



**Use Case Title: Birth Reporting and NICU**

**Overview:** Philip, a newborn with a congenital heart condition, is sent to the NICU. He is kept under close monitoring during treatment and therapy. After discharge, the newborn is seen for follow-up care at a pediatrician with a cardiac specialty. The birth report is sent to the jurisdiction of birth, Philip’s home jurisdiction, and NCHS. Birth defects are reported from the birth record and pediatric follow-up.

**Value:** Birth reporting & NICU: The Vital Records & Birth Defects Registries receive much needed information, which helps to determine areas of need and direct future care to develop programs targeting prevention and population health. Interoperability drives STEPS to value through sharing information with large data repositories to grow the health research field.

Scenario	Vendor	Standards
Hospital of Birth: Philip is born with cyanosis and a low apgar score at full term. He is admitted to the NICU.	Epic	PIV, DEC, IPEC
Hospital of Birth: Patient Monitoring: Philip is screened for Critical Congenital Heart Disease (CCHD). Heart disease is detected, and he is put on continuous monitoring.	Masimo	Infusion status, Alarms/alerts TBD
Hospital of Birth: Infusion: In the NICU, an Umbilical artery catheter is placed along with an umbilical vein catheter to enable infusion and medication administration. He is provided dopamine, antibiotic, and pain management medications.	Smiths Medical	PIV, DEC, IPEC; ACM? MMLS (tag from Guard)
Hospital of Birth: Philip is diagnosed with a congenital heart defect, “Tetralogy of Fallot with Pulmonary Atresia”. He will go to surgery the first day of life for the Pulmonary Atresia, and will need subsequent surgeries during his first year.	Epic	BFDRE/RFD

The birth information is submitted to the jurisdiction vital records, leveraging the clinical information from the labor and delivery summary.		
Pediatric Cardiologist: Following discharge, the patient is seen for follow-up and ongoing care by a Pediatric Cardiologist. The provider assesses the patient's status, to determine whether Philip is growing, eating well, and sleeping well. The mother reports that the baby is fussy and crying a lot. Routine Echocardiogram and chest x-rays are included in the care plan.	NextGen	CCDA XDR
Vital Records: Electronic Birth Registration System: The jurisdiction receives the birth report from the hospital, and sends the birth information to the National Center for Health Statistics (NCHS), and to the Utah Department of Health where the Philip's family resides. Birth information is also sent to the birth defects registry.	Genesis Systems	BFDRE
Vital Records: Jurisdiction of Residence The jurisdiction of residence receives standard birth information from the jurisdiction of birth as part of the Inter-state exchange agreements	Utah DOH (CDC)	BFDRE
National Vital Statistics: The National Center for Health Statistics (NCHS) receives standardized birth information from the state jurisdictions. Standard coding is applied and returned to the jurisdictions. National statistic for birth defects and other conditions are analyzed to assess the health of the nation.	CDC/ NCHS	BFDRE
Birth Defects Registry: The birth defects registry receives the initial birth information from the birth records, and establishes a new record. They also receive a summary record for the pediatric cardiology visit and is able to update the record in the registry.	Michigan DHHS (CDC)	BFDRE CCDA

**Data exchange standards:**

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
Epic	Stork	Hospital Perinatal	HL7 V2 IEEE 11073	IHE-PCD	PIV	IOP	PCD-03 App Ack	Send	Communicate Infusion Order
Epic	Stork	Hospital Perinatal	HL7 V2 IEEE 11073	IHE-PCD	PIV	IOP	PCD-03 App Ack	Receive	Acknowledge of Communicate Infusion Order
Epic	Stork	Hospital Perinatal	HL7 V2 IEEE 11073	IHE-PCD	DEC	DOR	PCD-01	Receive	Communicate Patient Care Device Data
Epic	Stork	Hospital Perinatal	HL7 V2 IEEE 11073	IHE-PCD	IPEC	DOC	PCD-10	Receive	Communicate Infusion Event Data
Epic	Stork	Hospital Perinatal	WCTP	IHE-PCD	ACM	AC	PCD-06	Receive	Disseminate Alert
Epic	Stork	Hospital Perinatal	WCTP	IHE-PCD	ACM	AC	PCD-07	Send	Report Dissemination Alert Status

