

## Interoperability Scenarios

**Care Theme: Device Connectivity Throughout the Healthcare Spectrum**

**Act 12 - Device Connectivity For Meaningful Use**

**Scenario Primary Goal:** To describe the vital role that medical device interoperability plays in meeting meaningful use objectives, and how the IHE PCD technical framework establishes the basis for that required connectivity.

### Key Points

This scenario describes the role medical device technology plays in healthcare reform and meaningful use, addressing:

1. The ARRA/HITECH analysis & roadmap that is presented in the HITSP/TN905 Device Connectivity Technical Note
2. Demonstration of IHE technical specifications that support this roadmap
3. Demonstration of NIST tools and IHE processes that provide rigorous conformance testing
4. Review of technical specifications and purchasing guidelines that facilitate moving from technology profiles to deployable products

### 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 information among providers of care and patient authorized entities electronically
- Provide summary care record for each transition of care and referrals

### Clinical Workflow:

Care delivery organizations have multiple problems arising from their inability to fully integrate medical device technology into their enterprise. ARRA/HITECH provides a path forward to address this morbidity through a financial incentive program tied to a phased set of meaningful use objectives. HITSP/TN905 Device Connectivity Technical Note analyzes these requirements and provides a coordinated roadmap for developing the standards-based technology specifications needed to meet these meaningful use objectives, as well as a gap

analysis indicating major areas that must be addressed. IHE PCD technical specifications provide the foundation for the required device interoperability by supporting capabilities such as near real-time communication of semantically consistent device data to enterprise applications, management of alarm communication, integration of 5-rights medication administration applications to infusion pump systems, and integration of clinical workflow management applications that are enhanced by device data.

This requires coordinated efforts between IHE PCD and other organizations such as NIST for device connectivity conformance test tooling, the Continua Health Alliance for personal health device integration, and CIMIT/Medical Device Plug-and-Play Interoperability Program for highly-integrated patient-centric points of care. Ultimately, guidance must be provided to the healthcare providers to understand how to properly specify and purchase IHE compliant systems so as to be able to fully realize the cure.

**MU Objectives as Described in TN905:**

- Medical device interoperability
- Implement clinical decision support for national high priority conditions
- Conduct closed loop medication management, including eMAR and computer-assisted administration
- Use clinical decision support at the point of care (e.g., reminders, alerts)
- Implement ability to incorporate data uploaded from home monitoring devices
- Access comprehensive patient data from all available electronic sources on a timely basis

| Outcome  | Year        | Objective/Measure   | Requirement  |
|--|-------------|---|--|
| Improve quality, safety, efficiency, and reduce health disparities | 2015        | Goal is to achieve and improve performance and support care processes and on key health system outcomes   | Medical device interoperability  |
|  |             |   | Implement clinical decision support for national high priority conditions                      |
|  | 2013        | Goal is to electronically capture in coded format and to report health information and to use that information to track key clinical conditions | Conduct closed loop medication management, including eMAR and computer-assisted administration |
|  |             |   | Use clinical decision support at the point of care (e.g., reminders, alerts)                   |
| Engage patients and families                                       |             |   | Implemented ability to incorporate data uploaded from home monitoring devices                  |
| Improve care coordination  | 2013 / 2015 | Goal is to facilitate the coordination of care across all providers serving a patient or a particular medical condition for the patient         | Access comprehensive patient data from all available electronic sources on a timely basis      |

| Care Scenario Steps:   | Care Setting              |
|--|---------------------------|
| <p><b>12-1:</b> Device interoperability is needed to address ARRA/HITECH requirements and meaningful use objectives (HITSP/TN905 Roadmap &amp; Gap Analysis)</p>   | Continuum of Care         |
| <p><b>12-2:</b> Comprehensive real-time device data enables more informed and timely healthcare decision making, including clinical decision support systems.</p>  | Acute Care                |
| <p><b>12-3:</b> Integrating infusion pump systems with 5-Rights checking applications and eMAR's or flow sheets helps improve patient safety</p>   | Medication Administration |
| <p><b>12-4:</b> Device information (including alarms) integrated into clinical workflow monitoring applications helps improve efficiency and quality of care</p>   | All Caregiver Settings    |
| <p><b>12-5:</b> Enterprise application integration is important, but integration at the patient-centric point-of-care is arguably even more important, especially in the area of smart alarms and safety interlocks (DPI &amp; ICE-PAC)</p>  | Bedside Integration       |
| <p><b>12-6:</b> Interoperable systems are the direct result of rigorous conformance testing to detailed specifications, which requires both testing processes and extensive tooling.</p>   | NIST Tooling              |
| <p><b>12-7:</b> From profiles to products – technical specifications and profiles are important, but guidance must be provided to understand how to specify and purchase products so as to realize the intended objectives, including those in ARRA / HITECH and meaningful use.</p> | Purchasing Guidance       |