



Use Case Title: Treating Pediatric Cancer

Short Description: James, a 12-year-old vacationing away from home, is diagnosed with neuroblastoma when a tumor is discovered on his adrenal gland. He undergoes surgery to remove the tumor and begins chemotherapy. All the clinical data captured during his diagnosis, surgery and ongoing treatment is shared with James’s healthcare providers and specialists, as well as with external registries, in order to make the best treatment decisions and return James to a normal life.

Scheduled times: This demonstration occurs 15 minutes past the hour.

Participating Organizations: California Cancer Registry, Cerner, Endosoft, Epic, Health Gorilla, ICU Medical, Mindray, Olympus

Scenario	Vendor	Products	Standards
<p>James is a 12-year-old male who presents to his pediatrician with painful urination and blood in the urine.</p> <p>James is examined by a pediatric urologist, and given a cystoscopy and CT. The cystoscopy is clear but the CT shows a mass and the suspicion is now a neuroblastoma.</p> <p>Bone Marrow Biopsy is performed and a PET Scan was obtained to further confirm the suspicion of neuroblastoma. Biopsy results with the PET scan results confirmed the presence of neuroblastoma in James. After the confirmation of the diagnosis, James is seen by the oncologist and the information that comes from the results is utilized to generate an oncology treatment plan and summary for him. This plan is sent to Epic for the continuity of care of James.</p>	Endosoft	Endovault	CCD XDS

The hospital EHR sends an order message to the OR for James to have minimally invasive surgery to remove the tumor.	Epic	Epic	HL7 v2 ORU
During the operation, James' physiological parameters (heart rate, respiration rate, rhythm changes, ST segment changes, blood pressures, oxygen saturation, anesthetic gasses as well as O2 and CO2 levels) are monitored and sent to Cerner. In addition to the anaesthesia data, Mindray is sending patient ECG data in waveform format to Epic for analysis.	Mindray	A7, Passport 17M	PCD-01 with WCM option
Cerner gathers the data from Mindray's A7 anaesthesia machine, as well as the Passport 17 monitor in the OR via the Mindray IHE PCD eGateway and transmits it to the hospital EHR (Epic).	Cerner	Careware	PCD-01
During the surgery, the surgeon is able to capture anatomical images of the adrenal gland as well as short video clips of the resection of the tumor. The images are sent to Epic for inclusion in James' patient record.	Olympus	Surgical Endoscope and nCare medical imaging recorder and Vaultstream Server	HL7v2
After surgery, James is transferred to the PACU with continuous monitoring during transport and recovery. The vitals data are sent to Cerner. While recovering from the anesthesia, James' tongue slides back and obstructs his breathing, generating a low respiration rate alarm. The alarm message is sent to Cerner.	Mindray	T1 and Passport 12M	PCD-01, PCD-04
Cerner sends the alarm to the hospital EHR (Epic). Responding to the alarm, a nurse goes to the bedside. The nurse clears James' airway and repositions him to keep the airway	Cerner	Careware	PCD-01, PCD-04, PCD-06

clear. Later James is moved to the general ward for observation then discharged to home.			
<p>The tissue sample from the tumor is sent to pathology while James is recovering.</p> <p>The pathology results for the tumor and associated biomarkers indicate a positive cancer diagnosis.</p> <p>Epic generates the pathology reports to send to the California Cancer Registry using the North American Association of Central Cancer registries, Pathology Laboratory Electronic Reporting HL7 v2.5.1 standard. The data in the report are encoded using the CAP Cancer Checklists, designed to make the reporting of fully coded information easier.</p> <p>The oncologist is able to search the cancer registry system using the pathology results for similar treatments and outcomes. The previous results indicate that treatment using "OPEC" protocol will yield the best results.</p>	Epic	Epic	NAACCR HL7 v2.5.1
<p>Now that a course of treatment has been decided on, James is admitted into the inpatient cancer unit for chemotherapy. The nurse releases the chemo order via Epic. Epic sends the chemo order to the infusion pump including the medication and dose information.</p>	Epic	Epic	PCD-03
<p>The nurse starts the infusion pump and infusion data from the pump are continuously sent back to Epic, including confirmation of medication, dose, and volume infused. The infusion information is continuously sent to Epic and the nurse can easily verify it for documentation in the flowsheet.</p>	ICU Medical	Plum 360	PCD-10
<p>During infusion, James rolls over onto the tubing, causing the pump to generate an occlusion alarm, which is sent to the Cerner alarm manager.</p>	ICU Medical	Plum 360	PCD-04

