

Interoperability Scenarios

Care Theme: Device Connectivity Throughout the Healthcare Spectrum

Act 9 - Device Interoperability Serving Home and Hospital

Scenario Primary Goal: To demonstrate the benefits of the IHE Patient Care Device Domain (PCD) Profiles in support of safe, effective, efficient patient care while improving workflow. The benefits include:

1. **A Common Message Structure.** IHE PCD uses existing standards, such as HL7 v 2.6, to send and receive the electronic messages.
2. **A Common Terminology.** IHE PCD uses the ISO/IEEE 11073 standard to facilitate communication between devices and systems.

Key Points

- Enables the e health care team to access comprehensive patient health information by automating the transfer of data from medical devices and systems into clinical information systems and medical record systems.
- Helps assure the accuracy of the data (reducing transcription errors and missing data due to caregiver busy times), significantly increasing efficiency and illustrates the usefulness of the complete medical record, including medical device data, providing increased safety, quality, efficiency and effectiveness of care.
- Demonstrates the provider's ability to conveniently and cost-effectively monitor the patient remotely and to make significant decisions with this increased knowledge.
- Patient is care improved by better data capture and improved workflow.
- Patient information available everywhere and anytime needed.

Meaningful Use Relevance

MU Objective 1: Improving Quality, Safety, Efficiency and Reducing Health Disparities.

- Record and chart changes in vital signs and IV infusion
- Record demographics

MU Objective 2: Improving Care Coordination.

- Exchange key clinical information among providers of care and patients
- Provide summary care record for each transition of care and referrals

Clinical Workflow:

In this scenario a patient with Congestive Heart Failure (CHF) is monitored at home; this information assists in emergency care for an unrelated event, helping assure safe and effective care. IHE PCD profiles provide complete data derived from medical devices throughout the continuum of care. In addition to the home health monitoring data, this includes physiologic, device, and alarm communications throughout the hospital - including ED, surgery, post op, recovery, etc. before the patient is discharged. This data is available after discharge to those who care for the patient.

Care Scenario Steps:	Care Setting From	Care Setting To	IHE Profiles	Title
<p>9-1: Patient with Congestive Heart Failure at Home Data from patient at home (Home Health Devices and Hub) available in Remote Monitoring Management System (RMMS).</p>	Home	Remote Monitoring Management System		
<p>9-2: Patient Transported to Emergency Department Patient has chest pain, calls 911, goes to ED. Data from RMMS available in EHR</p>	Remote Monitoring Management System	Hospital ED	DEC (PCD) RTM (PCD)	Device Enterprise Communication Rosetta Terminology Mapping
<p>9-3: Patient Treated and Admitted to CCU Patient presents with chest pain. Caregivers review the prior history of CHF and have recent data available in the EHR from the home health systems: BP, weight, and SpO2. These help guide treatment. Patient is admitted to CCU and connected to a physiologic monitoring system and an IV is started. Evaluation through labs, cath lab results in decision for Bypass Surgery.</p>	Hospital ED	CCU	DEC (PCD) PIV (PCD) RTM (PCD)	Device Enterprise Communication Point of care Infusion Verification Rosetta Terminology Mapping
<p>9-4: Patient Taken to Operating Room for Bypass Surgery The patient is placed on OR monitors, anesthesia systems, IV pumps, and other devices. All medical data is available to the OR and other locations where it is useful. E.g., data is available in the EHR in advance of transfer – so they are well prepared to set up ventilator, monitors, and drugs.</p>	CCU	Operating Room	DEC (PCD) RTM (PCD)	Device Enterprise Communication Rosetta Terminology Mapping

<p>PCD-1-5 Patient Transferred to ICU</p> <p>Patient arrives in ICU, is transferred to bedside monitor, ventilator (not shown), and even the bed, where data will continue to be acquired and available. IV pumps are programmed providing for the 5 rights of medication administration. Alarms and alerts have been and are communicated.</p>	Operating room	ICU	<p>DEC (PCD)</p> <p>PIV (PCD)</p> <p>ACM (PCD)</p>	<p>Device Enterprise Communication</p> <p>Point of care Infusion Verification</p> <p>Alarm Communication Management</p>
<p>PCD-1-6 Patient Transferred to Step Down Unit</p> <p>Patient arrives in Step Down Unit where vital signs are intermittently obtained with a Vital Signs Monitor. This data, along with other data such as from the bed, is transferred to the EHR. The benefits of improved safety, workflow, and information availability for decisions have been demonstrated.</p>	ICU	Step Down Unit	DEC (PCD)	Device Enterprise Communication
<p>PCD-1-7 Patient Discharged from Hospital</p> <p>Data is available to the physicians' and medical management service company.</p>	Step Down Unit	Home, Extended Care, Nursing Home, Rehab		