Use Case Title: Public Health Reporting

Overview: 11-month-old Ravi is diagnosed with Pertussis, a reportable condition. An initial Electronic Case Report is triggered, evaluated for reportability and sent to public health. Public health returns a Reportability Response with guidance and a request for additional information. Through electronic death reporting, public health knew of a pertussis-related death of an elderly man. Suspecting an outbreak, public health adjusts their pertussis reporting specifications for earlier detection of reportable events. Timely and accurate reporting, ensures Ravi is successfully treated and discharged home.

Value: Public Health Reporting: Sharing secure information via IHE Profiles with public health agencies allows for future treatment to be developed, improved communication and epidemics identified earlier. Interoperability drives STEPS to value through enhanced communication between provider, patient and public health agencies.

Scenario	Vendor	Products	Standards
Background: An elderly person had been admitted a few days earlier at Metropolitan Hospital, for COPD and Emphysema. The Patient was treated with prednisone and albuterol. These meds can lower a patient's immune response to pertussis. There was no sign of pertussis on the chart. The patient was discharged to home. His cough returns and worsens. He is brought to a community hospital where he is diagnosed with Pertussis. Unfortunately, Pertussis can move very quickly and in this case the patient died.			
.***Jurisdiction Vital Records*** The physician from the community hospital certifying the death logs into the Electronic Death Reporting System (EDRS). The EDRS retrieves the information related to the recent episode and health history in from Metropolitan Hospital to help give the certifier a complete picture of the conditions that may have led up to the patient's death (FHIR)	Utah DOH (CDC) Michigan DHHS (CDC)	EDEN EDRS	IHE VRDR: QRPH-47 (FHIR), QRPH 38 JDI (HL7 v2.6)

The EDEN system then reports the death information to the National Center for Health Statistics (NCHS) (HL7v2.6). When a Utah resident dies in Michigan, the public health organizations exchange the infectious disease and the death with the state of residence (Utah). The infectious disease reporting overlaps across states.			
National Statistics Agency NCHS receives the death report and compiles national statistics including those for pertussis deaths. The cause of death and the race and ethnicity are coded and returned to the jurisdiction.	NCHS/CDC	NA	IHE VRDR QRPH-38 JDI, CCOD, CRE (HL7 v2.6)
Hospital Ravi, an 11 month old infant, is suspected of having pertussis. The clinician orders a lab test for confirmation. Upon receipt of the lab result, the resulted test (43913-3 Bordetella pertussis DNA [Presence] in Nasopharynx by Probe and target amplification method), matches the RCTC code and automatically triggers an eICR from the provider's EPIC EMR system.	Epic	CareEverywhere	HL7 eICR HL7 Reportability response IHE XDR
Public Health Platform The eICR is received and validated by AIMS and then sent to the Reportable Condition Knowledge Management System (RCKMS) for decision making, The RCKMS decision support engine hosted on AIMS platform manages, reportability requirements for numerous jurisdictions. Once determined as reportable by RCKMS, AIMS forwards eICR to the jurisdiction -- Utah in this scenario. AIMS generates a reportability response and sends it to the jurisdiction and back to the provider system.	APHL/CSTE (CDC)	AIMS, RCKMS	HL7 eICR HL7 Reportability response IHE XDR
Hospital An infection preventionist in the Epic Clinic is working a queue of reportable conditions. They have received the inbound message from the jurisdiction and need to fill out subsequent data.	Epic	CareEverywhere	HL7 Reportability Response IHE RFD IHE XDR
Jurisdiction Public Health (Infectious Disease) The state epidemiologist monitors incidence reports of reportable cases to manage outbreaks. They use the new eICR, RR and supplemental data as part of an effort to identify an outbreak.	Utah DOH		HL7 eICR HL7 Reportability Response IHE XDR IHE RFD

Public Health Platform			APHL/CSTE (CDC)	AIMS: RCKMS rules authoring interface	HL7 Reportability response IHE XDR
Utah DOH has decided to broaden the criteria for pertussis due to the outbreak. They use RCKMS to broaden the criteria to include suspect cases by turning-on reportability for Lab tests ordered and/or with problem reported as Pertussis.					

