INTEROPERABILITY SHOWCASE™

HIMSS

Use Case Title: Nationwide Connected Care

Short Description: Navigating the healthcare system can be cumbersome, particularly when you have a chronic condition. But when you have a later onset chronic condition and have a demanding career that moves you every three to six months to a different city or even state, managing one's health can be almost impossible.

Meet Oscar. He is a traveling nurse who was diagnosed with multiple sclerosis (MS) in the last year by his home base PCP in New York. Months later, while on a travel nurse assignment in Louisiana, Oscar acquires a respiratory infection and is diagnosed with pneumonia. Follow his health journey through acute inpatient, standalone ED, PCPs and specialty settings in a coordinated management of his chronic and acute conditions. Regardless of where his care occurs, Oscar and his providers have access to his health records nationwide via the CommonWell Health Alliance nationwide network. Watch as his providers leverage event notifications, smart record locator services and discrete data exchange via HL7® FHIR® at a national scale to coordinate care and help avoid readmission.

Working together, Oscar's providers were able to coordinate his care across thousands of miles, different providers, venues of care and health IT systems. Oscar was able to help manage his own care and be a more empowered patient thanks to his connected personal health record. The end result: Oscar is able to continue pursuing his love of nursing and traveling, while also seeing positive health outcomes.

Value: Inform better care decisions, reduce readmissions, decrease total cost of patient care, increase provider satisfaction, improve the patient experience, empower the individual

Participating Vendors: athenahealth, CommonWell Health Alliance, Cerner, eClinicalWorks, Health Gorilla, MatrixCare, MEDITECH

Scenario	Vendor	Products	Standards
[Introduction] Oscar Garcia is an active, late-thirties man, who grew up in upstate New York and continues to call it his home base when not traveling for work as a travel nurse. Over the past few months, he has been experiencing some changes in his health, including sporadic blurry vision, weakness in his legs, facial nerve pain, and slurred speech. While at home in Buffalo, Oscar's symptoms worsen, and he makes an appointment with his long time Primary Care Provider (PCP). The PCP participates in the CommonWell Network via his athenaClinicals EHR. Since his PCP automatically enrolls patients who have agreed to data sharing as a part of their standard HIPAA agreement, Oscar was enrolled by his PCP when he first established there several years ago. His records from his current and past PCP visits are made available via the CommonWell network to other participating providers. The athenaClinicals system is also able to see that Oscar was seen in 2012 at another participating provider and can use XCA to query and retrieve the clinical document indicating that he previously had stitches for a laceration and received a vaccine. During the exam, the PCP does some labs and orders a head CT to rule out a stroke, all of which are normal. He is then referred to a local neurologist for further evaluation.	athenahealth	athenaClinicals	IHE XCA, HL7 CCDA and ADT
Oscar is able to see the neurologist shortly after his PCP visit. Once he is registered into the eClinicalWorks EHR, his demographics are matched using autolinking – an exact matching algorithm that includes first name, last name, DOB, gender, city, state and zip code, along with at least one match on the following: address line 1, phone number or email address. Since his demographics came over from the PCP, it was an exact match, removing the manual matching burden from the neurologist's office.	eClinicalWorks	eClinicalWorks	IHE XCA, HL7 CCDA and ADT

When Oscar arrives, he is pleased to see that the neurologist has already reviewed his PCP's comments and test results from a few weeks ago, saving him time, unnecessary repeated tests and additional stress. Using XCA document query and retrieve, the eClinicalWorks EHR easily accessed the clinical data (labs, CT scan) from Oscar's visit at the PCP. The Summary View in the enrollment application displays all of Oscar's existing links to other care locations where he previously has been seen. Within the patient's chart, the neurologist can preview the clinical documents pulled from the network and decide what to save to the patient's record. Once saved to the chart, the neurologist can consume specific sections of clinical data directly into the EHR as he sees fit. The neurologist runs some additional tests, including a brain MRI with contrast, and diagnoses him with multiple sclerosis (MS). He prescribes Oscar with medications and recommends he has a follow-up in 2 months.			
Later in the year while on a break from traveling, Oscar develops a severe respiratory infection, caused partially by his MS immunocompromising medication. Due to having MS and the acuteness of his breathing problems, he goes to his local hospital and is admitted. Upon registration and admission, Oscar's patient demographics are sent to the CommonWell Master Patient Index (or MPI), and because his provider uses autolinking, there is no manual intervention to link Oscar to his past care locations. During admission, an ADT notification is sent from Cerner PowerChart via the CommonWell Event Notification Service (ENS). This notifies subscribed care providers on the network about events that occur for shared patients. The medical team using PowerChart queries the network for clinical data and retrieves documents from Oscar's PCP and neurologist. Based on the data they receive, they can reconcile Oscar's medications, problems and allergies directly into his chart, saving them time during the admission process. When Oscar is ready to be discharged to home health,	Cerner	PowerChart	XCA, CCDA, HL7 ADT, FHIR, ebXML, Direct secure messaging

