



Use Case Title: Battlefield to Bedside

Overview: Shane is injured in combat, is triaged and treated at an Army field hospital unit, and eventually discharged to return home. Some time later he has follow up surgery stateside in a Veterans Administration Medical Center. Having access to his health data at all points of care means being able to perform surgery in the field without concern of missing information as well as treating any issues after Shane has returned home.

Value: A single viewing source for medical data aggregated across multiple systems allows for providers to search and locate information through IHE Profiles that have a common link. Interoperability drives STEPS to value by enabling secure network bi-directional communications for collaborative sharing.

Scenario	Vendor	Products	Standards
Shane, a male soldier, suffers multiple traumatic shrapnel wounds secondary to an IED explosion while on patrol in Afghanistan. The trauma nurse uses GE Media Manager to query the ELLKAY LKeMPI to get the Shane’s demographic information, and then takes multiple pictures of the wound to send to the Cerner HIE. Physicians waiting at the Army field hospital can review the images, consider treatment plans and take actions that minimize the time between penetrating head or body injuries and emergency medical treatment.	GE integrates with ELLKAY; GE integrates with Cerner HIE;	GE Media Manager	IHE PDQ, IHE XDS, HL7 CDA
The ELLKAY LKeMPI provides an enterprise master patient index solution to identify and match Shane’s record across multiple patient indexes using identifying demographic attributes. LKeMPI sends GE Media Manager all relevant matches, allowing the user to select the best match, import any updated demographic information, and further enable sharing of health records with downstream systems.	GE integrates with ELLKAY;	ELLKAY LKeMPI	IHE PDQ

Shane is stabilized at the field hospital where a disconnected, portable version of Cerner Millennium is used to track his care. Shane is stabilized and transported to Garrison (Germany) and his medical record from the field is synced to the Millennium environment at Garrison.	Cerner Millennium integrates with Cerner HIE;	Cerner Millennium	IHE XDS, HL7 CDA
While being treated (in Germany) Cerner Millennium utilizes the Cerner HIE to review historical and external medical records from the community. This includes the image previously captured in the field. The entire record beginning from the field and treatment in Germany is made available to share for Shane's future care.	Cerner HIE integrates with Cerner Millennium;	Cerner HIE	IHE XDS, IHE XDS-I
Shane is admitted to a VA hospital for surgery. During surgery, anesthesia care delivery and patient vitals are recorded in Innovian Anesthesia . Vitals data is shared with LiveData PeriOp Manager for the surgical team to monitor. The completed anesthesia record and any case notes are sent to the VistA EMR.	Draeger integrates with DSS;	Innovian Anesthesia Infinity Gateway	HL7, IHE DEC
Shane is admitted to a VA hospital for Surgery. DSS Integration Framework allows LiveData PeriOp Planner to schedule the surgery and have it reflected in VistA including sending out appropriate HL7 notifications to Draeger Innovian and any other 3rd parties. DSS Integration Framework provides data regarding labs, notes, allergies, etc. to Draeger Innovian and LiveData PeriOp Manager. DSS Integration Framework accepts data regarding the anesthesia record and any notes from Draeger Innovian as well as timeout checklist, timestamps, and scheduling data from LiveData PeriOp Manager and writes them into VistA to ensure a complete patient record.	DSS integrates with Draeger;	Integration Framework	HL7
Shane is admitted to a VA hospital for Surgery and is scheduled in LiveData PeriOp Planner . Surgery check in is handled with the LiveData Patient Flow tool and worked up using the LiveData PreOp Board. The surgical staff uses the LiveData OR-Dashboard for the timeout safety checklist as well as to monitor vitals trends, update timestamps, and get updates from Draeger Innovian. All timestamps and the surgical time-out safety checklist will populate VistA.	LiveData integrates with Draeger; LiveData integrates with VistA;	PeriOp Manager	HL7
Shane's images are transferred to the Dicom Systems Unifier platform and stored locally allowing clinicians to view those images from any mobile device or computer using a zero footprint viewer. The Dicom Systems Unifier registers and publishes an XDS-I manifest to the Cerner HIE, along with sharing additional key images to the HIE. The images are later	Dicom Systems integrates with Cerner HIE;	Dicom System Unifier	DICOM DICOMweb IHE XDS-I

<p>accessed by Diameter Health system users leveraging a DICOMweb restful API compliant viewer.</p>			
<p>Shane presents at a PCP five years following surgery at the VA for an annual physical and to inquire whether he is fit enough to participate in a trekking vacation to Mt Denali. Prior to his visit, the back-office receives a feed of his medical history from the Cerner HIE since the time of his combat injury. Using Diameter Health Analyze, flaws are noted in the incoming data and resolved using Fusion. A synthesized CCD is presented to the physician so she can see the scope of Shane’s injuries, procedures, lab results and medications. The PCP does a thorough examination of overall fitness, paying attention to post-trauma healing. Shane has no lingering effects from surgery, and has been managing his Type II diabetes through good adherence to prescribed medications and is cleared for this adventure. Post-visit, the back-office is able to submit data to drive their Quality scores.</p>	<p>Diameter Health integrates with Cerner HIE;</p>	<p>Fusion, Analyze, Quality</p>	<p>IHE XDR, HL7 QRDA, HL7 CDA</p>

