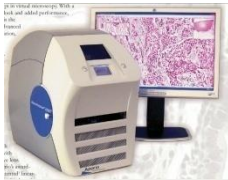# COST IC0604
Working Group 2
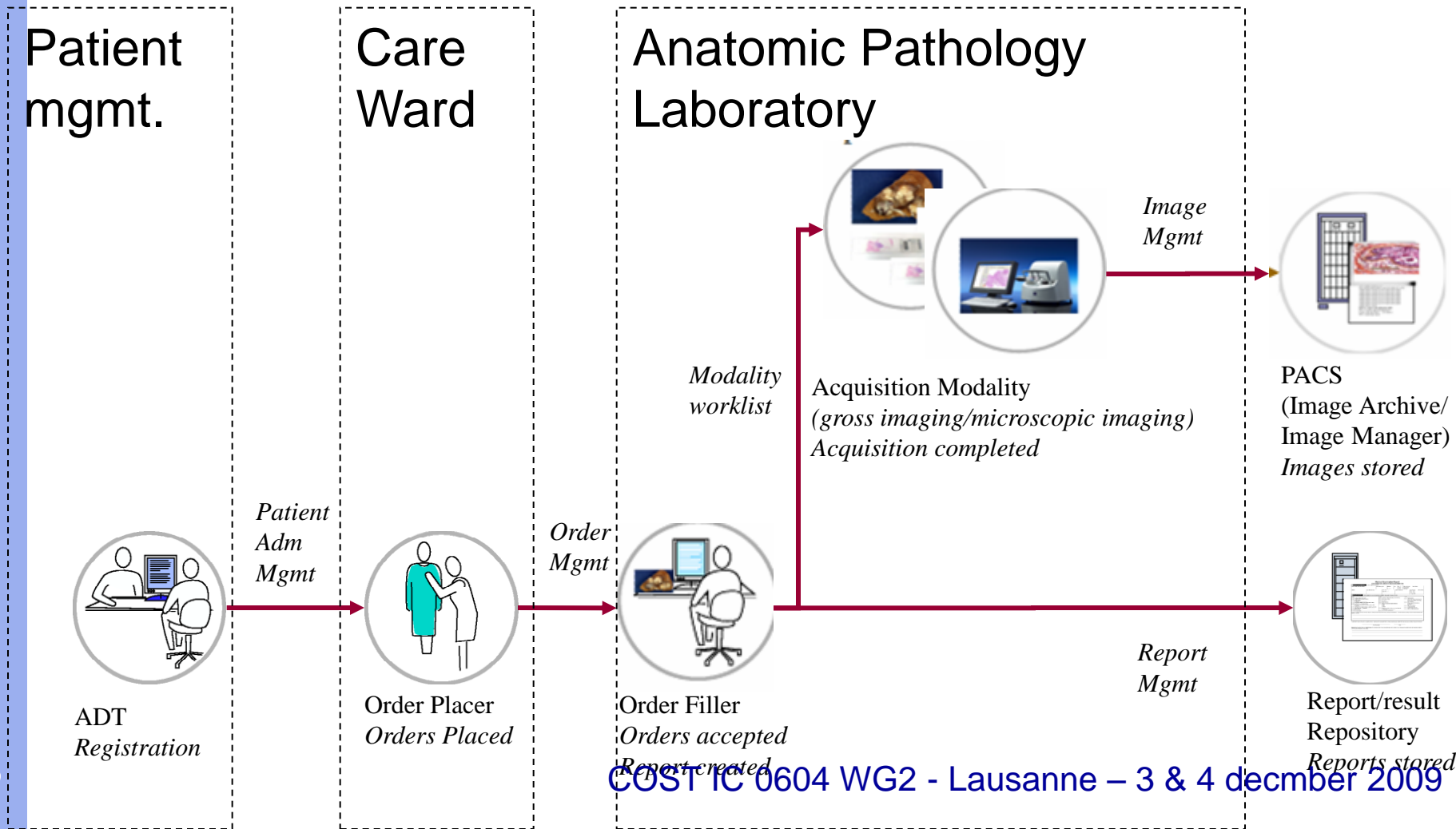# Standards

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

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Anatomic Pathology Workflow (APW)

Patient mgmt.

