

INTEROPERABILITY SHOWCASE™



Use Case Title: Chronic Diabetic Care Management

Short Description: Fatima presents to the ED via ambulance after confusion with a headache, a heart rate of 126 beats/min, and high glucose readings. She has a history of repeat ED visits for her type 2 diabetes. Fatima was recently in a motor vehicle accident and is wheelchair bound due to a right femur fracture - open reduction and internal fixation. Her surgical incision site looks red and is hot to touch. Fatima stated that she had not felt well for several days due to fever, nausea, and vomiting. She tests negative for COVID-19 and flu. The ED queries the state immunization registry and sees that she does not have her flu shot or second Covid-19 vaccination. Fatima is a professor without family members to help her at home and has difficulty managing her diabetes and foot care. The ED physician sees Fatima is struggling to adjust to her new lifestyle due to her immobility and isolation from the COVID-19 pandemic. She is concerned that the patient will return to the ED without proactive care and orders home treatment. Follow Fatima on her transitions of care journey that incorporates various parts of the healthcare ecosystem using Direct Secure Messaging, HL7® FHIR®, and nationwide clinical data networks.

Value: Patient centric care management across encounters to address medication adherence, Remote patient monitoring

Participating Vendors: Cerner, Brightree, Netsmart, MatrixCare, STC

Scenario	Vendor	Products	Standards
<p>Introduction</p> <p>Hello and welcome to the Chronic Diabetic Care Management Interop Showcase!</p> <p>Today we are going to highlight our patient, Fatima Lee’s encounters as she traverses disparate care locations in which her existing data is accessible to assess her present condition and provide requisite attention. Follow Fatima as she leaves the ED and follows up with home health, care management, home medical equipment, and access to her vaccine status.</p>			

<p>First, the context for our patient: Fatima Lee is a 33-year-old female diagnosed with Type 2 Diabetes. As a college professor who recently relocated to town for the new school year, unfortunately Fatima is struggling on a couple fronts as she adjusts to life away from her extended family.</p>			
<p>Fatima has a history of repeat ED visits specific to managing her chronic disease, and today Fatima arrives in the ED via ambulance confused and stating she has a headache, a recorded heart rate of 126 beats/min, and high glucose readings. Fatima was recently in a motor vehicle accident and is wheelchair bound due to a right femur fracture and her surgical incision site looks red and is hot to touch. Fatima stated that she had not felt well for several days due to fever, nausea, and vomiting.</p> <p>As Fatima’s care team completes her registration, they offer the opportunity to include the names of her care team members. She provides the name of her PCP Dr. Mike Nill and Care Manager - Janet Gibson. In doing so, a Cerner Care Notification is created to provide awareness to both Fatima’s PCP and Care Manager. Behind the scenes this web-based application works in coordination with both Direct Messaging and the Cerner Hub to allow administrators to automatically transmit Admit, Discharge, and Transfer (ADT) events from the acute care venue in a report format that uses the Direct Messaging direct address of informed providers. Cerner Care Notifications also allows you to build and manage recipients identified through information processed by Cerner Hub.</p> <p>Cerner Care Notifications transforms <i>Health Level Seven (HL7)</i> interface transactions into notifications that can be distributed to providers through Direct Messaging and is one option to meet the CMS Final Rule for ADT notification requirement.</p> <p>Upon arrival in the ED, Fatima tests negative for COVID-19 and Flu.</p> <p>Via the PowerChart Outside Records mPage, the ED physician is able to see queries from the state immunization registry and notices that Fatima does not have her flu shot or second COVID-19 vaccination. As her care team learns, Fatima is a professor new to the area and without family members to help her at home and has difficulty managing her diabetes and foot care. The ED physician sees Fatima is struggling to adjust to her new lifestyle due to her immobility and</p>	<p>Cerner</p>	<p>Cerner PowerChart - Outside Records MPage, Cerner Care Notifications</p>	<p>IHE HL7v2 XCA/XCPD DIRECT CCD</p>