Epic	Stork	Hospital Perinatal	HTML Forms	IHE-QRPH	BFDRE	Form Filler	ITI-34 ITI-36	Retrieve Submit	Retrieve Form Submit Form
Epic	Stork	Hospital Perinatal	ebXML	IHE-ITI	XDR	Document Source	ITI-41	Send	Provide and Register Document Set.b
Epic	Stork	Hospital Perinatal	HL7 CDA	IHE -PCC	LDS	Content Creator	NA	Create	Create Labor and Delivery Summary
Epic	Stork	Hospital Perinatal	HL7 CDA	HL7	CCDA	Content Creator	NA	Create	Create Continuity of Care Document
Smiths Medical		Infusion Pump	HL7 V2 IEEE 11073	IHE-PCD	PIV	IOC	PCD-03 App Ack	Receive	Communicate Infusion Order
Smiths Medical		Infusion Pump	HL7 V2 IEEE 11073	IHE-PCD	PIV	IOP	PCD-03 App Ack	Send	Acknowledge of Communicate Infusion Order
Smiths Medical		Infusion Pump	HL7 V2 IEEE 11073	IHE-PCD	IPEC	DOC	PCD-10	Send	Communicate Infusion Event Data
Smiths Medical		Infusion Pump	HL7 V2 IEEE 11073	IHE-PCD	ACM	AR	PCD-04	Send	Report Alert
Masimo		Patient Monitor	HL7 V2 IEEE 11073	IHE-PCD	ACM	AM	PCD-04	Receive	Report Alert
Masimo		Patient Monitor	WCTP	IHE-PCD	ACM	AM	PCD-06	Send	Disseminate Alert

Masimo		Patient Monitor	WCTP	IHE-PCD	ACM	AM	PCD-07	Receive	Report Dissemination Alert Status
NextGen		Ambulatory EMR	HL7 CDA	HL7	CCDA	Content Creator	NA	Consume	Consume Continuity of Care Document
NextGen		Ambulatory EMR	HL7 CDA	HL7	CCDA	Content Creator	NA	Create	Create Continuity of Care Document
NextGen		Ambulatory EMR	ebXML	IHE-ITI	XDR	Document Source	ITI-41	Send	Provide and Register Document Set.b
NextGen		Ambulatory EMR	ebXML	IHE-ITI	XDR	Document Recipient	ITI-41	Receive	Provide and Register Document Set.b
Genesis Systems		Electronic Birth Registration System	HTML Forms	IHE-QRPH	BFDRE	Form Processor	ITI-34	Retrieve	Retrieve Form
Genesis Systems		Electronic Birth Registration System	HTML Forms	IHE-QRPH	BFDRE	Form Processor	ITI-35	Submit	Submit Form
Genesis Systems		Electronic Birth Registration System	HL7 V2.6	IHE-QRPH	BFDRE	Information Source	BFDRFeed (QRPH-37) JLBI	Send	Send Jurisdiction Live Birth Information
Utah DOH	NA	Electronic Birth Registration System	HL7 V2.6	IHE-QRPH	BFDRE	Information Recipient	BFDRFeed (QRPH-37) JLBI	Receive	Send Jurisdiction Live Birth Information

CDC NCHS	NA	National Statistics Agency	HL7 V2.6	IHE-QRPH	BFDRE	Information Recipient	BFDRFeed (QRPH-37) JLBI	Receive	Receive Jurisdiction Live Birth Information
CDC NCHS	NA	National Statistics Agency	HL7 V2.6	IHE-QRPH	BFDRE	Information Source	BFDRFeed (QRPH-37) CRE	Send	Send Coded Race and Ethnicity
Michigan DOH	NA	Birth Defects Registry	HL7 V2.6	IHE-QRPH	BFDRE	Information Recipient	BFDRFeed (QRPH-37) JLBI	Receive	Send Jurisdiction Live Birth Information
Michigan DOH	NA	Birth Defects Registry	ebXML	IHE-ITI	XDR	Document Recipient	ITI-41	Receive	Provide and Register Document Set.b

**HIMSS Value STEPS Framework:**

Step	Description	Point of View	Point of View
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	The Vital records and birth defects registries would be satisfied as they received much needed information due to technology and processes for data sharing.	Reporting vital statistics and birth information helps to determine areas of need and direct future care and develop programs targeting hot topics.

T: Treatment/Clinical	<p>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.</p> <p>Treatment/Clinical includes types of value such as:</p> <ul style="list-style-type: none"> <li>Efficiencies</li> <li>Quality of Care</li> <li>Safety</li> <li>Other treatment/clinical</li> </ul>		<p>Infusion monitoring helps reduce errors.</p>
E: Electronic Secure Data	<p>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:</p> <ul style="list-style-type: none"> <li>Privacy &amp; Security</li> <li>Data sharing</li> <li>Data reporting</li> <li>Enhanced communication</li> </ul>	<p>Data sharing to the registries</p>	<p>Data is shared with multiple providers involved in the care of this patient. Both inside and outside the hospital.</p>
P: Patient Engagement & Population Management	<p>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 &amp; Population Management includes type of value such as:</p>	<p>Population health as data is shared with various registries.</p>	<p>Sharing information with a larger repository helps drive research.</p>

	<p>Patient education  Patient engagement  Prevention  Population Health</p>		
S: Savings	<p>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 .</p>		<p>Insurance aside, patients may 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.</p>