Data exchange standards:

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
Utah DOH	EDEN	Electronic Death Registration System	HL7 V2.6	IHE QRPH	VRDR	Information Source	VRDRFeed (QRPH-38) JDI	Send	Vital Records Death Reporting Jurisdiction Death Information
Utah DOH	EDEN	Electronic Death Registration System	HL7 V2.6	IHE QRPH	VRDR	Information Recipient	VRDRFeed (QRPH-38) CCOD	Receive	Vital Records Death Reporting Coded Cause of Death
Utah DOH	EDEN	Electronic Death Registration System	HL7 V2.6	IHE QRPH	VRDR	Information Recipient	VRDRFeed (QRPH-38) CRE	Receive	Vital Records Death Reporting Coded Race and Ethnicity
Utah DOH	EDEN	Electronic Death	FHIR	IHE QRPH	VRDR	Data Consumer	VRDRQuery (QRPH-47)	Get	FHIR Get Vital Records Death Reporting Data

		Registration System							
Utah DOH	UDOH	Public Health Surveillance System	HL7 CDA	HL7	eICR	Content Consumer	NA	Consume	Consume Electronic Initial Case Report
Utah DOH	UDOH	Public Health Surveillance System	HL7 CDA	HL7	RR	Content Creator	NA	Create	Create Reportability response
Utah DOH	UDOH	Public Health Surveillance System	ebXML	IHE ITI	XDR	Document Source	ITI-41	Receive	Provide and Register Document Set.b
Michigan DHHS	NA	Electronic Death Registration System	HL7 V2.6	IHE QRPH	VRDR	Information Source	VRDRFeed (QRPH-38) JDI	Send	Vital Records Death Reporting Jurisdiction Death Information
Michigan DHHS	NA	Electronic Death Registration System	HL7 V2.6	IHE QRPH	VRDR	Information Recipient	VRDRFeed (QRPH-38) CCOD	Receive	Vital Records Death Reporting Coded Cause of Death
Michigan DHHS	NA	Electronic Death	HL7 V2.6	IHE QRPH	VRDR	Information Recipient	VRDRFeed (QRPH-38) CRE	Receive	Vital Records Death Reporting Coded Race and Ethnicity

		Registration System							
Michigan DHHS	NA	Electronic Death Registration System	FHIR	IHE QRPH	VRDR	Data Consumer	VRDRQuery (QRPH-47)	Get	FHIR Get Vital Records Death Reporting Data
CDC NCHS	NA	National Statistics Agency	HL7 V2.6	IHE QRPH	VRDR	Information Recipient	VRDRFeed (QRPH-38) JDI	Receive	Vital Records Death Reporting Jurisdiction Death Information
CDC NCHS	NA	National Statistics Agency	HL7 V2.6	IHE QRPH	VRDR	Information Source	VRDRFeed (QRPH-38) CCOD	Send	Vital Records Death Reporting Coded Cause of Death
CDC NCHS	NA	National Statistics Agency	HL7 V2.6	IHE QRPH	VRDR	Information Source	VRDRFeed (QRPH-38) CRE	Send	Vital Records Death Reporting Coded Race and Ethnicity
Epic	CareEverywhere	Hospital EMR	FHIR	IHE QRPH	VRDR	Data Responder	VRDRQuery (QRPH-47)	Get	FHIR Get Vital Records Death Reporting Data
Epic	CareEverywhere	Hospital EMR	HL7 CDA	HL7	eICR	Content Creator	NA	Create	Create Electronic Initial Case Report
Epic	CareEverywhere	Hospital EMR	HL7 CDA	HL7	RR	Content Consumer	NA	Consume	Consume Reportability response

Epic	CareEverywhere	Hospital EMR	ebXML	IHE ITI	XDR	Document Source	ITI-41	Send	Provide and Register Document Set.b
Epic	CareEverywhere	Hospital EMR	ebXML	IHE ITI	XDR	Document Recipient	ITI-41	Receive	Provide and Register Document Set.b
Epic	CareEverywhere	Hospital EMR	HTML Forms	IHE ITI	RFD	Form Filler	ITI-34	Retrieve	Retrieve Form
Epic	CareEverywhere	Hospital EMR	HTML Forms	IHE ITI	RFD	Form Processor	ITI-35	Submit	Submit Form
APHL/CSTE (CDC)	APHL Informatics Messaging Services platform (AIMS), CSTE Reportable Condition Knowledge Management System (RCKMS)	Public Health Platform	HL7 CDA	HL7	eICR	Content Consumer	NA	Consume	Consume Electronic Initial Case Report
APHL/CSTE (CDC)	APHL Informatics Messaging Services platform (AIMS), CSTE Reportable Condition Knowledge	Public Health Platform	HL7 CDA	HL7	RR	Content Creator	NA	Create	Create Reportability response

