



Use Case Title: Telehealth & Stroke Continuum of Care

Overview: Time is brain for Emily, a rural stroke patient. Telehealth expedites time to care with rapid pre-hospital video assessment in the ambulance leading to seamless transfer of decisions supporting patient health. Imaging data is shared from a small community hospital to a stroke neurologist at an urban hospital resulting in timely administration of a life-saving clot-busting drug, and heightened patient engagement post-discharge using a health app that aggregates patient data and shares patient progress among all members of an interprofessional care team.

Value: Reducing repeated tests and getting quick outcomes can improve morbidity and mortality rates whereby providers can begin treatment, start therapies or order tests to help them diagnose the patient. Interoperability drives STEPS to value by making previously unavailable health information & resources in rural locations available.

Scenario	Vendor	Products	Standards
<p>Emily is a 52 year old female with risk factors for hypertension and diabetes. Her healthcare provider recommends using a wearable device to monitor her health. Emily uses the PatientLink MyLinks consumer app to import her medical records from all her healthcare providers and links the new device to her consumer health app. She familiarizes herself with the app, and tries to be consistent with her medicines and their doses. Occasionally Emily forgets to fill her medications.</p> <p>Emily puts her best foot forward with her health. She stretches and prepares to go out for a jog when she experiences loss of control in her right arm and slurred speech. Her daughter, Kari, notices that she is not communicating well and being a nurse, suspects a stroke. She immediately calls 911. Because Emily has given Kari access to her personal consumer app, Kari is able to forward her mother’s chart to the rural hospital and to the ViTel Net vCareCommand Telehealth Platform so they have current information on Emily.</p>	<p>National Consortium of Telehealth Resource Centers and PatientLink</p>	<p>MyLinks, vCareCommand</p>	<p>ONC Direct, CCD</p>

<p>An ambulance arrives and assesses Emily. A stroke is suspected. The Emergency Medical Technician calls the rural hospital Emergency Department (ED) to activate a stroke alert, logs into the ViTel Net 1st Responder Application on a tablet computer and, after a short period of time, selects the patient and captures Emily's vital signs. A clinician at the rural hospital ED enters a consult in the rural hospital VistA EHR, sends it to the ViTel Net vCareCommand Telehealth Platform, which gets forwarded to the Epic EHR at the urban hospital. Using VistA, the ED physician launches the ViTel Net Telestroke Application. The urban hospital neurologist is paged, accesses the consult in Epic, launches the ViTel Net Telestroke Application, reviews the aggregated patient data, starts a video conference with the ambulance, examines the patient, and completes an NIH Stroke Scale while Emily is in transit to the rural hospital. The rural hospital ED physician joins the video call and, after confirmation of a potential stroke by the neurologist, orders a head CT.</p>	<p>ViTel Net integrates with Epic, Vidyo, and PatientLink</p>	<p>MyLinks, Epic, 1st Responder Application, Telestroke Application</p>	<p>HL7v2, SSO W3C</p>
<p>VidyoConnect leverages the H.264 video codec combined with direct integration with the ViTel Net platform to provide a high quality, streamlined, multi-point telemedicine experience.</p>	<p>Vidyo integrates with ViTel Net</p>	<p>Vidyo</p>	<p>H.264</p>
<p>The video call ends when the patient arrives at the rural hospital and goes directly to radiology for imaging. The images are stored in the local PACS managed by INFINITT, and are also pushed to ViTel Net's vCareCommand Platform.</p>	<p>INFINITT integrates with ViTel Net</p>	<p>INFINITT PACS</p>	<p>IHE SWF, DICOM C-STORE</p>
<p>Emily is moved from radiology to the ED. The neurologist again uses Epic to launch the ViTel Net Telestroke Application, accesses and views Emily's CT, and then initiates a video call with the ED physician via the telehealth cart at the patient's bedside. Together the physicians review her clinical information, including her pre-hospital data from PatientLink MyLinks and data from the 1st Responder telehealth encounter in the ambulance. The neurologist recommends that Emily should be given tPA and the ED doctor orders and administers the tPA under the guidance of the neurologist, who then completes and signs the telehealth clinical documentation in the Telestroke Application. All of the telehealth documentation is sent from ViTel Net's vCareCommand platform to both VistA and Epic. Emily is treated and has a good outcome and is discharged to home after four days.</p>	<p>Epic integrates with ViTel Net and PatientLink</p>	<p>Epic, MyLinks, Telestroke Application</p>	<p>CCD, HL7v2</p>
<p>Emily returns home and imports her data from both the rural and urban hospital EHRs (VistA and Epic) into PatientLink MyLinks, her PHR app. She is able to view her discharge summary and care plan and continues to manage her vitals from home and shares them with her PCP.</p>	<p>PatientLink integrates with Epic</p>	<p>MyLinks, Epic</p>	<p>ONC Direct, FHIR, CCD</p>

Data exchange standards:

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
National Consortium		Consortium	N/A	N/A	N/A	N/A	N/A	N/A	Promotes use of telemedicine

of Telehealth Resource Centers									
VistA		EHR	MLLP	HL7	N/A	N/A	ORM	Send	Referral Order
			MLLP	HI7	N/A	N/A	ORM	Send	Imaging Service Request
			MLLP	HL7	N/A	N/A	ORU	Receive	Observation Result
ViTel Net	vCareCommand	Telemedicine	MLLP	HL7	N/A	N/A	ORM	Send and Receive	Referral Order
			SSO	W3C	HTTP Auth	N/A	N/A	Receive	Launch App from Epic
			SSO	W3C	HTTP Auth	N/A	N/A	N/A	Launch Video Conference
			DICOM	NEMA/ MITA	N/A	Image Manager	C-STORE	Receive	Receive Images
			HTTP/HTTPS	W3C	HTML5	N/A	N/A	Send/Receive	View Images
			MLLP	HL7	N/A	N/A	ORU	Send	Observation Result
			HTTP/HTTPS	HL7	CCDA/CCD	Content Consumer	N/A	Receive	Vitals, Device & Other Patient Data
			SMTP	ONC	Direct	HISP/Edge	N/A	Receive	Receive CDA from
Vidyo	VidyoConnect	Telemedicine	H.264 or MPEG-4 Part 10	ITU	Advanced Video Coding	N/A	N/A	N/A	Video Transport Standard
			SOAP	W3C	N/A	N/A	N/A	N/A	Launching Video Feed
Epic		EHR	TCP/IP	HL7	N/A	N/A	ORM	Receive	Referral Order
			SSO		HTTP Auth	N/A	N/A		Launch into ViTel Net
			CDA	HL7	CCDA/CCD	N/A	FHIR	Respond	FHIR Document Resource

			REST	HL7	FHIR	N/A	N/A	Respond	Medications, Allergies, Conditions, Labs
INFINITT	INFINITT PACS 7.0	Imaging	DICOM	IHE	SWF.b	Image Manager	C-STORE	Send	
			TCP/IP	HL7	SWF.b	Order Filler	ORM	Receive	Referral Order
PatientLink	MyLinks	PHR, Consumer Devices	REST	HL7	FHIR	N/A	FHIR Resources	Retrieve	Medications, Allergies, Conditions, Labs
			REST	HL7	FHIR	N/A	FHIR Document Resource	Retrieve	CCDA CCD
			SMTP	ONC	Direct	HISP/Edge	N/A	Send	Sends CCD to ViTel Net

[HIMSS Value STEPS Framework:](#)

Step	Description	Point of View	Point of View
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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>Patient satisfaction: how easy is to use it, connect with medical practitioner or input the data. Also is the interface easy to use for people with movement issues. The simpler the solution, the better. Also voice interfaces are proving to be a useful option.</p>	<p>Accessing unavailable resources in rural locations allows providers to get ahead. They can begin treatment, start therapies or order tests to help them diagnose the patient. If this comes from the direction of the facility that will soon receive the patient, the providers can be assured the information received has a high level of confidence, because they were the driving factor.</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 Safety Other treatment/clinical 		<p>Reduce repeated tests and getting quick outcomes can improve morbidity and mortality rates.</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"> Privacy & Security Data sharing 		<p>High confidence in electronic medical data received when it comes under the direction of those who are receiving it.</p>

	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	She is able to view her discharge summary and care plan and continues to manage her vitals from home and shares them with her PCP. This will help her to avoid readmissions, and be more adherent in her care plan.	Patient portals allow for an empowered patient who now feels they are a stakeholder in their own medical care plan.
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.