IHE Encounter-Based Imaging Workflow (EBIW)

Working DRAFT of PoCUS Update Proposals - Split and Merge Exception Case

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POCUS Use Cases

IHE Profiles include "Use Cases" which demonstrate typical patterns of use and show how Profile transactions would go together, and sometimes interact with real-world actions, to achieve effective integration.

The following are additions and clarifications from ACEP of typical POCUS workflows and variants.

Use Case #1 Diagnostic Point of Care Ultrasound

The most typical (“normal”) case involves a diagnostic study performed and reported by a privileged HCP for a registered patient.

A diagnostic study is performed to evaluate a specific medical condition (shock), or to evaluate a patient's anatomy or physiology (left ventricle chamber size and function). This could be an initial evaluation or a reassessment/serial study. The Diagnostic POCUS Use Case is intended to generalize the following scenarios:

1. The patient is registered for an inpatient or outpatient encounter in a healthcare facility (e.g., emergency department, critical care unit, cardiology office, obstetrics and gynecology suite, or operating room).
2. The HCP enters their ID in the POCUS device (i.e., with a barcode scanner, RFID, QR code or manual entry)
3. The HCP enters the patient ID in the POCUS device (i.e., with a barcode scanner, RFID, QR code or manual entry)

    Note: depending on the EMR system, the patient ID could also be a medical record number or billing number known. Examples include: CSN (Contact Serial Number), FIN

(Financial Identification Number) or ASN (Appointment Serial Number). See the Compliance section for more information.

4. The POCUS device displays a MWL entry specific to the patient. The HCP confirms the patient demographic information (name, date of birth, gender, etc.). and selects the patient prior to initiating exam specific image capture.
5. The HCP performs a focused POCUS exam (e.g., biliary scan for cholelithiasis). Images are transferred to the POCUS Manager.
6. The HCP accesses the POCUS Manager system (through a client application on a handheld device, client web browser or PC workstation) and searches for the study completed in the previous step.
7. The HCP views the images. The POCUS Manager proposes an interpretation worksheet based on the Study Description. The HCP confirms the worksheet, and completes it, entering the views obtained, indications, findings, and interpretation. The HCP selects a flag indicating that the study is clinically indicated (vs. educational).

    Note: See the Compliance section for more information.

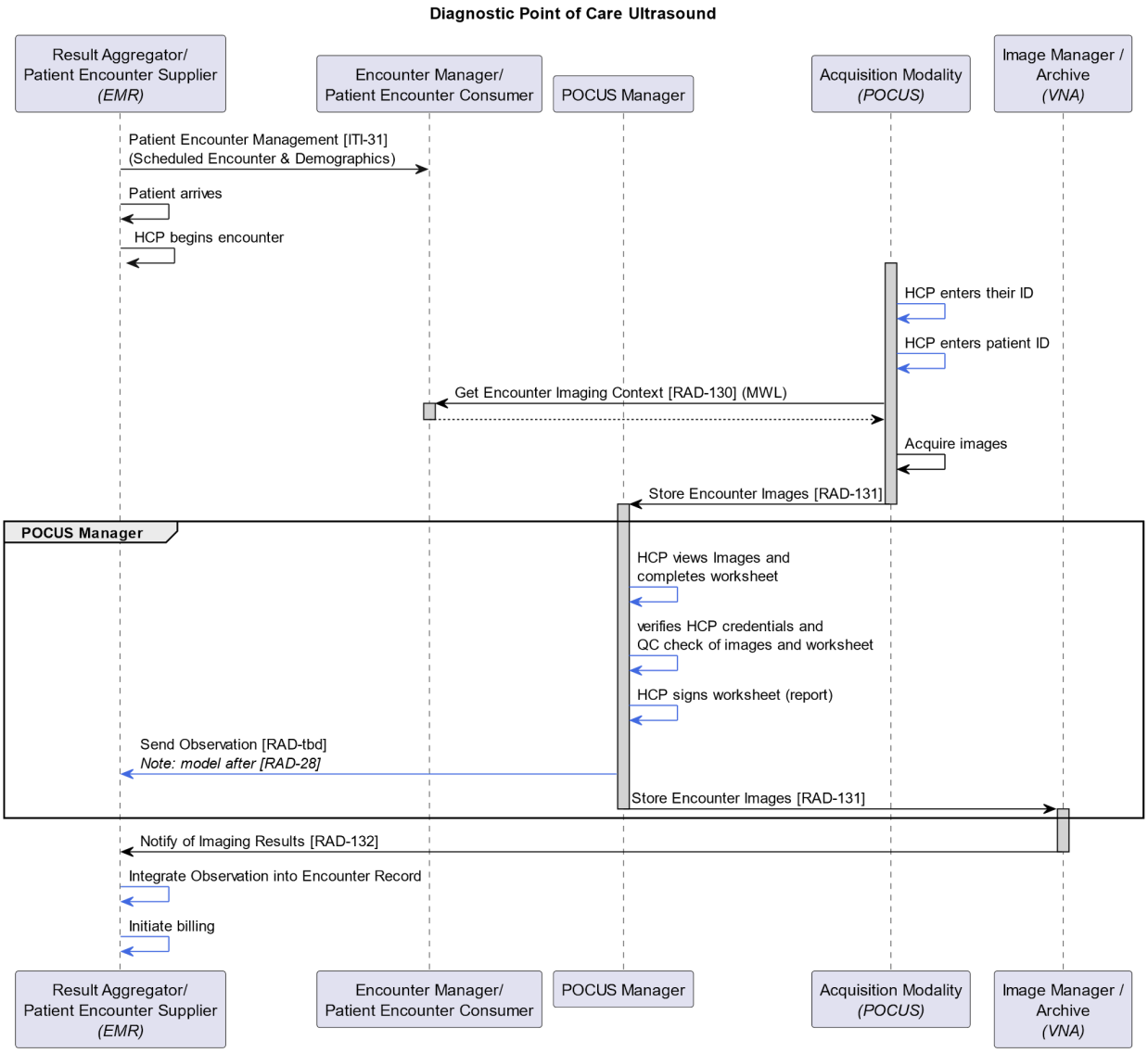
8. The HCP provider applies their electronic signature to the worksheet. This signature is typically generated using a unique identifier tied to the provider's identity within the POCUS Manager.

