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## Healthcare IT System in Eastern Europe

**Serbia**

Serbia's e-Health vision is part of the government's September 2005 position paper: National Strategy for an Information Society in Serbia. This defines the main issue as "the implementation of an infrastructure to provide for medical care, disease prevention, and health education on-line."

In general, the Strategy Paper acknowledges that health information systems in the country "are largely outdated and paper based. Coordination is not present, and ICT is deployed in a fragmented and duplicative way." As a result, "no one can have an accurate picture of the current situation, which hinders plans for the future as well. "

In such a context, one of the government's priorities has been to make an assessment of the country's healthcare IT infrastructure, and towards this, it has been assisted by bodies such as the World Bank and the European Union resulted in the realisation of several projects.

At the moment, its priorities are to:

Ó Create digital infrastructure (extend and upgrade the backbone communication network)

Ó Provide affordable access to telephone and internet services

Ó Establish links with public health information networks and databases

Ó Build and maintain health portals, with development of content in local language

Ó Define clinical paths and electronic support for them

Ó Accept internationally harmonized standard documents

Ó Reengineer processes with internationally accepted best practice

Ó Use online technologies for availability and quality of health services

Ó Use wearable and portable monitoring systems

Ó Develop health telematics infrastructure for telemedicine services

Ó Use health services network for collection of statistical data, monitoring and reporting

Ó Develop data warehouse for monitoring and decision making

On a technical level, the government has outlined three priorities. These concern data standards as the first step to interoperability, the need to give the highest attention to privacy and security, which it sees as "critical ingredients" for building trust, and the promotion of personal health as a means to secure user buy-in by Serbs.

**Flagship e-Health Projects**

A feature on the new Serbian EHR system (deployed in summer 2008) is provided on page 24.

It represents an ambitious attempt by the country to leapfrog its way into the e- Health arena, which remains outdated, paper based and poorly interconnected (as discussed above).

Nevertheless, Serbia has been moving to both take stock of and incrementally boost the foundations of its future e-Health network.

The principal player in this area is the Belgrade University Computer Center (BUCC), which is responsible for development, maintenance and management of the nascent Serbian national healthcare network NREN.

This provides free 1 Gb/s links to over 60 hospitals. However, most of the latter are affiliated to Belgrade University.

A separate network of the National Health Insurance Fund connects about 200 internal locations with headquarters.

In the coming years, the principal challenge will be to link the above networks seamlessly (and in accordance with international security standards), alongside growing the user base to more hospitals and other healthcare institutions, as well as develop new services. The recently launched EHR is a potentially major step in the latter context.

#### Lithuania

e-Health policy in Lithuania falls under the jurisdiction of the Health Ministry. This is encapsulated in a position paper 'eHealth Strategy for 2005-2010', which acknowledges the central role of IT in modernising the country's healthcare system. One key point of interest in the strategy paper is a central role accorded to patients, to enable them to participate directly in their own healthcare activities.

Meanwhile, Seimas (the Lithuanian parliament) has provided legal moorings to issues of data protection, confidentiality and digital signatures as well as data interchange standards. It has also proactively sought to align this framework with regulations and other evolving measures across the European Union.

Key aspects of Lithuania's e-Health strategy include optimization of resource management, prioritizing plans and projects with regard to telemedicine (remote monitoring and telecare), clinical decision support, as well as patient health records – in the latter case, via integration of health care registers and databases.

In tandem, there are plans to boost computerization and networking of GPs, outpatient clinics, and implement modern hospital information systems.

The jewel in Lithuania's budding e-Health apparatus is the Telemedicine Centre at Kaunas University, a leading regional R&D institution for developing telemedicine solutions and services, which also advises healthcare institutions and the government on e-Health policy and Best Practices.

#### Flagship e-Health Projects

A master project simply labelled 'eHealth services' is the keystone of Lithuania's e-Health system. This includes implementation of a base Hospital Information System in three regional healthcare institutions (in Kaunas, Klaip da and Vilnius) and their systematic expansion and integration to a nationwide system in consonance with international standards.

Key technical objectives are to permit faster data exchange between healthcare institutions on patient treatment procedures and lab results. The project is jointly financed by the government of Lithuania (45%) and the European Union (55%).

To keep patients, physicians and the general public up-to-date on developments in the country's, the government has established a Website (http://esp.sam.lt).

In summer 2008, the government followed up its 2005-2010 e- Health strategy paper (see above) with a more goals-oriented document for the period 2008-2015. This foresees a three step e-Health implementation programme.

• By 2010, the infrastructure of the national e-Health system is expected to be in place. The government expects 20% or more patients' visits" to be registered in the eHealth system, and its use by a similar share of Lithuanian healthcare instituitions (including the largest hospitals) as well as 30% of GPs

• By 2013, the above shares are expected to reach "a majority" of patients, hospitals and physicians

• Universal coverage is planned by 2015

**Romania**

Romania's status as an IT hotspot in eastern Europe (and well beyond) is reflected in all the trappings of an advanced e-Health infrastructure.

Indeed, as in the richer countries of Europe, the debate on the future of E-Health in the country is centered on interoperability of IT systems – ranging from databases at the Ministry of Public Health and its local organs, through health insurance funds to hospitals and other providers as well as patients. The eventual aim is to offer healthcare professionals decision support tools in real time.

Romania has considerable practice of hospital information systems (HIS), with three out of four hospitals already deploying controlled IT procedures in clinical departments.

Though still heterogeneous, the HIS systems in use in Romania (some dating back to the 1980s) include patient IDs and health records, and are integrated with independent departments (OR, outpatient, laboratory, pharmacy, etc). Moreover, all State hospitals in the country use the same application for DRG datasets on patients.

**Flagship e-Health Projects**

Current efforts in the country are focused on developing and implementing an integrated national health information system, interfaced with electronic patient records, and backed by a rigorous dictionary of clinical terminology. There are also moves to extend telemedicine applications, used in several major cities for emergency healthcare, to the national level.

Towards all this, Romania has made a headstart over many other countries by adopting the existing 13-digit ID number issued to all citizens as a unique identifier within the (emerging) e-Health framework. One inititative foresees

a smart card, identifying patients and embedded with a minimum (but eventually scalable level) of personal health data for use in emergencies.

**Bulgaria**

Bulgaria's healthcare IT perspectives are anchored in an April 2006 policy paper on a National Strategy for Health and an Action Plan for e-Health.

Its main goals are to increase quality of health care, apply state-of-the-art medical and healthcare IT technologies and augment the qualifications of the country's health professionals. Towards this, the country has begun rolling out a variety of pilot e-Health projects.

The e-Health Action Plan seeks to introduce EHRs, alongside new hospital information systems as well as Web-based applications for access by patients.

Reflecting the country's past political system is the ownership by the Health Ministry of a variety of bespoke software systems, principally legacy applications to process information originating in subordinate authorities. In spite of this, the country lacks a centralized data repository of medical information on patients, or means to transfer this for planning or analysis. One of the country's first goals will therefore no doubt lie in updating or replacing these systems.

In spite of this, a skeletal healthcare IT backbone is already in place, centered on the National Health Insurance Fund (NHIF), which uses a VPN to connect headquarters with regional funds, and has already automated processing of claims by the majority of medical service providers. According to some sources, 90% of Bulgarian GPs and 100% of laboratories report electronically - but principally via diskette rather than online)

**Flagship e-Health Projects**

The Bulgarian Ministry of Health and the National Health Insurance Fund began a pilot project on electronic health cards in October 2007. The first phase in this EU-supported project involves 1,000 residents (principally chronic patients) from one town (Slivnitza) and a village Aldomirovzi. Physicians nominated patients, based on their condition.

The first service consisted of e-prescriptions, with a secure, scalable network link ing four pharmacies and se ven GPs with the patients. The system is currently being evaluated for a wider roll-out. In the long-run, this pro ject (a hub of the country's e-Health plans) foresees the following targets:

• The availability of electronic health records by 2009

• The full availability of eHealth cards by 2013.

#### Ukraine

Telemedicine has a long history in Ukraine, dating back to the 1990s and before (for example, in monitoring vital signs of coal miners). Telepathology was started up in 1995, and along with distance education, teleconsultations remain the mainstay activity in the field. In 2000, Ukraine’s first Department of Telemedicine was set up in Donetsk.

It has since carried out teleconsultations across a full range of specialties from trauma and neurosurgery, to oncology and obstetrics both internally, and with medical specialists abroad.

One of its major recent initiatives has been to establish a legal Best Practices model for the country (and the region), with due attention to issues such as privacy, informed consent, confidentiality of telemedical data and issues of responsibility for patients treated via telemedicine.

#### Flagship e-Health Projects

Formally, Ukraine's e-Health system is centered on Health- Net, which consists of national medical networks and a database Registry.

The most prominent is a National Register of over-700,000 individuals suffering from the aftermath of the Chernobyl nuclear accident. It covers 25 districts and two cities - Kiev and Sebastopol. The second e-Health network is the Health Ministry’s Sanitary and Epidemiological Service, run at 70-plus districts. The bulk of its activities are directed at monitoring for infectious diseases.

A more recent medical network has been created for monitoring oncological patients in 19 regional dispensaries, with its hub at the Kiev-based Institute of Oncology.

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