



Use Case Title: Telehealth Consult and Acute Care

Short Description: Charlie is short of breath, and his wife schedules a telehealth virtual consult with his Cardiologist. The Cardiologist recommends an admission and consults with an ER Physician. Charlie is admitted into the ICU, treated and discharged to home care. A nurse visits Charlie and continues to provide follow-up care and education.

Scheduled times: This demonstration occurs 45 minutes past the hour.

Participating Organizations: Baxter, Cerner, Draeger, Epic, Masimo, Philips, Rhapsody, Vidyo

Scenario	Vendor	Products	Standards
The cardiologist’s office schedules a telehealth virtual visit through Vidyo (A/V call) with Charlie and sends the virtual care consult link to Charlie’s daughter. The cardiologist makes a determination that Charlie needs to be taken immediately to the ED.	Vidyo	VidyoConnect	na
Charlie is evaluated by a cardiologist using Philips ISCV for ECG, Chest X-Ray PA and ECHO US. Charlie’s ECHO-US shows significant reduction in the ejection fraction as compared to previous ECHO studies. The cardiologist reviews the case with the Heart Team at the tertiary hospital and start a physician-to-physician Vidyo consult based on a common view. They bring up Philips ISCV on both sides to review Charlie’s history and current studies. It is determined that Charlie needs to be transferred to a tertiary hospital for evaluation and treatment in the CVICU under the care of the Heart Team (Intensivist and cardiac surgeon).	Vidyo/Philips	VidyoConnect (Vidyo) ISCV (Philips)	IHE CARD-1 IHE CARD-3 IHE RAD-7
Charlie is directly admitted to the CVICU, the Heart Team pulls all his studies and records and examines the images and studies using Philips ISCV (IntelliSpace CardioVascular) . A percutaneous coronary intervention (PCI) is performed and further treatment in the form of infusion is prescribed.	Philips	ISCV	IHE ITI-41 IHE ITI-42 IHE ITI-43 IHE ITI-18

			IHE ITI-9 IHE ITI-21 IHE RAD-55 IHE RAD-68 IHE RAD-69
Rhapsody facilitates the exchange of information between the facilities using IHE profiles.	Rhapsody	Rhapsody	IHE ITI-18 IHE ITI-21 IHE ITI-43 IHE ITI-41 IHE ITI-38 IHE ITI-39
CVICU admission orders are entered in Epic and electronically signed.	Epic	Epic	
Charlie is admitted to the ICU and monitored. Shortly after arriving in ICU, his respiratory status decompensates requiring intubation and mechanical ventilation. Ventilator and monitor data are displayed on this combined 'clinical workstation', providing the clinicians with a fully consolidated view of Charlie's relevant physiological data at the point of care. All physiologic and ventilator information is continuously sent to Epic to populate the ICU record, and alarms from the medical devices are transmitted to the EMR and communication devices.	Dräger	Monitor: Dräger Infinity Acute Care System; Ventilator: Dräger Infinity V500	IHE PCD-01 IHE PCD-04
Cardiologist evaluates Charlie's hemodynamic profile and determines he is experiencing acute decompensated heart failure. A diuretic is immediately administered and a Nesiritide infusion order is entered into the Epic system. Pharmacy verifies the prescribed order for Nesiritide and the infusion is admixed and sent to the ICU for administration. The nurse performs the necessary steps to confirm the Nesiritide infusion for Charlie in Epic and sends the Nesiritide infusion order wirelessly to Spectrum IQ Infusion system for administration. All infusion information, including any changes at the infusion pump, are sent wirelessly to Epic and documented in Charlie's record. Any alarms that occur on the infusion pump are sent to Masimo.	Baxter	Spectrum IQ Infusion System	IHE PCD-01 IHE PCD-03 IHE PCD-04 IHE PCD-10

In conjunction with the Baxter pump, and the Draeger ventilator and monitor, the Charlie is also monitored using the Masimo Root patient monitor. Data and alarms from these connected devices are sent to the Patient SafetyNet supplemental remote monitoring and clinician notification system to display data on Masimo's intelligent patient dashboard, Uniview. Patient data, alarms and notifications can also be sent remotely to clinicians' smartphones using the Masimo Replica app.	Masimo	UniView and Replica	IHE PCD-06 IHE PCD-01
Cardiologist reviews Charlie's final Echo reports after the treatment, and based on progress, determines Charlie's congestive heart failure condition to be improved. Cardiologist uses Philips ISCV to create the diagnostic report (cardiology) and submits it to Charlie's Electronic Health Record.	Philips	ISCV	IHE ITI-9 IHE ITI-21 IHE ITI-41
As Charlie improves and is ready for discharge, the need for Home Health is identified in order to ensure his continued recovery. As such, a referral is made to the Home Health Agency. Upon the referral being entered, Cerner HomeWorks automatically queries the CommonWell network to retrieve the patient's clinical documents available from external CommonWell sources, including selected Carequality-enabled provider sites via the CommonWell – Carequality connection.	Cerner	HomeWorks	ITI-38 ITI-39 ITI-43 ITI-55 ITI-56

