

changing the way healthcare **coNnects**



Success Story

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BENEFITS OF THE PROJECT

The Centre Hospitalier Universitaire de Bordeaux (CHU-Bordeaux) features a patient-centered shared medical record available to all medical and surgical wards that follow a patient through the entire care path and beyond to scheduling follow-up appointments. The goal was to accelerate the information delivery, thanks to the ubiquity of the patient file, in order to reduce the delay before the care of the patient. Nurses and referring physicians can verify medical acts at any point in the patient's care or they can collaborate with a specialist from any other site at the University hospitals. CHU-Bordeaux is currently adding a patient medication record to this advanced network. This achievement is built on the pioneering work of the medical imaging group that in 2003 began to construct a shared network using IHE architecture that continues to be a central pillar supporting the hospital-wide system.

THE CHALLENGES

Medical imaging systems at CHU-Bordeaux were spread across three distinct sites that were operating on three separate radiology information systems. There was not a unique patient identifier so that a single patient utilizing radiology services at the three different sites would have three different identifiers.

The financing for the new medical imaging network was limited, for the whole hospital Centers development, to savings generated by reducing the use of film.

THE APPROACH

An essential first step was the synchronization of the three new PACS (Picture Archiving and Communication Systems) and the creation of a coherence for patient identifiers. Yet the objective to link patient identifiers with appropriate documentation of radiology examinations across the hospital was challenged by the inability of separate sites to share the linked records. The implementation of a single hospital wide radiology information system resolved the issue for the DICOM worklist used for image examination accession numbers.

The next stage was the implementation of the IHE Radiology Scheduled WorkFlow (SWF) that establishes a continuity and consistency for imaging department data and coordinates work processes. SWF specifies activities, called transactions that spell out imaging acquisition procedure steps, which follow a patient's progress through the procedures and track the resulting images to assure that digitally stored images are available for subsequent workflow steps, such as reporting.

When images were kept on film, the image quality was the responsibility of the imaging department. While digital formats are easier and more efficient to share across departments, the quality of the image presentation can be compromised across different systems. CHU-Bordeaux implemented the IHE Integration Profile for Consistent Presentation of Images (CPI) to ensure quality and consistency. The medical imaging group also

implemented the IHE profile for Key Image Note (KIN) that allows radiologists to tag the key images to be first seen by the referring physicians in order to increase critical communication. The KIN Profile is also used for CD-Rom (so that the key images can be viewed first), for paper printing and for the archival plan. For example, when technical obsolescence forces file migration to archives, the key images could be the only ones to be migrated on the new archiving system instead of the whole examination.

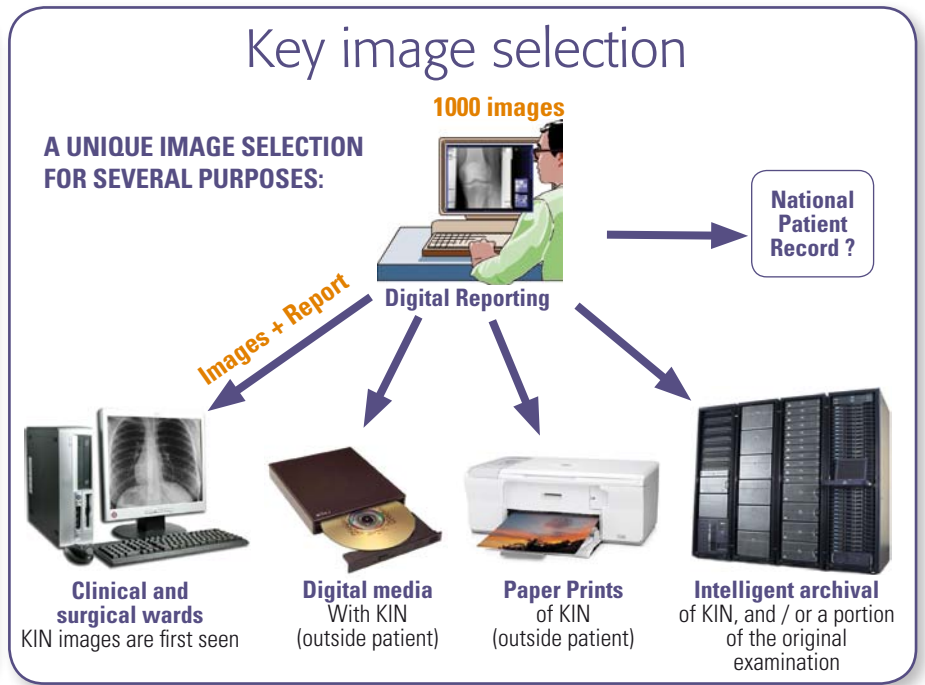
The implementation of the medical imaging network, which today also includes nuclear imaging, was realized in stages. The roll out began in 2004 for CT and MR images with the South hospital group facilities, followed by the Pellegrin hospital group in 2005 and finally the Saint-André group in 2006. The final phase of connecting all wards for all imaging modalities and nuclear medicine of the hospital groups with a single system, linked in part to funding from savings on film expenses, was completed at the end of 2007.

