful European projects, the Ambulance HC1001 and Emergency-112 HC4027 projects (in which the Department of Accident and Emergency of the Nicosia General Hospital participated with the University of Cyprus), a portable medical device for emergency telemedicine was developed. The system enables the transmission of critical bio signals like the electrocardiogram, blood pressure, heart rate, temperature, and still images of the patient, from the emergency site to the hospital. The system enables the physicians to direct pre-hospital care in a more efficient way, improving patients outcome and reducing mortality. The system was designed in order to operate over several wireless communication links (such as satellite, GSM, GPRS, and UMTS). The Ambulance & Emergency network infrastructure for the island of Cyprus included: the connection of the Department of Accident and Emergency of the Nicosia General Hospital with an ambulance and a distant rural hospital at Kato Pyrgos. The system will be expanded to cover more medical centres.*

*Additional e-health efforts in which the Ministry is involved include: the transmission of X-ray images in emergency orthopaedics cases and histopathology images during surgery between the Pafos and Nicosia General hospitals.*