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E-Health in Italy

In the past few years, PACS in Italy has increased significantly and, at the same time, has moved towards a larger regional dimension. Italy's 20 administrative regions are in charge of managing their own healthcare budget and have differentiated themselves by adopting different approaches in defining rules and policies to minimise costs and maximise quality. Their aim is, of course, to increase the level of health for citizens, thus managing the costs of healthcare delivery. Here, we present an overview of some of Italy's succesful regional programmes.

Regional PACS in Tuscany

In this context, in 2004, the government of Tuscany opted for a major shift by launching a regional PACS tender with a funding of 44 million euros. In September 2009, after five years, and after several months of testing and training, the regional PACS project finally became part of routine implementation. Tuscany, with a population of 3.5 million and requiring 4 million radiological examinations each year, has implemented a regional PACS project that is considered to be a milestone because of its size, scope and also its architectural choices. The figures for this project are huge: several petabytes of storage for image and data repositories with over 500 PACS workstations and over 700 RIS seats.

In order to minimise the risk of delivery, start-up and training, and to control the impact of such a great change, the project was divided into three different sub-regions (or 'Area Vasta') within Tuscany: North, Centre and South. Each area was awarded to a different multi-vendor's consortium led by Siemens-Agfa (Centre), Fujifilm-Esaote (North) and Carestream-GE (South). Each consortium was asked to provide a complete 'turn-key' solution for five years (with option to extend the duration to eight years) based on an all-comprehensive lease, including materials, spare-parts, consumables, maintenance, personnel etc.

The project was based on framework provided by Integrating the Healthcare Enterprise (IHE) , where interoperability between the RIS/PACS and other actors involved in radiological workflow, such as Order Placers and Admission- Discharge-Transfers (ADTs), are clearly identified and defined. To minimise the cost, the results, such as reports and images, are digital and thus easily delivered to the patient via optical media, following the specifications of IHE Portable Data for Imaging (PDI) profile. To achieve the all-digital goal, the project also has included the substitution of all non-digital diagnostic modalities and the revamping of all networking both on a local and wide-area basis. Inter-hospital communication was another tender requirement: the clinical history of the patient, that usually migrates among the several hospitals located in the region, must be available at any point of care at any time.

Benefits for Hospitals & Patients Alike

The projected final cost for each examination, based on an eight-year projection, is expected to confirm a sensible gain versus the film-based cost. Moreover, due to new, fully digital diagnostic modalities, the time spent for each procedure will decrease significantly, allowing better usage of radiologists' time and of other valuable human resources, increasing the quality of the entire diagnostic process. Many benefits are also expected for care-receivers, such as a decrease in waiting times, both for the examination and the results; a decrease in ionising radiation, which must be monitored and audited; and an increase of direct accessibility for the GP to the results of such examinations.

This project, however, is only a step towards a regional EHR system. As opposed to the past, this regional structure for PACS, which is no longer directed to sustain a teleradiology goal, establishes a common infrastructure to assist the production and retrieval of information to and from a regional EHR repository. The structure of such repositories and their associated workflow, is regulated by a collection of documents published by NSIS (New Healthcare Informative System) specialists panel, under the authority of the Italian Ministry of Health.

The NSIS documents, that depict a nationwide EHR, are very close to the IHE framework for the integration profiles of Cross-Enterprise Document Sharing (XDS). However the differences are minimal and related only to the structure of the national registries, which are based on a hierarchical structure instead of the cooperative and federative of IHE XDS.
Besides being the first, the Tuscany project is not the only project with a regional dimension and with a noteworthy eye towards EHR integration.

PACS in the Friuli-Venezia Giulia Region

In 2009, another region, Friuli-Venezia Giulia, located in the northeast of Italy bordering with Austria and Slovenia, issued a large tender for a regional PACS/RIS system. With a population of 1.2 million and slightly more than one million radiological procedures required each year, the tender requested a complete lease for five years with the option to extend it further at a later point.

The services involved are all related to imaging producers: radiology, nuclear medicine, cardiology, mammography, etc. Integration with existing and future information systems is based on IHE Integration Profiles, with a special attention to XDS to supply IT services for retrieving imaging and report information at a regional level: another important step towards EHR integration, aiming for a real and practical daily usage.

PACS in the Veneto & Liguria Regions

Another of the most prominent regional projects is Health Optimum, a telemedicine project co-financed by the European Union and led by the Veneto Region (Consorzio Arsenàl) with the participation of Spain, Denmark, Sweden and Romania. The goal of the project was to improve the

supply and performance of quality telemedicine services, allowing them to serve a greater number of users regardless of their area of residence, through the use of the IHE profiles for imaging, specifically XDS and XDS-I. Also the Liguria region is moving towards the same goal by fostering the integration of new PACS/RIS installations with their XDS-based EHR project, formerly known as 'Conto Corrente Salute' (Personal Health Record).

PACS Moving to a Regional Level

The trend in Italian healthcare IT is therefore to move PACS from an institutional level to a large regional dimension. This is supported by different, and tangible, pragmatic needs, chiefly to constantly ameliorate cost-effectiveness performance of healthcare delivery. To this end, the IHE XDS approach is future proofed and provides a sound basis for a safer use of public money for these kind of investments. These PACS projects act also as technology- movers, pushing the old centralised HIS and dispersed GPs' interfaces in new directions and moreover towards tighter integration. All these regional EHRs are also the bricks for a future nationwide EHR.

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