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Data exchange standards:

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
Baxter	Spectrum IQ Infusion System	Infusion Pump	HL7 v2.6	IHE PCD	DEC	DOR	PCD-01	Send	Communicate observations to EMR
			HL7 v2.6	IHE PCD	PIV	IOC	PCD-03	Receive	Receive infusion order and program pump
			HL7 v2.6	IHE PCD	IPEC	DOR	PCD-10	Send	Communicate pump events to EMR
			HL7 v2.6	IHE PCD	ACM	AR	PCD-04	Send	Originate alerts for communication to staff

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
Cerner	HomeWorks	Home Care	HL7 v3	IHE ITI	XDS	Content Creator	ITI-43	Send	Receive the patient CCD-A document containing historical data of the previous care provided to include in the patient chart.
			REST	NA	NA	NA	NA	NA	Person and patient management to CommonWell
			HL7 v3	IHE ITI	XCA	Document Consumer	ITI-38	Receive	Query to find the documents that are available
			HL7 v3	IHE ITI	XCA	Document Consumer	ITI-39	Receive	Fetches the documents found
			HL7 v3	IHE ITI	XCPD	Document Consumer	ITI-55	Receive	Patient discovery on foreign system
			HL7 v3	IHE ITI	XCPD	Document Consumer	ITI-56	Receive	Search to determine all the communities to find the patient.

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
Draeger	Infinity Gateway Server	Vital Sign Export and Alarm Annunciation	HL7 v2.6	IHE PCD	DEC	DOR	PCD-01	Send	Communicate observations to EMR
			HL7 v2.6	IHE PCD	ACM	AR	PCD-04	Send	Originate alerts for communication to staff

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
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Epic	Epic	EMR	HL7v2	IHE PCD	IPEC	Device Observation Consumer	PCD-10	Receive	Communicate Infusion event data
			HL7v2	IHE PCD	PIV	Infusion Order Programmer	PCD-03	Send	Communicate Infusion Order
			HL7v2	IHE PCD	DEC	Data Observation Consumer	PCD-01	Receive	Communicate Device Data
				IHE ITI	XCPD	Initiating/Responding Gateway	ITI-55	Send/Receive	Patient Discovery
				IHE ITI	XCA	Initiating/Responding Gateway	ITI-38/39	Send/Receive	Document Exchange
				IHE ITI	XDR	Document Consumer	ITI-41	Receive	Document Exchange

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
Masimo	Patient SafetyNet with Replica and UniView	Alarm Management	HL-7 2.X	IHE PCD	ACM	AM	PCD-06	Receive	Manage alarms from Masimo Device and 3rd Party infusion pump and ventilator
			HL-7 2.X	IHE PCD	DEC	DOC	PCD-01	Receive	Data from 3rd party infusion pump and ventilator
			HL-7 2.X	IHE PCD	DEC	DOR	PCD-01	Send	Report data from Masimo and 3rd party devices to EMR

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
Rhapsody	Rhapsody	Interoperability Platform	HL7v2	IHE ITI	PDQ	Patient Demographics Supplier	ITI-21	Receive	Receive Patient Demographics Query
			HL7v3	IHE ITI	XDS.b	Document Consumer	ITI-41	Receive	Receive Cardiac Report from Phillips
			HL7v3	IHE ITI	XCA	Initiating Gateway	ITI-18 ITI-43	Receive	Receive Registry Stored Query and Retrieve Document Set Query From Epic
			HL7v3	IHE ITI	XCA	Initiating Gateway	ITI-38 ITI-39	Send	Query Responding Community for Patient Documents

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
Philips	IntelliSpace CardioVascular (powered by IBE and Forcare)	Cardiology Information System and Information Exchange		IHE CARD	CATH ECHO	Image Manager/ Image Archive / Performed procedure step manager	CARD-1 CARD-3 RAD-7		Receive DICOM image
				IHE CARD	CATH ECHO	Image Display	CARD-4 RAD-14		Query and Retrieve images

				IHE ITI	XDS(-I) XDR	Document registry and repository	ITI-41 ITI-42 RAD-68 ITI-18 ITI-43 RAD-55 RAD-69		Document Source Document Recipient Provide and register Query and Retrieve
				IHE ITI	PIX	Patient Identifier Cross- Reference Manager	ITI-9		PIX Query
				IHE ITI	PDQ	Patient demographic consumer	ITI-21		Patient Demographic Query

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References:

