

Use Case Title: Simplifying Comprehensive Care Coordination

Short Description: Accompany Li Wang on her journey as she traverses disparate care locations where her existing data is accessible to assess her present condition and provide requisite attention. Watch Li Wang's journey with our Healthcare organizations using effective collective intellectual implementation ecosystems to maximize patient value and decelerate healthcare's unsustainable cost. Follow Li as she leaves the hospital and follows up with home health, care management, home medical equipment, and access to her vaccine status.

Li presents to the ED from the Assisted Living facility and is admitted for diabetic ketoacidosis and a lower extremity wound. She has a history of repeat ED visits for her type 2 diabetes. Li was recently a widow and moved to assisted living. Li struggles to adjust to her new lifestyle. The ordering provider is concerned she will return to the ED without proactive care. Follow her from her hospital discharge to home health with a DME provided Wound VAC. After receiving care from Home Health for a few weeks and discharging, she is later diagnosed by Oncology with Multiple Myeloma and receives hospice care in her Assisted Living Facility.

Using digital solutions that meet modern patient care expectations that put her at the center of her care, we follow Li on her journey that incorporates various parts of the healthcare ecosystem using 360x, Carequality, CommonWell, Direct Secure Messaging, HL7, HL7® FHIR®, and nationwide clinical data networks. By leveraging shared data across multiple encounters on a complex patient case to streamline the care transitions, this demonstration achieves seamless care coordination across a multitude of care settings with shared medical records and continuity of care and across technical, organizational, and geographic boundaries.

Value Statement: By leveraging 360x, Commonwell, Direct Secure Messaging and interoperability standards such as HL7, and HL7® FHIR®; this demonstration achieves seamless care coordination across a multitude of care settings and systems with shared medical records and continuity of care, enabling better patient outcomes.

Participating Organizations: Oracle Health, Brightree, MatrixCare, Netsmart, Nextgen, STC Health

Scenario	Vendor	Products	Standards
<p>Introduction</p> <p>Li's immunization information is in the state registry. EHRs and HIE have direct connections via an electronic interface and can send and receive real time information for all their patients using an exchange of HL7 messages.</p> <p>In addition to viewing the complete patient immunization record, the STHealth platform provides immunization forecasting information to indicate when the next vaccine in a series is due, while also validating that all vaccines received to this point are valid and were given within the correct time intervals. Should a patient need an adjusted forecast due to an existing condition that affects their vaccine schedule, the forecaster can accommodate and make the adjustments needed.</p>	STC Health	IWEB	HL7 V2 QBP
<p>Upon presenting to the ICU, end-users utilized the Oracle Health Workflow MPages (provider EHR workflow used to care for patients) to efficiently transition Ms. Wang's care. Seamless Exchange enablement on the MPages allowed Ms. Wang's providers to view her outside and local information side-by-side, streamlining the processes of reconciliation. Seamless Exchange was also able to directly write immunizations retrieved from the registry, as well as other sources (STC Health Immunization Query, CommonWell/Carequality), easing chart review and reducing the time spent on reconciliation.</p> <p>The patient's condition improved with medical management in the hospital and orders were written and sent in a CCD. A referral order was written for the patient to be discharged to Assisted Living with home health care for nursing and physical therapy.</p> <p>Upon discharge Li Wang's H & P/Discharge summary is shared to CommonWell/Carequality to follow her care journey.</p> <p>A referral is sent to the Brightree HME via HL7 V2 for a Wound Vac and supplies which are delivered prior to discharge.</p> <p>Discharge orders are also placed through CCDA direct and referral order (and through Commonwell for H&P and Discharge summary) to MatrixCare.</p>	Oracle Health	Seamless Exchange, Orders workflow, Direct Secure Messaging, CommonWell and Carequality, Immunization Registry Query	HI7 V2 QBP, Direct Secure Email (SMTP), HL7 V2

