

Successful go-live of fully integrated IHE XDS network in Tyrol region (Austria)

Seven hospitals including Innsbruck University Hospital are now online with an IHE cross-enterprise document sharing (XDS) network in the Tyrol region of Austria, which has about 700.000 inhabitants and more than 25 million of tourist overnight stays per year.

The Tyrol network is "a network integrating a fully operating IHE XDS platform to be implemented, deployed and now heavily used by clinicians, currently being expanded to additional hospitals and general practice physicians ," explains Florian Wozak, a member of the project development team.

He reports the system is fully integrated with clinical information systems, connects the products of different vendors of health information systems at separate and independent hospital operating entities, and significantly, compliant to the requirements for the Elektronische Gesundheitsakte (ELGA), Austria's planned patient record. XDS Source and XDS Consumer are seamlessly integrated in Clinical Information Systems, removing the burden of switching application, multiple sign-on and manual patient entry for treating physicians.

As of November 2009 the Tyrol healthcare network was recording 4,000 patient discharge letters per day and managing 4,000 queries, Wozak reported, adding that the uploading of historical medical records from the community hospitals currently being uploaded are running at a rate of 250,000 transactions registered per day.

Begun as a research project in 2002 called health@net at the University for Health Sciences, Medical Informatics and Technology Tyrol (UMIT), the original goal was to interconnect the central Innsbruck University Hospital with general practice (GP) physicians and specialty practice groups.

"After some work we decided to shift the focus of this project for direct communications to patient-centric electronic health records (EHR)," explained Wozak. "When IHE announced the XDS domain around 2005 we recognized this architecture was similar to our own planned designs and decided to migrate our prototype architecture toward a fully XDS-compliant infrastructure." The pilot operation for that infrastructure including a physician portal was deployed 2006 at the Innsbruck University Hospital. During 2008 it was replaced by a productive infrastructure. The registration process, uploading the content for the repositories, began in January, 2009 with the Innsbruck University Hospital which is part of the "Tiroler Landeskrankenanstalten" holding (TILAK) and then step-by-step after that with the independently operated community hospitals.

Austrian data protection regulations proved to be far more strict than the standards set for IHE XDS. Austrian law requires a current treatment relationship between the patient and the physician running a query, which can be verified using services provided by the Austrian e-card infrastructure. Patient consent is required for each query of patient records, which are restricted by a timeframe, by institution and by the clinical area for treatment.

"These are necessary restrictions, when you consider that you may not want your dentist to be reviewing your gynecological or psychiatric records," said Wozak.

As a further security measure, the Tyrol network runs on a layer of a dedicated Austrian eHealth infrastructure that is part of the ELGA program and is independent of the internet, connecting healthcare institutions, as well as physician practices.

The architecture for the Tyrol network was tested over a three year period at IHE Connectathons in Europe and the United States (first successful test at a Connectathon was 2007 in Berlin). In addition to tests of XDS.a, XDS.b, and XDS-I, integration profiles validated at these Connectathon includes the PIX/PDQ master-patient-index, the cross community information exchange (XCA), the cross-enterprise user assertion profile (XUA), notification of document availability (NAV), the audit trail and node authentication (ATNA) profile, the consistent time integration profile (CT) and basic patient privacy consents (BPPC).

At the IHE Connectathon in Bordeaux in April, 2010, integration profiles have been tested for e-health applications that enable the integration of services of the Tyrol network with integrated care functions of general practice physician software.

"Physicians today want everything relevant to a patient's care pushed to their GP system's inbox, so we want to cover this workflow by providing all information," said Wozak, adding, "We focus on integrating a system the way it will be used, as we have learned that usability is very important for the success or failure of health IT projects."

After seven years as a user organization developing a network centered on the Innsbruck University Hospital, the original health@net project at UMIT has since been transferred by the university to ITH icoservetechnology for healthcare, a professional software development and services company that is owned jointly by Siemens and the TILAK hospital group.

The IHE-compliant architecture is now being offered commercially as sense(R) (smart eHealth solutions) providing interoperable, IHE-tested modules for setting up health care infrastructures and applications between multiple healthcare providers. sense as platform for the Tyrol EHR infrastructure was recently certified according to the EuroRec quality criteria. EuroRec intends to promote cross-border harmonisation and comparability, as a first and gradual step towards interoperability of Health Information Systems.