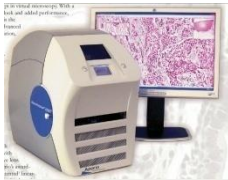


COST IC0604 Working Group 2 Standards

Dr Christel DANIEL

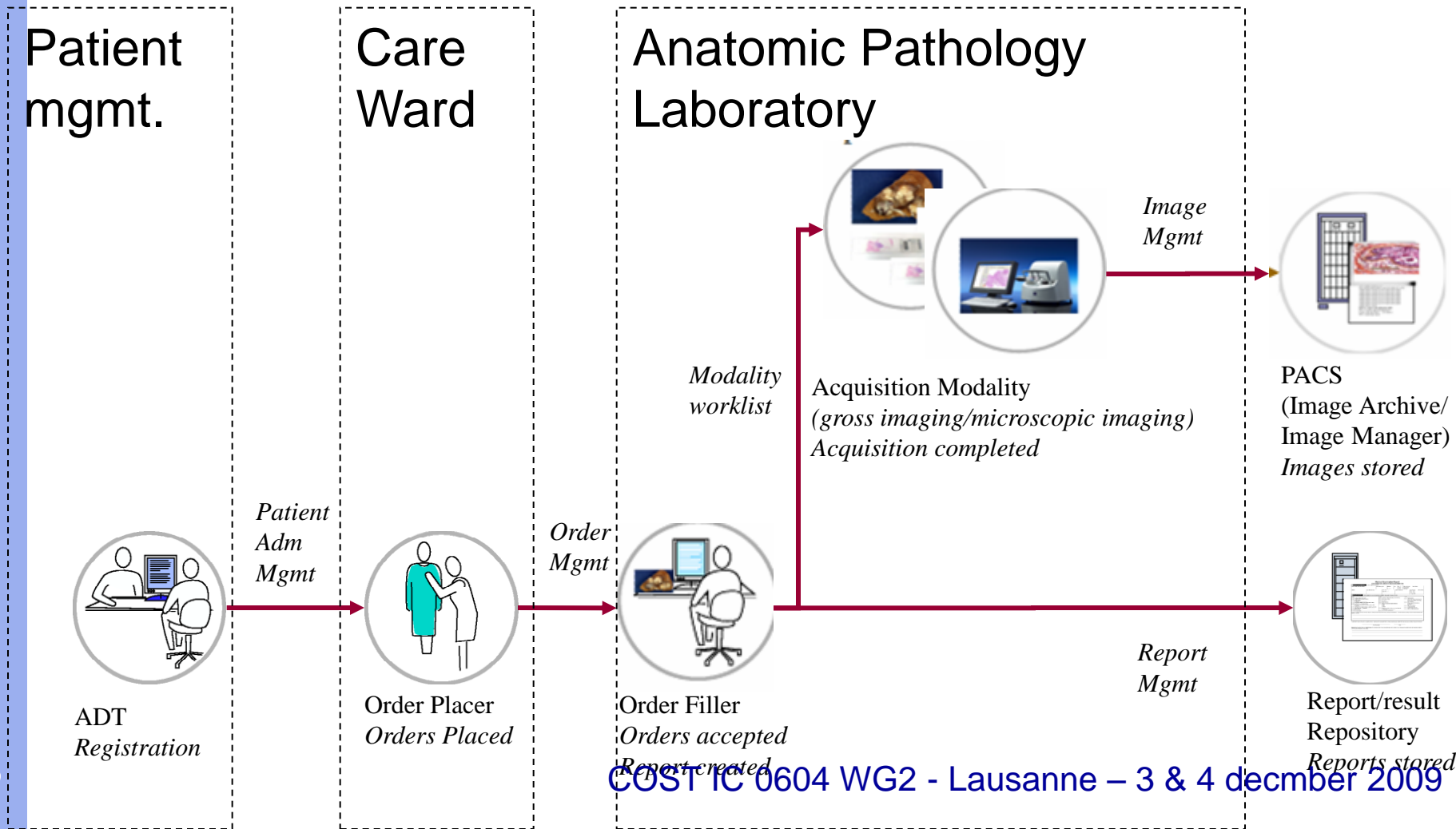
Lausanne 3 & 4 december 2009



Agenda

- **Results of recent IHE/HL7 efforts**
 - Change proposals
 - CP for Anatomic Pathology Workflow (APW)
 - Instance availability notification (PPSM?) (G.Rodriguez – Satec)
 - CP for Anatomic Reporting for Public Health (ARPH)
 - ARPH : Structured reporting (W.Scharber – CDC)
 - Integration Profiles
 - AP Reporting workflow (G.Rodriguez – Satec)
 - Content profile
 - HL7 CDR2 templates for structured reports
 - Implementation guide for telepathology (XDS-I)
- **Better use of DICOM in Anatomic Pathology workflow**
 - DICOM Modality Work list
 - Image retrieval & display
 - Multimedia structured reports