    Note: Technical requirements for electronic signatures are determined by jurisdiction, institution or payors, and out of scope of this document.

9. The POCUS Manager verifies the HCP credentials, as well as required worksheet elements (i.e., a valid MRN, CSN/FIN, a valid patient name, views, indications, interpretation views, indications, and interpretation).
10. The POCUS Manager also validates that the study contains at least one image, and that all images contain a valid MRN/CSN/FIN, patient name and accession number issued from either the Encounter Manager namespace, or the POCUS Manager namespace.
11. Because the HCP is credentialed, and both the worksheet and images meet validation criteria, the POCUS Manager sends the report (i.e., the signed worksheet) as an unsolicited observation to the EMR, and transfers DICOM images to an Image Manager/Archive (a.k.a. VNA).
12. The Image Manager/Archive sends a notification to the EMR using Notify of Imaging Results [RAD-132].
13. The POCUS report along with hyperlinks to review the study image data in PACS are associated with the patient encounter in the EMR.

    Note: Based on local policy, the EMR may also create an order for billable studies, as well as financial transactions necessary for charging.

Diagnostic Point of Care Ultrasound Use Case Process Flow



Blue arrows: new transactions

Black arrows: existing EBIW transactions

Use Case *nn* Multiple Studies with Study Split (single patient) for Billing and Reporting

The HCP performs a RUSH (Rapid Ultrasound for Shock and Hypotension) scan for undifferentiated shock to evaluate the heart, aorta, inferior vena cava, lungs, and bladder. Images are transferred to the POCUS Manager.

HCP splits the study.

The HCP selects the appropriate worksheet for each study (i.e., limited echo, FAST exam, aorta, lung).

The HCP selects images associated with each study.

Note: available, and selected worksheets are based on local scan protocols and billing procedures

The HCP and completes each worksheet, entering the views obtained, indications, findings and interpretation. The HCP associates images with each worksheet.

The POCUS Manager creates an Accession Number, Issuer of Accession Number Sequence (using its assigned namespace), and Study Instance UID for each group of images (i.e. study) that correspond to each worksheet. In each case, the Performed Procedure Code Sequence matches the worksheet title.

Breakout topics:

- *This is partially based on IHE Presentation of Grouped Procedures profile. Is this a realistic workflow?*

Use Case *nn* Study Merge

Interrupted study. Examples:

- *perform echo and FAST end exam, come back and scan a kidney*

Breakout topics:

- *One (interrupted) study could be performed on 2 different US devices*