

## Interoperability Scenarios

### Care Theme: Public Health

#### Act 13 - Biosurveillance – Bidirectional Communication and Decision Support – H1N1

**Scenario Primary Goal:** To demonstrate bi-directional communication between public health and EHRs.

#### Key Points:

- The scenario demonstrates bi-directional communication between providers and public health through interoperable information systems. The scenario shows how data can be seamlessly exchanged between clinical systems and public health systems.
- Interoperable standards to support bidirectional communication between providers and public health
- Enhanced decision-making with support from Health Information Exchanges (HIEs) that bridge the gap between providers and public health as well as capability to pre-populate standardized forms to improve public health reporting and monitoring
- Important role that HIEs play in connecting public health and clinicians
- Ability of interoperability to support clinicians without modifications to their normal workflow

### Meaningful Use Relevance

#### MU Objective 4: Improving Population and Public Health

#### Clinical Workflow:

A 20 year old female visits a primary care provider. She describes body aches that began two days ago and were followed this morning by fever, coughing, shortness of breath, and fatigue. The physician suspects influenza A and H1N1. A physical exam and laboratory testing confirm a diagnosis of H1N1, so the physician retrieves and submits a medical alert form to Public Health Departments. Epidemiologists at the State Public Health Department detect a sudden increase in the number of cases of H1N1, detected through routine monitoring and analysis of case reports and surveillance data available in an IHE Document Repository. The increase in cases is confirmed with other health departments and a decision is made to issue a public health alert. Efforts at the state level are coordinated with the CDC, which provides assistance to the State HD. A regional HIE supports a Local Health Department in broadcasting the H1N1 alert to the community's medical providers.

A 25 year old college student (JS) visits his primary care provider following a family visit complaining of body aches, fever, and severe respiratory distress. The physician, having been alerted by public health of H1N1 outbreaks in his region, proceeds with treatment and laboratory testing informed by the alert. There are two variations on the method by which these alerts can be effectively distributed are demonstrated.

## Variation #1

Care Scenario Steps:	Care Setting From	Care Setting To	IHE Profiles*	Title	HITSP Constructs	Title
13-1 PCP Office Retrieves and Submits H1N1 Form	PCP Office	State Public Health Agency	RFD (ITI) SVS (QRPH)	Retrieve Form for Data Capture Sharing Value Sets (QRPH New Directions Case Report)	HITSP/CAP135 HITSP/TP50 HITSP/C76 HITSP/CAP122 HITSP/T66	Retrieve and Populate Form Retrieve Form for Data Capture HITSP Case Report Pre-Populate Request Medical Knowledge Retrieve Value Set
13-2 State Public Health (PH) Agency Issues PH Alert	State Public Health Agency	HIE			HTISP/CAP 122 HITSP/T81  HITSP/CAP 136 HITSP/C82 HITSP/T63	Request Medical Knowledge Retrieval of Medical Knowledge Communicate Emergency Alert Emergency Common Alerting Protocol Emergency Message Distribution Element
13-3 HIE Either a) Re-distributes one-time alert to physicians or b) provides decision support to physicians	HIE	PCP Office	PWP (ITI)	Personnel White Pages	HITSP/CAP 142 HITSP/T64  HITSP/CAP 136 HITSP/C82 HITSP/T63	Retrieve Communication Recipients Identify Communication Recipients Communicate Emergency Alert Emergency Common Alerting Protocol Component Emergency Message Distribution Element Transaction
13-4 EHR Interacts with HIE to Support Patient Encounter	PCP Office	HIE			HTISP/CAP 122 HITSP/T81 HITSP/CAP 136 HITSP/C82 HITSP/T63	Request Medical Knowledge Retrieval of Medical Knowledge Communicate Emergency Alert Emergency Common Alerting Protocol Emergency Message Distribution Element

## Variation #2

Care Scenario Steps:	Care Setting From	Care Setting To	IHE Profiles*	Title	HITSP Constructs	Title
13-2a Public Health Dept monitors H1N1 incidence and identifies an upward trend. Broadcast alert is sent to Health Information Exchange	Public Health Department	HIE			HITSP/CAP 136 HITSP/C82 HITSP/T63	Communicate Emergency Alert Emergency Common Alerting Protocol Component Emergency Message Distribution Element Transaction
13-2b Public Health Dept monitors H1N1 incidence and identifies an upward trend. Updates knowledge repository at HIE accessible to EHRs	Public Health Department	HIE			HTISP/CAP 122 HITSP/T81	Request Medical Knowledge Retrieval of Medical Knowledge
13-3a HIE Re-distributes one-time alert from PH to EHR	HIE	PCP Office	PWP (ITI)	Personnel White Pages	HITSP/CAP 142 HITSP/T64 HITSP/CAP 136 HITSP/C82 HITSP/T63	Retrieve Communication Recipients Identify Communication Recipients Communicate Emergency Alert Emergency Common Alerting Protocol Component Emergency Message Distribution Element Transaction
13-4a EHR Displays Alert in Context of Patient Encounter	PCP Office				HITSP/CAP 136 HITSP/C82 HITSP/T63	Communicate Emergency Alert Emergency Common Alerting Protocol Component Emergency Message Distribution Element Transaction
13-4b / 13-4c EHR Displays Alert in Context of Patient Encounter	Hospital ED or PCP Office				HTISP/CAP 122 HITSP/T81	Request Medical Knowledge Retrieval of Medical Knowledge

**Health Information Exchange (HIE) Core Services**

IHE Profiles		HITSP Service Collaborations / Constructs	
XDS/MPQ/	Cross-enterprise Document Sharing Multi-Patient Query	SC112 / TP13	Manage Transfer of Documents TP
PIX	Patient Identity Cross-reference	SC112 / TP22	Patient ID Cross-Referencing TP
PDQ	Patient Demographics Query	SC112 / T23	Patient Demographics Query T
ATNA	Audit Trail and Node Authentication	SC112 / T15, T17	Collect and Communicate Security Audit Trail T, Secured Communication Channel T
T	Consistent Time	SC112 / T16	Consistent Time

Care Scenario Steps:	Care Setting From	Care Setting To	IHE Profiles*	Title	HITSP Constructs	Title
6-1 Remote Monitoring (via Continua devices)	Home (Devices/Hub)	Home (PHR)			HITSP "new directions"	Remote Monitoring of Home Devices Hub to PHR
6-2 Personal Health Record Summary	Home (PHR)	PCP Office	XPHR (PCC)	Exchange of Personal Health Record Content	HITSP/CAP119 HITSP/C32	Communicate Structured Document Summary Document Using HL7 Continuity of Care Document (CCD)
6-3 Ambulatory Encounter Summary (update to PHR)	PCP Office	Home	XPHR (PCC)	Exchange of Personal Health Record Content	HITSP/CAP119 HITSP/C32	Communicate Structured Document Summary Document Using HL7 Continuity of Care Document (CCD)

Health Information Exchange (HIE) Core Services			
IHE Profiles		HITSP Service Collaborations / Constructs	
XCA XDS/XDR/XDM	Cross-community and Cross-enterprise Document Sharing	SC112 / TP13, T31, T33	Healthcare Document Management Manage Transfer of Documents Document Reliable Interchange Transfer of Documents on Media
PIX	Patient Identity Cross-reference	SC112 / TP22	Patient ID Cross-Referencing
PDQ	Patient Demographics Query	SC112 / T23	Patient Demographics Query
ATNA	Audit Trail and Node Authentication	SC112 / T15, T17	Collect and Communicate Security Audit Trail, Secured Communication Channel
CT	Consistent Time	SC112 / T16	Consistent Time