Anatomic Pathology Workflow (APW)



Change proposal

APW : Procedure step management

(Vol 1 - Open issues 2)

- **Instance availability notification**

- Need for **Performed Procedure Step Manager**?
 - A system that re-distributes the Modality Performed Procedure Step information from the Acquisition Modality or Evidence Creator to the Order Filler, Image Manager and Report Manager

- **Expected outcomes**

- Image availability notification to the Order Filler
 - to notify that a DICOM instance has been stored.
- It may enable the Order Filler to include such information in the transaction to the Order Result Tracker.
- It may be used by the Order Filler to update the work list

Change proposal

APW : Procedure step management

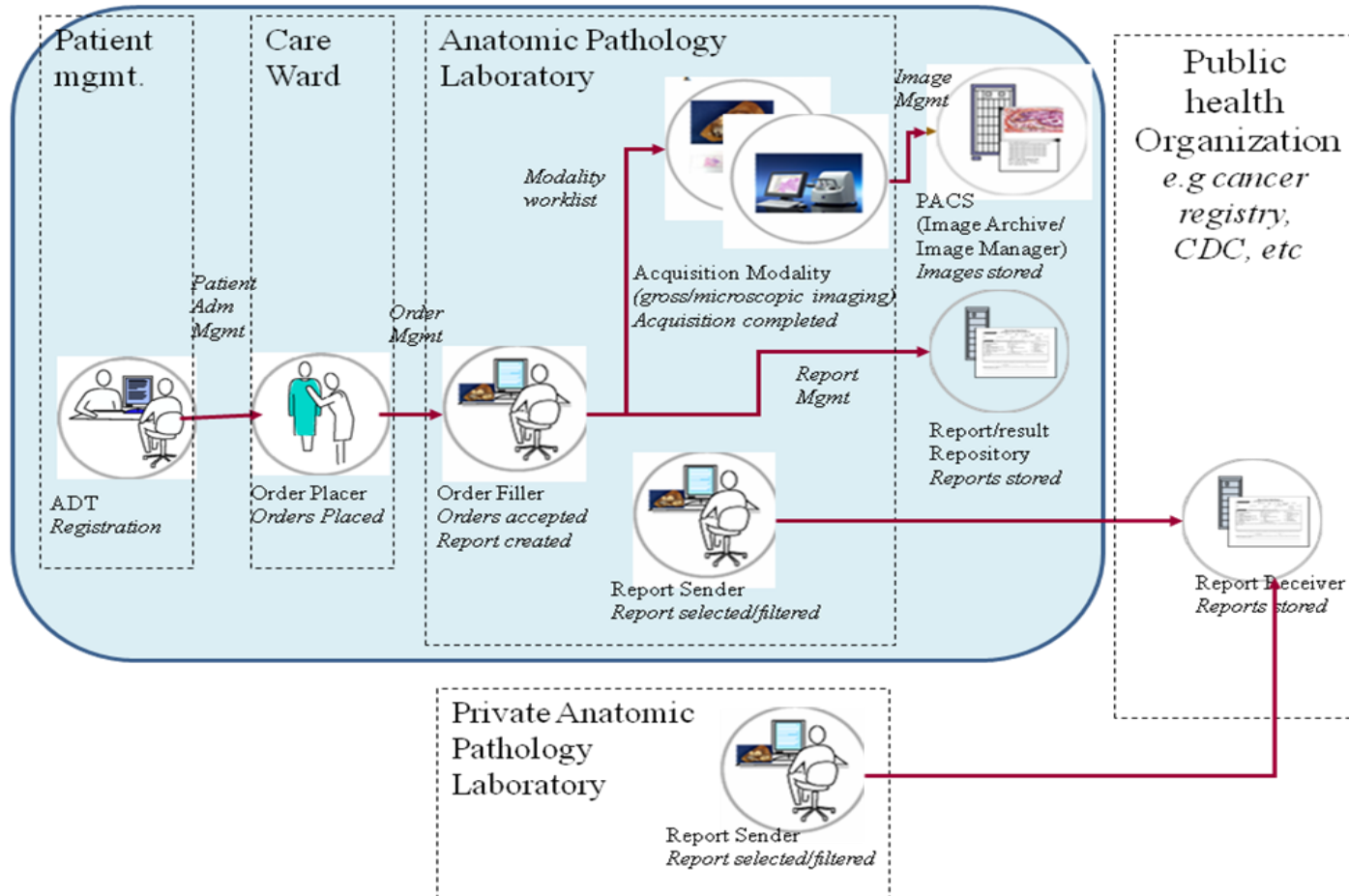
(Vol 1 - Open issues 2, 4 & 5)