ABOUT CHU-BORDEAUX

The Centre Hospitalier Universitaire de Bordeaux serves a wide region of the south west of France and is a reference medical center consistently ranked among the top three French centers in 14 surgical and medical specialties. The hospital complex is made up of three main sites and in 2008 comprised a total of 3,107 beds with 1,421 beds at the Pellegrin hospital group, 1,262 beds at the South hospital group, 424 beds at the St. André site. CHU-Bordeaux admitted 133,772 patients, recorded 718,204 overnight stays and 106 826 visits at the emergency units in 2008.

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IHE Integration Profiles, Actors and Transactions Implemented

Integration Profile	System / vendor	IHE Actor	IHE Transaction	New or Upgrade
Radiology Scheduled Workflow	EDL Xplore	Department System Scheduler/ Order Filler	Procedure Scheduled (RAD-4) Query Modality Worklist (RAD-5) MPS in Progress (RAD-6) MPS Completed/Discontinued (RAD-7) Image Availability Query (RAD-11)	New (installed in 2007)
	Medasys DxMultimodality	Image Display	Query Images (RAD-14) Retrieve Images (RAD-16)	New Installed 2007
	Medasys DxServer	Image Manager Image Archive	Procedure Scheduled (RAD-4) Storage Commitment (RAD-10)	New Installed 2007
	Philips Brilliance 40	Acquisition Modality (CT)	RAD-5, RAD-6, RAD-7, RAD-10	
	Siemens Sensation 16	Acquisition Modality (CT)	RAD-5, RAD-6, RAD-7, RAD-10	
	Philips Achieva	Acquisition Modality (MR)	RAD-5, RAD-6, RAD-7, RAD-10	
	Philips ACS and NT-10	Acquisition Modality (MR)	RAD-5, RAD-10	
	Siemens Avanto	Acquisition Modality (MR)	RAD-5, RAD-6, RAD-7, RAD-10	
	Siemens Sequoia	Acquisition Modality (US)	RAD-5, RAD-10	
	GE Discovery ST	Acquisition Modality (TEP)	RAD-5, RAD-10	
	Siemens Symbia	Acquisition Modality (NM)	RAD-5	
	Biospace EOS	Acquisition Modality (DX)	RAD-5	
	GE Innova	Acquisition Modality (XA)	RAD-5	
	Philips ALLURA	Acquisition Modality (XA)	RAD-5	
Patient Information Reconciliation	EDL Xplore	Department System Scheduler/ Order Filler	Patient Update (RAD-12)	
	Medasys DxServer Carestream VIPA	Image Manager Image Archive	Patient Update (RAD-12)	Upgrade Installed 2007
Key Image Note	Medasys DxMultimodality	Image Display	Key Image Notes Stored (RAD-29) Query Key Image Notes (RAD-30) Retrieve Key Image Notes (RAD-31)	Installed 2004
	Medasys DxServer	Image Manager Image Archive	RAD-29, RAD-30, RAD-31	Upgrade Installed 2007

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