



IHE 2012-2013 Call for Proposals

IHE Brief Work Item Proposal

1. Proposed Work Item: EP Lab Workflow

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Date: 19 September 2011>

Version: 0.1

Domain: Cardiology

2. The Problem

Data collection and integration associated with an EP Lab catheterization/implantation procedure extends beyond the scenarios addressed by current Workflow:

- the initial background and patient history information may be collected hours, days or weeks before the actual procedure (during a “Pre-Admission Testing” visit)
- the encounter is inherently multi-modality, and may have contributions from a variety of imaging, measurement, and reporting systems that are currently may not coordinate their unique identifiers
- It is important to track the specific devices used during a procedure, matching devices with interventions, tracking device usage by operator, and interfacing with materials management functions
- a signed (“confirmed”) report may be produced at the conclusion of the procedure, but data collection continues (for example, post-procedure recording of complications)
- some centers may wish to produce a “preliminary report” (for example right after the conclusion of the procedure), with a subsequent more complete “confirmed report”
- data collection may continue for the remainder of the episode of care, and even for an extended period of time after discharge (up to one year, for example). The duration of an episode of care (including beginning and end) is hard to define.

In electrophysiology laboratory ablation procedures, specialized catheters are placed into the heart to identify and eliminate sources for arrhythmia. The EP lab is also used to perform other catheter-based procedures and implant and adjust cardiac rhythm control devices (pacemakers, cardioverter defibrillators, and cardiac resynchronization therapy devices).

The EP lab is a multi-modality mix of many types of equipment. One of the systems used in the EP-lab is the “EP waveform recording equipment / catheter sensors” also known as the “EP-recorder”.

There is an urgent need to improve the archiving and interchange of EP lab data, and to integrate the output of the various equipments into a consolidated patient record.

3. Key Use Case

- EP Ablation
- EP device implant

Case 1: Patient with coronary artery disease has a myocardial infarction and after 60 days his left ventricular ejection fraction is 25%. The patient presents to an electrophysiologist for prophylactic ICD implantation. The patient is scheduled for an implanted device procedure in the EP Lab. and sent to the Pre-Admission Testing (PAT) area to complete preparations. A brief medical history is obtained by the PAT nurse (duplicating many of the same questions asked in the Cardiologist’s office). Vital signs are obtained and recorded, an electrocardiogram is done (despite one having been done in the office), and blood work is drawn (electrolytes, chemistries, and clotting studies), and sent to the local outpatient diagnostics lab.

An ICD implant procedure was performed and was successful. A report of the procedure was generated on the spot and signed by the performing physician, but it lacked many of the required data elements required by NCDR.

At a minimum, the following islands of data now require reconciliation: PAT information, angiographic images, ICD implant report, hemodynamic measurements and waveforms, ECG waveforms and report, IVUS images and report, any subsequent post-procedure complications, and subsequent NCDR data-gathering.

4. Standards & Systems

IHE Cath Workflow Profile (EP use case)

DICOM EP Waveforms

DICOM EP Lab Measurements and Procedure Log SR (draft)

DICOM XA Image

HL7v3 IDC Observation message

IHE IDCO Profile

CDA implementation guide – CCD, CIRC

DICOM SR – Templates 3800 Cath, 3500 Hemo, 3202 QVA, 3213 QAA, 10001 Dose

IHE XDS

CVIS - Document Repository

X-ray system – Evidence Creator, Acquisition Modality (Dose)

Hemo/logging system – Report Creator

5. Discussion

The goal is to gather all the evidence for the EP Lab Procedure or Episode of Care for exchange. The IHE-CARD Cath Workflow Profile can provide much of the profile content related to data synchronization and acquisition.

Much of the detailed data should be identical to CIRC and Cath/PCI, which includes the diagnostic X-ray angio elements. The EP Lab Workflow data output will be expected to align with existing and new-for-2012 and 2013 IHE-Cardiology content profiles.