- **Consistent management of both lab & imaging procedure steps**
- **Automation Manager**
 - Order Filler / Automation Manager / Device
- **Performed Procedure Step Manager**
 - Order Filler / PPSM / Acquisition Modality-Evidence Creator

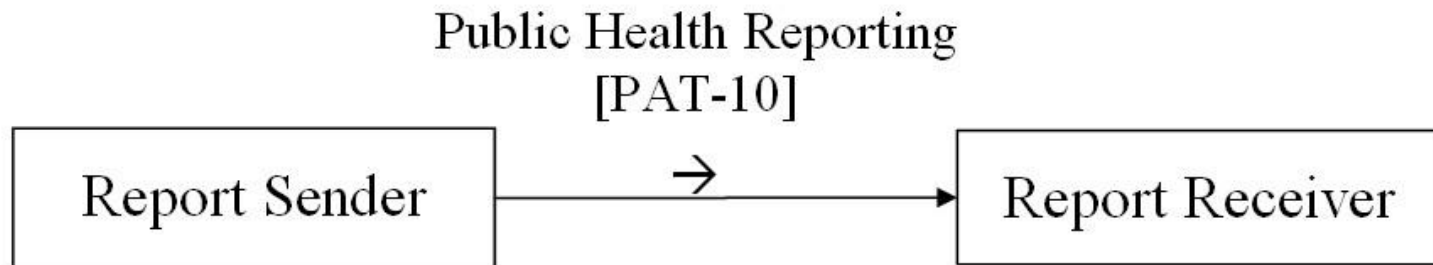
Reporting Anatomic pathology to public health repositories (ARPH)

- **Addressed by the 2009-10 cycle**
- **Scope**
 - Define the actors and transactions involved in anatomic pathology reporting to public health organizations.
- **Expected outcomes**
 - *Make it easier for anatomic pathology laboratories, public health agencies, and software vendors to adopt a uniform method for report or data transmission and processing*
 - *Facilitate international electronic reporting of anatomic pathology data in public health domain.*

Reporting Anatomic pathology to public health repositories (ARPH)



ARPH actors & transactions



Standards Used

- **HL7 v2.5**
 - ORU^R01 message (PAT-10)
- **Reference terminologies**
 - LOINC, SNOMED CT, ICD-10
- **Inputs from**
 - NAACCR* Standards for Cancer Registries Volume V: Pathology Laboratory Electronic Reporting v3.0
 - NAACCR Search Term List

*NAACCR - North American Association of Central Cancer Registries (www.naacr.org)

Change proposal for ARPH

- **Implementation guide for structured reports in HL7 v2.5**

IHE Integration profile

Anatomic Pathology Reporting Workflow (ARW)

- **Existing actor**

- Order Result Tracker

- A system that stores pathology observations obtained for the patients of the healthcare institution, registers all state changes in the results notified by Order Fillers. This actor stores observations in the context of their Order or Order Group. This actor also stores reports outside the Pathology department.

IHE Integration profile

Anatomic Pathology Reporting Workflow (ARW)

- **New actors ?**
 - Report Manager
 - Report Reader
 - Report Creator
- **New transaction ?**
 - PAT-7 : Query Report

IHE Content profile

HL7 CDAR2 templates

Organ specific structured APR (breast, colon, etc.) (level 3)

France (SFP CRFS)



US (CAP Synoptic)



Heterogeneity in:

- Degree of structure (level 1 to 3), underlying information models
- Degree of semantic encoding, reference healthcare terminologies ACROSS & AMONG national initiatives

Step 1: APR templates definition

Generic cancer APR template

Organ specific cancer APR template :
Breast
Colon



Step 2: APR templates validation (Delphi)

CONSENSUAL
Generic cancer APR template

CONSENSUAL
organ specific cancer APR template :
Breast
Colon



Step 3: HL7 CDA for obtained templates



CDA implementation guide



Organ specific cancer APR templates schemas



Step 4: Evaluating the obtained CDA templates

Designing an application framework based on the XRX



CDA based forms for organ specific cancer APR

CDA implementation guide

Body – Level 2 sections

Code	LOINC benaming	Goldsm ith08	NL Impl.Gu ide*	NAACCR	SECTIONS	CARDINALITY
22636-5	Path Report.Relevant HX	X	X	Clinical History	CLINICAL INFORMATION	[0..1]
		X			INTRAOPERATIVE CONSULTATION	[0..1]
22633-2	<i>Path report site of origin</i>		X	<i>Nature of Specimen body site, subsite, surgical procedure</i>	<i>(Sub-section of both clinical information and macroscopic examination)</i>	
22634-0	Path. Report.gross observation	X	X	Gross Pathology	MACROSCOPIC EXAMINATION	[0..1]
22635-7	Path. Report microscopic observation	X	X	Micro Pathology: microscopic description	MICROSCOPIC EXAMINATION	[0..1]

*AORTA Implementatiehandleiding HL7v3 Pathologie Versie 1.02 - Nictiz

COST IC 0604 WG2 - Lausanne – 3 & 4 december 2009

CDA implementation guide

Body – Level 2 sections

Code	LOINC benaming	Goldsmith h08	NL Impl.Guide*	NAACCR	SECTIONS	CARDINALITY
33746-9	<i>Pathologic findings</i>		X	<i>Text Diagnosis</i>		
34122-2	<i>Pathology procedure note</i>		X			
22034-3	<i>Pathology report.total</i>		X			
22034-4	Pathology report.conclusion	X			CONCLUSION	[0..1]
22637-3	Pathology report. Final diagnosis		X	Final Diagnosis : diagnosis fields (histological diagnosis including grade and stage)	DIAGNOSTIC FINDINGS	[1..1]
22638-1	Pathology report comments			Comment	COMMENT	[0..1]
22639-9	<i>Path report supplemental report</i>			<i>Suppl Reports</i>		

Better use of DICOM in Anatomic Pathology workflow

- DICOM Modality Work list
- Image retrieval & display
- Multimedia structured reports



Modality Work list

- A mechanism defined to support the imaging workflow, by which the Pathology Information System provides the attributes of the **imaging subject to modalities**.
 - **In anatomic pathology**, the imaging subject is a **specimen** derived from the patient.
- **Query Modality Worklist**: “Based on a query entered at the Acquisition Modality, a modality worklist is generated listing all the Scheduled Procedure Steps with selected demographic information **and information about specimen** and returned to the Acquisition Modality.”
 - The Modality Worklist provides patient, order (study) and specimen identification and description to be included in the acquired images.
 - The attributes of the **Specimen Module** have been defined in a ‘Macro’ construct, and added to the Scheduled Procedure Step Module of Modality Worklist.

Modality Work list

Requested procedures & procedure steps

- **OR123: Lungectomy**

Order

- DP07110: Lungectomy

- DP07110-A: Left upper lobe (gross image)

- DP07110-A-1: Frozen section, mass

- DP07110-A-1-1: FS

- DP07110-A-1-2: H&E

- DP07110-A-2: Entire mass

- DP07110-A-2-1: H&E (WSI)

Study
“Case”
OrderFiller ID
Accession
Number
=
One
**Requested
procedure**

Series
Two “(imaging)
**procedure
steps”**

Modality Work list

Specimen description

- **DICOM Supp 122 : “Robust new Specimen Module at image level of hierarchy”**
- **Specimen short/detailed textual description**

Including specimen ancestry description in case of derived specimen

- In conformance with DICOM supp122, the short textual description of a specimen retrieved from the Order Filler is a concatenation of the short description of the specimen and all the short descriptions of the specimen ancestry
- Example : *Whole Slide Image of DP07110-A-5-1*
 - DP07110-A: Left upper lobe
 - DP07110-A-5: Left upper lobe/Tumor
 - **DP07110-A-5-1:H&E**
 - **DP07110-A-5-1: Left upper lobe/Tumor/H&E**

Image Query/retrieve & Display

- **Extending Query Image (RAD-14) and Retrieve Image (RAD-18) transactions**
 - Using specimen-related querying and response keys (e.g specimen ID, container ID, specimen type, etc).
 - These functionalities are needed in order to adapt Image Display to the specific querying/browsing processes within anatomic pathology series and studies.
- **Consistent Presentation of Image**
 - Presentation State

Image Query/retrieve & Display

The screenshot displays the WEB1000 web application interface. At the top, there are navigation tabs: 'Etude', 'Miniature', 'Afficher', 'Compte rendu', and 'Conférence'. Below these is a search bar and several filter dropdowns for 'Emplacement', 'Date', 'Modalité', and five 'Critère de recherche' (search criteria). A 'Recherche par nom' (search by name) field is also present.

The main area contains a table with the following columns: 'Nom du patient', 'Id. patient', 'No. d'entrée', 'Mo.', 'Date de l'étude', 'Heure de l'étude', 'Description de l'étude', 'Images', 'Etat de fe...', and 'Etat de l'image'. The table lists various patients and their associated study details.

Below the table, there is a 'Recherche annulée' (search cancelled) button and a status bar showing 'Id. utilisateur : lech2928, Equipe : unrestricted_team'.

On the right side, there is a section titled 'Image clé' (key image) showing a small thumbnail of a medical scan.

The bottom part of the screenshot shows a detailed view of a medical image series. The title is 'SERIES IMAGES'. The patient name is 'DESIMEUR, CLAUDE'. The series is identified as 'SANS INJECTION' and 'ARTERIEL PORTAL'. The image shows a cross-section of the abdomen with various organs visible. A 'Browsing tool' is overlaid on the image, showing a vertical scale and a horizontal line indicating the current slice position.

At the bottom, there is a 'Démarrer' (start) button and a status bar showing 'Id. utilisateur : lech2928, Equipe : unrestricted_team' and the time '00:07'.

More information

- **Googlegroup : ihe-anatomic-pathology-committee@googlegroups.com**

- **Road map**

– http://wiki.ihe.net/index.php?title=Anatomic_Pathology

The screenshot shows the IHE Anatomic Pathology wiki page. The page title is "Anatomic Pathology". The main content area contains the following text:

IHE Anatomic Pathology addresses information sharing, workflow and patient care in Pathology, including anatomical pathology.

IHE Anatomic Pathology is sponsored by the the Organization for the Modernization of French Hospital Information Systems (GMSIH) [\[en\]](#), the French Association for the Developpement of Informatics in Pathology (ADICAP), the Spanish Health Informatics Society (SEIS) [\[en\]](#), the Spanish Society of Pathology (SEAP) [\[en\]](#), the French Society of Pathology(SFP). It manages the Pathology Profiles and the Pathology Technical Framework.

Contents (hide)

- 1 How to participate
- 2 Timeline - 2008-2009 Development Cycle
- 3 Roadmap
- 4 Current Activity
 - 4.1 Profile Selection
- 5 Demonstrations & Presentations
- 6 Supporters and Endorsements
- 7 See Also

The aim is to extend the IHE initiative to anatomic pathology laboratories, their information, automation, imaging systems and equipments.

The scope of the anatomic pathology includes surgical pathology, biopsies pathology, cytopathology, autopsies, and related techniques (immunohistochemistry, molecular pathology, etc).

Information systems in anatomic pathology laboratories gather medical data (text, images, etc) throughout specimen management from specimen reception to report editing. The diagnostic process in anatomical pathology (figure 1) differs from that in the clinical laboratory since it relies on image interpretation. It also differs from that in radiology since it is specimen-driven and when digital imaging is performed many types of imaging equipments (gross imaging, microscopic still imaging, whole slide imaging, multispectral imaging, etc) may be involved for a single examination. Moreover, images of the same study may be related to different specimen (parts and/or slides) from one or even different patients (e.g Tissue

The screenshot also shows the IHE logo, navigation menu, search box, and toolbox on the left side of the page.