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	Management System (RCKMS)								
APHL/CSTE (CDC)	APHL Informatics Messaging Services platform (AIMS), CSTE Reportable Condition Knowledge Management System (RCKMS)AIMS, RCKMS	Public Health Platform	ebXML	IHE ITI	XDR	Document Source	ITI-41	Send	Provide and Register Document Set.b
APHL/CSTE (CDC)	APHL Informatics Messaging Services platform (AIMS), CSTE Reportable Condition Knowledge Management System (RCKMS)AIMS, RCKMS	Public Health Platform	ebXML	IHE ITI	XDR	Document Recipient	ITI-41	Receive	Provide and Register Document Set.b

APHL/CSTE (CDC)	APHL Informatics Messaging Services platform (AIMS), CSTE Reportable Condition Knowledge Management System (RCKMS)AIMS, RCKMS	Public Health Platform	HTML Forms	IHE ITI	RFD	Form Processor	ITI-34	Retrieve	Retrieve Form
APHL/CSTE (CDC)	APHL Informatics Messaging Services platform (AIMS), CSTE Reportable Condition Knowledge Management System (RCKMS)AIMS, RCKMS	Public Health Platform	HTML Forms	IHE ITI	RFD	Form Processor	ITI-35	Receive	Submit Form

HIMSS Value STEPS Framework:

Step	Description	Point of View	Point of View

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S: Satisfaction	This type of value focuses on people, process and technology use cases that increases stakeholders' satisfaction with the delivery of care. Satisfaction includes types of value such as: Patient satisfaction Provider satisfaction Staff satisfaction Other satisfaction	By making use of AIMS and RCKMS stakeholder satisfaction should increase as case reporting is being automated, clinical decisions are being made to determine reportability and all the data is being communicated to the stakeholders. Provider satisfaction and Public Health are improved, particularly when RCKMS can broaden their reporting criteria as needed.	There isn't a direct connection to the patient, however the resources involved in providing information to the Clinicians will ultimately benefit the patient.
T: Treatment/Clinical	This type of value focuses on effective and improved treatment of patients, reduction in medical errors, inappropriate/duplicate care, increase in safety, quality of care and overall clinical efficiencies. Treatment/Clinical includes types of value such as: Efficiencies Quality of Care Safety Other treatment/clinical	If Digital Bridge is being used and data is being sent to AIMS and then to RCKMS then quality of care should increase for future patients as it did in this case. The data gathered from a previous patient is used to update parameters in reporting and therefore increases safety and makes treatment more efficient. Public Health treatment improves greatly.	Gathering data from multiple sources helps paint a more clear clinical picture for the current medical event. Reporting to public health agencies can help improve future treatment modalities.
E: Electronic Secure Data	This type of value focuses on improved data capture, data sharing, reporting, use of evidence-based medicine, and improved communication by and between physicians, staff and patients. Electronic Secure Data includes types of value such as: Privacy & Security Data sharing	Because of the protocols in use for sharing of this data, privacy and security of the data is well maintained. The IHE profiles in use allow for data sharing and reporting to be concurrent. Because of the wide nature of the interoperability, enhanced communication between provider, patient and PHA's is bolstered.	Utilizing standardized data aggregation from multiple sources allows for clear and consistent information delivery.

	Data reporting Enhanced communication		
P: Patient Engagement & Population Management	This type of value focuses on improved population health and reduction in disease due to improved surveillance/screening, immunizations and increased patient engagement due to improved patient education and access to information. Patient Engagement & Population Management includes type of value such as: Patient education Patient engagement Prevention Population Health	Given the nature of Pertussis, there is great value in the exchange of diagnosis and other relevant data through case reporting as is shown in this use case. Because data is being shared, and processes updated as needed to improve diagnosis, prognosis and care, prevention of pertussis and it's effect on the population can be measured and treatment plans can be made accordingly.	Sharing information with public health agencies allows for future treatment to be developed and improved. Real time information can provide leads and help spot potential epidemics.
S: Savings	This type of value focuses on documented financial, operational and efficiency savings resulting from factors such as improved charge capture, use of staff resources and workflow and increased patient volume and more efficient use of space .		Insurance aside, patients will see reduced costs as repeated tests and imaging are no longer needed. However, it could be argued that the medical facility may lose revenue by not doing these tests.