his provider sends a Referral via Direct Secure Messaging to the MatrixCare Home Health and Hospice team. He is diagnosed with pneumonia and remains inpatient for five days. He has medication changes that occur and is discharged to home health to continue recovery.			
Oscar transitions home with home health nursing and physical therapy. Oscar's referral information pulls into MatrixCare EHR referral management, and his demographics are matched using the auto linking service to past care locations. Using FHIR to query and retrieve via his clinical documents, the MatrixCare Home Health and Hospice EHR automatically accesses data, particularly the Progress Note, from Oscar's past PCP and neurology visits. The summary view in the enrollment application will display all of Oscar's existing links where he has previously been seen. Within the patient's chart, the home health nurse can preview the clinical documents files and/or save a select number of records. Once it is saved to the chart, the home health nurse can consume portions of the data directly into the MatrixCare record, as she sees fit. Connected CommonWell providers now have access to these visit notes and patient information. After three weeks of care and rehab by his home health team, Oscar is discharged just before Thanksgiving.	MatrixCare	MatrixCare Home Health and Hospice	DSM, HL7 FHIR
Travels to Baton Rouge, LA for nursing assignment			

[MEDITECH – Part 1] Oscar is on assignment in Baton Rouge when he begins to experience shortness of breath and a cough, accompanied by a fever. He recognizes the urgency of these symptoms and heads to a local emergency department. The MEDITECH ED provider uses CommonWell FHIR-based document exchange to pull documents from his prior encounters. CommonWell provides a transformation between XCA and FHIR for document exchange. The ED orders and obtains lab tests and a chest x-ray, and Oscar is diagnosed again with pneumonia. He is sent home to rest and referred to a local neurologist for follow-up since his lymphocytes have dropped related to his MS medication and this is contributing to his pneumonia. At both admission and discharge, the MEDITECH ED automatically sends event notifications to the other care providers, who are notified of this recurrence of pneumonia.	MEDITECH	Expanse	HL7 FHIR, CCDA, ADT
[Return to eCW briefly to show receipt of inbound notifications from care providers] The neurologist practice is subscribed to receive notifications via CommonWell ENS and has noticed that Oscar has had two episodes of pneumonia in the past year and his lymphocytes have dropped to a dangerously low level. Upon querying for Oscar's clinical records to take a closer look, the eClinicalWorks neurologist notes that Oscar has been referred to another neurology practice in Baton Rouge and gets in contact with that clinic proactively.	eClinicalWorks	eClinicalWorks	IHE XCA, HL7 CCDA and ADT
[Health Gorilla – Part 1] Upon discharge from the ED, Oscar follows the advice to establish with a local Neurologist at a multi-specialty clinic. He can get in right away and notices that the local neurologist has already been in contact with his neurologist from Buffalo, thanks to the receipt of event notifications. The neurologist also uses FHIR to query for clinical data and leverages the Health Gorilla's Health Information Platform to initiate secure dynamic registration using UDAP profiles to gain authorization and authenticate to access the MEDITECH FHIR server. Health Gorilla uses the CommonWell issued X.509 certificate to sign the JWT and posts it to the MEDITECH authorization server to register their client.	Health Gorilla	Health Interoperability Platform	HL7 FHIR, UDAP Secure Dynamic Registration, SMART App Launch Framework, OAuth 2.0