Cerner sends the alarm data on to Epic. The alarm is displayed in the EHR, where the nurse acknowledges the alarm and follows up, repositioning the patient to restart the infusion and complete the treatment.	Cerner	Careware	PCD-06
James is discharged from the inpatient facility and sent to an outpatient facility for the last phases of his treatment and recovery. The outpatient facility that James is sent to queries the hospital EHR for James' record. All of the data is aggregated across his care journey and the data is made available to providers and family members.	Health Gorilla	Health Gorilla	XCA C-CDA

HIMSS19 Interoperability Showcase Use Case

Data exchange standards:

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
(Example - please replace with information for your system) GE	Media Manager	Mobile Health Data	HL7	IHE ITI	PDQ	Patient Demographics Consumer	ITI-21	Send	Patient Demographics Query
			ebXML	IHE ITI	XDS	Document Source	ITI-41	Send	Provide and Register Document Set-b
			ebXML	IHE ITI	XDS	Document Consumer	ITI-18	Send	Registry Stored Query
			CDA	HL7	N/A	Content Creator	N/A	N/A	Unstructured CDA
ICU Medical	ICU Medical MedNet	Infusion pump	HL7	IHE PCD	DEC	Device Observation Reporter	PCD-01	Send	Communicate PCD Data
			HL7	IHE PCD	IPEC	Device Observation Reporter	PCD-10	Send	Communicate Infusion Event Data

			HL7	IHE PCD	PIV	Infusion Order Consumer	PCD-03	Receive	Communicate Infusion Order
			HL7	IHE PCD	ACM	Alert Reporter	PCD-04	Send	Report Alert
			HL7	IHE PCD	MEMDM C	Device Management Information Reporter	PCD-15	Send	Device Management Information Observation
Epic	Epic	EMR	HL7	IHE PCD	IPEC	Device Observation Consumer	PCD-10	Receive	Communicate Infusion Event Data
			HL7	IHE PCD	PIV	Infusion Order Programmer	PCD-03	Send	Communicate Infusion Order
			HL7	IHE PCD	ACM	Alert Communicator	PCD-04	Receive	Report Alert
Olympus	nCare Medical Recorder & VaultStream Server	Imaging	HL7	HL7	N/A	Admission, Discharge, Transfer	ADT	Receive	Receive Patient Registration
			HL7	HL7	N/A	Scheduling Information	SIU	Receive	Receive Procedure Scheduling
			HL7	HL7	N/A	Clinical Order	ORM	Receive	Receive procedure order

			HL7	HL7	N/A	Observation Result	ORU	Send	Send Clinical Data
Mindray	A7	Anesthesia Machine	HL7	IHE PCD	DEC	Device Observation Reporter	PCD-01	Send	Communicate PCD Data with WCM option
			HL7	IHE PCD	ACM	Alert Communicator	PCD-04	Send	Report Alert
	eGateway	Device Gateway	HL7	IHE PCD	DEC	Device Observation Reporter	PCD-01	Send	Communicate PCD Data
			HL7	IHE PCD	ACM	Alert Communicator	PCD-04	Send	Report Alert with WCM option
California Cancer Registry at UC Davis	Eureka	Pathology and Laboratory Medicine	SDC	IHE	SDC	Form Receiver	ITI-35	Receive	Synoptic Reporting of Hematologic Pathology Report
Cerner Corporation	CareAware iBus	Platform	HL7	PCD	ACM	Alarm Manager	PCD-06	Send	Disseminate Alert to AC
			HL7	PCD	DEC	Device Observation Consumer	PCD-01	Receive	Receive PCD-01 from Devices
			HL7	PCD	DEC	Device Observation Reporter	PCD-01	Send	Send all devices data to other Device Observation consumers

			HL7	PCD	DEC	Device Observation Reporter	PCD-10	Receive	Real time view of infusion pump events
Health Gorilla	Health Gorilla Platform	Ambulatory platform	CDA	HL7	N/A	Patient Discharge Consumer	N/A	Receive	Receive patient discharge clinical data, structured CDA
			CDA	HL7	N/A	Content Creator	N/A	Send	Send clinical data, structured CDA

Endosoft	Endovault	Oncology EHR/Image Management	HL7		HL7/XDS	Document Source	ITI-41	Send/Receive	Send Treatment plan CDA document and Path Req. Receives procedure images
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