Care Ward

Anatomic Pathology Laboratory

ADT
Registration

Patient Adm Mgmt

Order Placer
Orders Placed

Order Mgmt

Order Filler
*Orders accepted
Report created*

Modality worklist

Acquisition Modality
*(gross imaging/microscopic imaging)
Acquisition completed*

Image Mgmt

PACS
(Image Archive/
Image Manager)
Images stored

Report Mgmt

Report/result
Repository
Reports stored

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

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
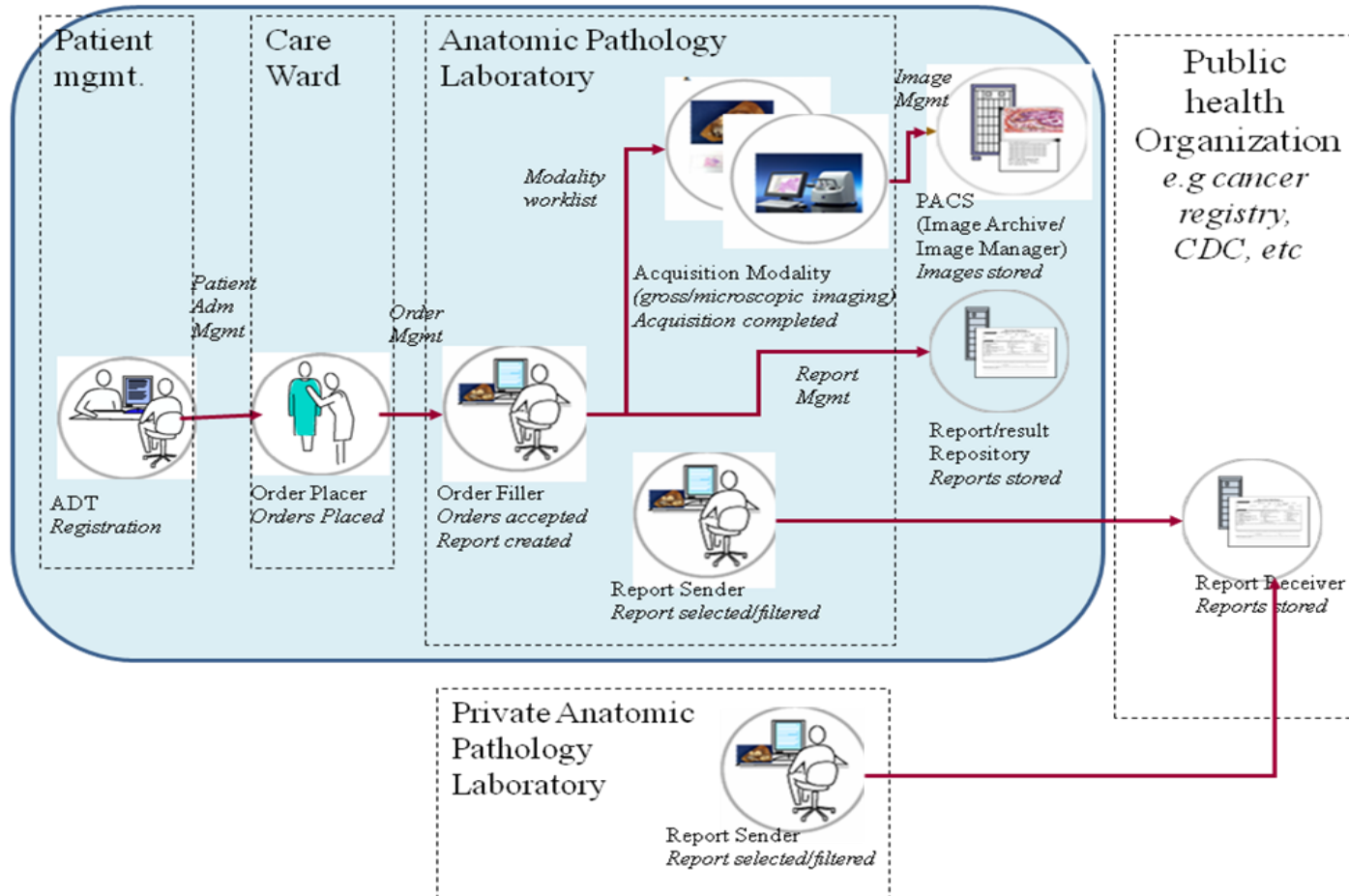# APW : Procedure step management
(Vol 1 - Open issues 2, 4 & 5)

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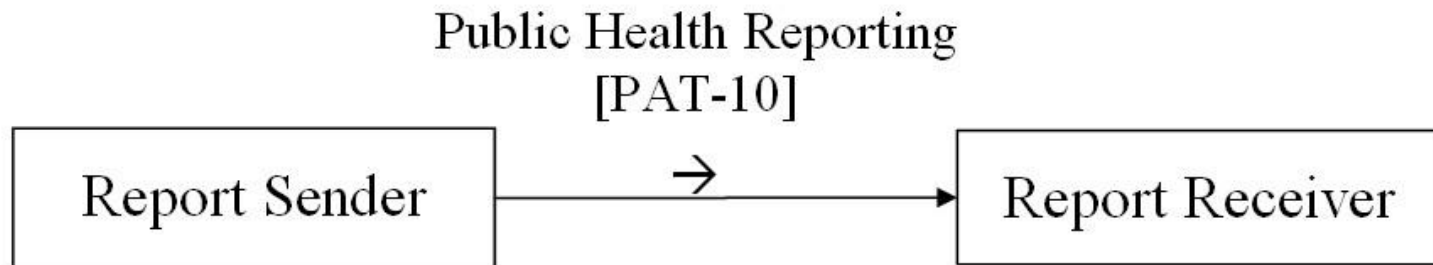 – Order Filler / PPSM / Acquisition Modality-Evidence Creator

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

Public Health Reporting
[PAT-10]

Report Sender → Report Receiver

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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.naaccr.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

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CDA implementation guide
Body – Level 2 sections

Code	LOINC benaming	Goldsmith08	NL Impl.Guide*	NAACCR	SECTIONS	CARDINALITY
22636-5	Path Report.Relevant HX	X	X	Clinical History	CLINICAL INFORMATION	[0..1]
		X			INTRAOPERATIVE CONSULTATION	[0..1]
22633-2	*Path report site of origin*		*X*	*Nature of Specimen body site, subsite, surgical procedure*	*(Sub-section of both clinical information and macroscopic examination)*	
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

CDA implementation guide
Body – Level 2 sections

Code	LOINC benaming	Goldsmith08	NL Impl.Guide*	NAACCR	SECTIONS	CARDINALITY
33746-9	*Pathologic findings*		*X*	*Text Diagnosis*		
34122-2	*Pathology procedure note*		*X*			
22034-3	*Pathology report.total*		*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	*Path report supplemental report*			*Suppl Reports*		

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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 Patthology 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**"

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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

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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

More information

- **Googlegroup : ihe-anatomic-pathology-committee@googlegroups.com**
- **Road map**
  - http://wiki.ihe.net/index.php?title=Anatomic_Pathology