<p>Home Medical Equipment Electronic referral is sent from Oracle to Brightree via HL7 V2 - DME order for a Negative Pressure Wound Vac (NPWT) and supplies.</p> <p>Oracle Health sends key order details via HL7 V2 to Brightree. The Home medical equipment vendor receives an alert notification - the referral lands in Brightree's Referral Management Worklist. Thanks to Brightree's reconciliation tools and automation, the Home Medical Equipment Vendor receives all key data to fulfill Li's home medical device.</p> <p>We provide real-life solutions to experience seamless care with standard-based technology comprehensive and integrated approaches to help support the continuity of care and improve outcomes.</p>	<p>Brightree</p>	<p>Referral Management</p> <p>Referral Notification</p> <p>MRN/Encounter</p> <p>Order/Referral Management Solution</p> <p>Reconciliation Automation Documentation</p> <p>Patient and Sales Order Creation</p> <p>Electronic Signature</p> <p>Referral History</p>	<p>HL7 V2</p>
<p>Li returns back to her Assisted Living Facility. Upon receipt of the eReferral C-CDA via Direct Secure Messaging from Oracle , the MatrixCare Home Health organization queries CommonWell Health Alliance and pulls back an H&P and discharge summary from her Oracle hospitalization. The patient is admitted with nursing to provide diabetic disease management, education & wound care. Physical therapy is also started to help the patient recover from deconditioning. After four weeks of home health care (provided at her assisted living facility), the patient improves, her wound heals and she is discharged from care.</p>	<p>MatrixCare Home Health</p>	<p>Direct Secure Messaging, eReferral, CommonWell Health Alliance</p>	<p>XCPD; XCA Retrieve/Exchange</p> <p>FHIR R4 US Core 3.1.1 Document Query</p> <p>HL7 V2 CCDA</p>
<p>6 weeks later, Li is experiencing severe back pain and sees her PCP who orders some labs. The lab results are abnormal, and Li is referred to oncology which is where we pick up the story.</p> <p>PCP Referral via 360X Oncology visit</p>	<p>NextGen Ambulatory Visit (Oncology)</p>	<p>NextGen Ambulatory EHR</p>	<p>360X</p>

<p>Li is seen by oncology who receives an encounter summary from the PCP referral, and the physician pulls previous records via CareQuality ie., H&P, D/C Summary, home health visit note. The encounter note lab result will be imported into the chart in clinical reconciliation. After review, an examination, and some additional tests, the patient diagnosis of Multiple Myeloma is confirmed and found to be in stage 3. The NextGen oncologist makes a referral to MatrixCare hospice via 360X.</p>	<p>NextGen Ambulatory Visit (Oncology)</p>	<p>NextGen Ambulatory EHR</p>	<p>CommonWell Query & Retrieval 360x</p>
<p>Demonstrating how an EHR can be the source of truth for Care Coordination by receiving and integrating data from the documents received and parsed electronically.</p> <ol style="list-style-type: none"> 1. MatrixCare Assisted Living queries Carequality, retrieving the Oncology note from NextGen and the Hospice Orders from NetSmart. 2. Li's hospice Medication orders are reconciled and added to her record using the CCD received from NextGen. 	<p>MatrixCare Facilities Assisted Living</p>	<p>Document Query and Retrieval from CareQuality Direct Secure Messaging to the EHR Reconciling Medications in the EHR</p>	<p>DSM CareQuality Query and Retrieval</p>
<p>MatrixCare hospice receives the referral from the NextGen Oncologist via 360X, parses & reconciles the information and admits the patient to hospice services.</p>	<p>MatrixCare Hospice</p>	<p>eReferral</p>	<p>360X</p>

DataExchange Standards:

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
STC Health	IWEB	Immunization IIS	QBP						
Oracle Health	Seamless exchange, Immunization Query, Orders functionality, and Direct Messaging	EMR,	QBP			EMR querying Registry		send/receive	
			Direct Secure Messaging			DirectTrust		Send	
			hl7 v2			HL7		send	
			Common Well/Care quality			CommonWell/Care quality		Query/Retrieve	
MatrixCare	Home Health (HH)	Electronic Health Record	XCPD; XCA Retrieve/Exchange FHIR R4 US Core 3.1.1 Document Query HL7 V2 DSM C-CDA			Direct Trust CommonWell HL7		Receive eReferral Query/Retrieve	Home health receives eReferral via DSM from the hospital and parses the information into the patient record. They query & retrieve the patient H&P and DC Summary from CommonWell (contributed by Oracle Hospital).

Brightree	Home Medical Equipment (HME)	Referral Management	HL7 V2			HL7		Send/Receive	Ordering Doctor will send a patient HME Order from Oracle to Brightree Ordering Doctor will receive a CMN in Oracle from BT - once signed, the CMN is received in Brightree - patient record
MatrixCare	Assisted Living	Electronic Health Record	CDA/ HL7	Carequality	Patient Residence	Carequality		Receive	As the patient residence, the assisted living facility requests documents from Carequality and receives a CDA from NextGen
NextGen	Ambulatory EHR	Referral Management	CDA/HL7	Direct	Referring Provider	360X DSM		Send	Oncologist will send a hospice referral outbound to the hospice via 360X and a copy to the assisted living facility via DSM.
			CDA/HL7	Direct	Receiving Provider	360X		Receive	Oncologist will receive 360X inbound referral from PCP at another practice.
MatrixCare Hospice						360X			Hospice receives eReferral via 360X from NextGen Oncologist

References:

IHE Patient Care Device (PCD) https://www.ihe.net/uploadedFiles/Documents/PCD/IHE_PCD_TF_Vol1.pdf
HL7 V2 http://www.hl7.org/implement/standards/product_brief.cfm?product_id=144
HL7 C-CDA http://www.hl7.org/implement/standards/product_brief.cfm?product_id=492
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