HIMSS18 Interoperability Showcase Use Case

Data exchange standards:

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
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
ELLKAY	LKeMPI	Master Patient Index	HL7	IHE ITI	PDQ	Patient Demographics Supplier	ITI-21	Respond	Patient Demographics Query
Cerner	Millenium	Mobile EMR	ebXML	IHE ITI	XDS	Document Source	ITI-41	Send	Provide and Register Document Set-b
			CDA	HL7	CCDA	Content Creator	N/A	N/A	
Cerner	HIE	Infrastructure	ebXML	IHE ITI	XDS	Document Source	ITI-41	Send	Provide and Register Document Set-b
			ebXML	IHE ITI	XDS	Document Repository	ITI-41	Receive	Provide and Register Document Set-b
			ebXML	IHE ITI	XDS	Document Registry	ITI-42	Receive and Send	Register Document Set
			ebXML	IHE ITI	XDS	Document Repository	ITI-43	Respond	Retrieve Document Set-b

			ebXML	IHE ITI	XDS	Document Registry	ITI-18	Respond	Registry Stored Query
			ebXML	IHE RAD	XDS-I	Document Repository	RAD-68	Receive	Provide and Register Imaging Document Set
Draeger	Innovian Anesthesia	Inpatient Device	TCP/IP	HL7	N/A	N/A	ORU	Send	Case Results
			TCP/IP	HL7	N/A	N/A	SIU	Receive	Scheduling Message
			Custom SOAP API	W3C	N/A	N/A	N/A	Respond	Case Results and Vital Signs
	Infinity Gateway		HL7	IHE PCD	DEC	Device Observation Reporter	PCD-01	Send	Vital Signs ORU
DSS, Inc.	Integration Framework	Infrastructure	TCP/IP	HL7	N/A	N/A	ORU	Receive	Case Results
			TCP/IP	HL7	N/A	N/A	SIU	Send	Scheduling Message
LiveData, Inc.	PeriOp Manager	Inpatient EMR	Custom SOAP API	W3C	N/A	N/A	N/A	Retrieve	Case Results and Vital Signs
			HL7	IHE PCD	DEC	Device Observation Consumer	PCD-01	Receive	Vital Signs ORU
Dicom Systems	Dicom Systems Workflow Unifier	Infrastructure	ebXML	IHE RAD	XDS-I	Imaging Document Source	RAD-68	Send	Publish XDS-I manifest
		Imaging	WADO-RS	IHE RAD	XDS-I	Imaging Document Source	RAD-55	Respond	Provide access to Imaging Study via DICOMweb RESTful API compliant viewer
Diameter Health	Fusion, Analyze, Quality	Quality	ebXML	IHE ITI	XDR	Document Recipient	ITI-41	Receive	Provide and Register Document Set-b
			CDA	HL7	CCDA	N/A	N/A	Reconcile	

HIMSS Value STEPS Framework:

Step	Description	Point of View	Point of View	Point of View
S: Satisfaction	<p>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:</p> <ul style="list-style-type: none"> Patient satisfaction Provider satisfaction Staff satisfaction Other satisfaction 	<p>Allows for easier accessibility for each person/group to have updated information regardless of where it was performed.</p>	<p>Providers are able to view disparate medical information across multiple platforms in a single place. Patient satisfaction will increase from lack of additional tests or questions that have already been discovered during this visit.</p>	<p>Improve clinician satisfaction by providing clinicians up-to-date information to make informed decisions. Improves clinical practice and decreases clinician frustration.</p>
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. Treatment/Clinical includes types of value such as:</p> <ul style="list-style-type: none"> Efficiencies Quality of Care 		<p>Ability to use field captured images for diagnosis prevents repeated radiation, patient move, and accelerates treatment.</p>	<p>Access to timely information provides clinicians with a continuous view of the injury which allows them to better detect if there are signs of infection or the wound is worsening. This improves the quality of the overall treatment.</p>

	Safety Other treatment/clinical			
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"> Privacy & Security Data sharing Data reporting Enhanced communication 	<p>Patient/provider satisfaction: allows for information from different systems to be collected in one common repository to review; allows for all participants to see information at a glance instead of combing through paper records which may or may not be a complete/accurate listing of patient's history.</p> <p>Privacy/Security: Increase in security/network/communication as information is leaving secure networks to join with other networks for collaborative sharing.</p>	<p>A single viewing source for medical data aggregated across multiple systems allows for providers to search and locate information that may have a common link or connection.</p>	

<p>P: Patient Engagement & Population Management</p>	<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 & Population Management includes type of value such as: Patient education Patient engagement Prevention Population Health</p>	<p>This can set groundwork for patient to be primary and establish more trust in providing accurate treatment/recommendations and overall confidence in healthcare.</p>	<p>Information can be used to help the patient make upcoming decisions that could affect their current treatment course or have a negative impact on their recovery period.</p>	
<p>S: Savings</p>	<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>Overall, this can help provide understandings of where savings can occur</p>	<p>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.</p>	<p>It is very common for test to be repeated, which causes a delay in care and could result in increased costs due to complications.</p>