

Volume 3 / Issue 5 / 2008 - Features

The Electronic Health Record in Siberia

Author

Michael Weinhara,

Hospital Economist and

Team Leader.

Serbia's new EHR system went live a few months ago, marking a major milestone in its efforts to leapfrog interim solutions and access the benefits of e-Health in the shortest possible period of time. Overall, the Serbian EHR is both a national e-Health backbone – allowing various health information systems to exchange data in real time, while serving as a backup in case of failure of an institutional information system or if a change of software vendor becomes necessary.

The introduction of the EHR was managed by the European Agency for Reconstruction on behalf of the Serbian Ministry of Health. The project was kicked off in 2005 and deployed in summer 2008. The Serbian EHR is a centrally hosted web-application, with an Oracle database at the back-end. For basic use, clients simply require Internet access and a browser. The application supports the integration of legacy systems as used in various primary and secondary care sectors, and all required codes are available free. A description of its software and hardware infrastructure is provided below.

Software Infrastructure

Ó Cluster of two Oracle 10.2g Servers for data

Ó Two balanced Java Application Servers 'GlassFish' for the following applications:

- Server side of the EHR, pharmacy data upload, administration of EHR, patient viewer etc.
- Microsoft IIS for .NET web GUI
- Jasper server for Warehousing

The development software used for the project:

- Microsoft Visual Studio .NET for web GUI
- Java, EJB3, TopLink for Server Side Java
- Java, Tapestry 5 for Web java
- NetBeans 6.1 and Eclipse 3.4 for Java applications
- Oracle tools for DB
- PowerDesigner for DB and Warehouse

Hardware Infrastructure

Ó National Institute of Public Health (National Clearing House -NCH) at Belgrade and four Regional Clearing Houses - RCH.

Standards, Certification

The Serbian EHR system defines standards for XML messaging. This enables the exchange of health data between existing information systems, if they comply with EHR standards. The National Institute of Public Health, functioning under the mandate of the Health Ministry, ensures that all security and data exchange standards are maintained in the best interests of the public health sector. They are also intended to

© For personal and private use only. Reproduction must be permitted by the copyright holder. Email to copyright@mindbyte.eu.

provide a fair and transparent set of preconditions for certification of vendors who like to enter the Serbian e-Health market. Beside the advantage of having all health data available anytime, anywhere, the Serbian EHR has multilingual capabilities, so that data entry in the Serbian language (even with Cyrillic script), can be translated to other languages. This is however so far limited to key medical expressions about diagnoses or procedures, along with short text.

Leaving Room for Phased Expansion

Data entry and view function for health professionals during the care process as well as the statistical datawarehouse are fully operational in the form of web applications. Five levels of access rights for professionals are provided, in line with ISO 13606. Patients can review their own health records, add comments and review access lists to their health record. The current configuration provides an infrastructure that permits a phased, country-wide rollout at what are believed to be the lowest possible costs. Stable, high-speed Internet coverage is now increasingly available in remote areas of the country too. As the cost of IT workstations decreases, the design of the system is meant to permit a thin-client structure, with low incremental costs per additional workstation – while still allowing full functionalities. Such economic equations underline why smartcard features have not been applied, since added benefits were outweighed by the extra costs.

Clearing Houses: Their Roles

The National Clearing House (NCH) in Belgrade acts as the central facility to receive and display health record data in a daily routine. One regional clearing house (RCH) functions as a disaster recovery center with a mirror backup. The other three RCHs are used as datawarehouse for routine statistical data analyses and specific data mining function.



Published on : Sat, 3 May 2008