[MEDITECH – Part 2] MEDITECH receives a registration request inbound on their FHIR Authorization Server from Health Gorilla. Using the signed JWT, it is able to validate it is from a trusted source, as issued through the CommonWell network, and issues a new client ID. Health Gorilla is then able to use this client ID to request a token from MEDITECH's Authorization server. MEDITECH validates the signed JWT during this request and grants a token to Health Gorilla. Now Health Gorilla can request clinical data via FHIR resources for Oscar.	MEDITECH	Expanse Traverse	UDAP Secure Dynamic Registration, SMART App Launch Framework, OAuth 2.0, US Core FHIR Profiles
[Health Gorilla – Part 2] Once Health Gorilla has their client registered and receives the client ID, they are able to access the MEDITECH FHIR server using the JWT and client ID to request clinical data via FHIR resources. The neurologist is primarily interested in collecting Oscar's medications and labs from his ED visit and incorporating those into his clinical record, so they use Health Gorilla Patient360 to connect to the MEDITECH FHIR server and query for the medications and labs resources. After reviewing and discussing with the neurologist in Buffalo, the neurologist in Baton Rouge uses Health Gorilla's Patient Chart to determine one of Oscar's medications is causing Oscar's low lymphocytes and repeat infections and decides to discontinue the medication. The neurologist recommends a follow-up in six weeks for labs and evaluation.	Health Gorilla	Patient360, Patient Chart	US Core FHIR Profiles
Thanks to the CommonWell services and network, Oscar's providers were able to coordinate his care across thousands of miles as well as different providers, venues of care and health IT systems. All of which resulted in positive health outcomes for Oscar.	CommonWell Health Alliance		

Data exchange standards:

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or receive	Transaction Description
athenahealth	athenaClinicals	EHR	FHIR	HL7	CommonWell Health Alliance REST API	N/A	N/A	Send	Person Enrollment Patient Link
			XCA	IHE ITI	CommonWell Health Alliance Broker	Responding Gateway	ITI-38 ITI-39	Respond	Cross-Gateway Query Cross-Gateway Retrieve
			CDA	HL7	CCDA	N/A	N/A	Create	Content Creator
			ADT	HL7	ADT	N/A	N/A	Receive	Event Notifications
eClinicalWorks	eClinicalWorks	EHR	FHIR	HL7	CommonWell Health Alliance REST API	N/A	N/A	Send	Patient Link
			XCA	IHE ITI	CommonWell Health Alliance Broker	Initiating Gateway	ITI-38 ITI-39	Retrieve	Cross-Gateway Query Cross-Gateway Retrieve
			XCA	IHE ITI	CommonWell Health Alliance Broker	Responding Gateway	ITI-38 ITI-39	Respond	Cross-Gateway Query Cross-Gateway Retrieve
			CDA	HL7	CCDA	N/A	N/A	Create	Content Creator Content Consumer
			ADT	HL7	ADT	N/A	N/A	Receive	Event Notifications
Cerner	PowerChart	EHR	FHIR	HL7	CommonWell Health Alliance REST API	N/A	N/A	Send	Patient Link
			XCA	IHE ITI	CommonWell Health Alliance Broker	Initiating Gateway	ITI-38 ITI-39	Retrieve	Cross-Gateway Query Cross-Gateway Retrieve
			XCA	IHE ITI	CommonWell Health Alliance Broker	Responding Gateway	ITI-38 ITI-39	Respond	Cross-Gateway Query Cross-Gateway Retrieve
				ONC	Direct	Document Sender			Direct Secure Message
			ADT	HL7	ADT	N/A	N/A	Send Receive	Event Notifications

MatrixCare	MatrixCare Home Health and Hospice	Home Health	SMTP	ONC	Direct	Document Recipient			Direct Secure Message
			FHIR	HL7	CommonWell Health Alliance REST API	N/A	N/A	Send	Patient Link
			FHIR	HL7	CommonWell Health Alliance Broker	Initiating Gateway	FHIR Resources	Retrieve	Document Reference and Binary Resources
			XCA	IHE ITI	CommonWell Health Alliance Broker	Responding Gateway	ITI-38 ITI-39	Respond	Cross-Gateway Query Cross-Gateway Retrieve
MEDITECH	Expanse Traverse	EHR	FHIR	HL7	CommonWell Health Alliance REST API	N/A	N/A	Retrieve	Find Documents Retrieve Documents
			API	HL7	UDAP			Respond	Secure dynamic registration
			CDA	HL7	CCDA	N/A	N/A	Create Consume	Content Creator Content Consumer
			ADT	HL7	ADT	N/A	N/A	Send	Patient Provider Notifications
			FHIR	HL7	US Core	N/A	N/A	Respond	US Core FHIR Data Exchange
			API	HL7	SMART App Launch Framework	N/A	N/A	Respond	SMART App Launch Framework
			API	OAuth	OAuth 2.0	N/A	N/A	Respond	OAuth 2.0 Framework
Health Gorilla	Health Gorilla	Connector	FHIR	HL7	CommonWell Health Alliance REST API	N/A	N/A	Send	Patient Link
			FHIR	HL7	UDAP				Secure dynamic registration
			FHIR	HL7	Resource			Respond	