<p>isolation and is concerned she will return to the ED without proactive care and orders home treatment.</p> <p>It is determined that a continuous glucose monitor is necessary, and it is included in the encounter CCD as Fatima is discharged. Additionally, a Cerner Care Notification is once again transmitted to Fatima's out of state PCP [Dr. Jones?] and Care Manager. This CCD is also sent to the Matrixcare home health team via Direct message via the Cerner message center. This ED encounter documentation is sent directly to home health via DSM CCD-A for skilled nursing to follow up for disease and medication management as well as physical therapy and occupational therapy to help with her recovery from her car accident.</p> <p>as a referral due to Fatima's chronic condition, it is also available for query and retrieval via the CommonWell record locator service for future use or reference by any connected source.</p> <p>Notification Referral to DME team</p> <p>Cerner Care Notification ADT sent to Care Manager via DSM</p> <p>Automation inside Brightree Referral Management Worklist</p> <p>Ordering Device/Product for HME creating a Sales Order to dispense/deliver to patient</p> <p>The ED encounter note is contributed to CommonWell Health Alliance.</p>			
<p>Home Medical Equipment - Referral Management</p> <p>Fatima has difficulty managing her diabetes. Fatima's lab results and assessment show uncontrolled diabetes. The Emergency Room Ordering Provider orders a Home Continuous Glucose Monitor to help provide data to evaluate the patient and make necessary adjustments during her home treatment. Cerner sends a C-CDA via direct to Brightree. Brightree receives the patient device order in real-time. The HME/DME team receives a referral alert. The referral/order lands in Brightree's Referral Management Worklist. Thanks to Brightree's reconciliation tools and automation, the HME receives all key data to fulfill the home medical equipment for Fatima. Once the device is delivered, the patient is ready to begin home health admission.</p> <p>Brightree's interoperable service will show a DME order via direct secure messaging, pushing a C-</p>	Brightree	Outside HME/DME Order/Referral Brightree Referral Management Solution Sales Order Status and Referral History	DIRECT C-CDA



<p>CDA into Brightree Referral Management Solution. The connectivity between the EHR and Brightree provides the HME to dispense a product securely and offers better patient outcomes.</p>			
<p>Care Coordination</p> <p><u>CareManager</u></p> <p>Janet is Fatima’s care manager assigned by her insurance plan. Janet consistently helps Fatima manage her diabetes and ensures she is taking her medication as prescribed. Fatima and Janet communicate securely through the consumer portal. Janet monitors Fatima’s mental health via online assessments completed through the consumer portal.</p> <p>Today, Janet received ADT alerts that Fatima has been admitted to the ED and then discharged. Janet performs a CareQuality query in CareManager for the ED visit and receives the CCD. Janet saves the CCD which imports the clinical information into Fatima’s chart.</p> <p>Janet creates a task for herself to include objectives and interventions for at-home wound care and social isolation on Fatima’s Plan of Care when they meet next.</p> <p>Janet sends Fatima a secured message to check in with her after her ED visit.</p> <p><u>myHealthPointe</u></p> <p>Fatima is able to manage all information about her care within the consumer health portal, including her medication adherence and daily glucose measures.</p> <p>Fatima has a few different alerts when she logs in:</p> <ol style="list-style-type: none"> 1) A quick survey to check Fatima’s well-being 2) A reminder to take her insulin. Janet will receive notifications when she misses a dose. 3) A follow-up message from Janet about Fatima’s recent ED visit <p>Janet has assigned Fatima educational materials on wound care, diabetes complications, and social isolation.</p>	<p>Netsmart</p>	<p>CareManager</p> <p>CC Inbox,</p> <p>Care Quality,</p> <p>myHealthPointe</p>	<p>DSM</p>



<p>Fatima is encouraged to upload her daily glucose readings using her bluetooth connected glucose monitor and the patient portal app.</p> <p>Any abnormal readings are sent to Janet and she is able to action on the results.</p> <p>High-level of Transactions:</p> <ul style="list-style-type: none"> • CareManager receives ADT alert in CC Inbox • Carequality query for hospital ED visit in CareManager • Save CCD in CareManager • Discuss Patient Access Portal 			
<p>The home health receives the referral via Direct Secure Message C-CDA from Cerner for and is able to parse demographics, allergies, diagnosis, and medications into the system for reconciliation.</p> <p>The nurse assigned to the patient is then able to use the information sent via DSM from Cerner to discuss and reconcile with Fatima in her home. Fatima also receives services for physical therapy and occupational therapy to help with her recovery from the car accident.</p> <p>After 3 weeks of home health care, Fatima is managing her sugars much better, her incision is healed, and she's been cleared and instructed on safe mobility. The case manager for home health discusses her plan with her physician and care manager and she is discharged from home health.</p>	MatrixCare		DSM C-CDA
<p>Fatima'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 of their patients using an exchange of HL7 messages.</p> <p>In addition to viewing the complete patient immunization record, the STChealth 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	STChealth Immunization Registry Platform	HL7 2.5.1

<p>Fatima is able to continuously manage her immunization status through the consumer portal called MyIR. This portal will allow her to not only see what immunizations she has already received but also what immunizations she may be due for or past due on.</p> <p>Additionally, this application allows for Fatima to access her immunization records from any connected jurisdiction and create a full consolidated view of her immunization history as well as a consolidated forecast.</p> <p>This in turn allows for her to share with any of her medical care team so that they always have the most up to date information.</p>	STC	MyIR	HL7 2.5.1
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Data exchange standards:

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
Cerner	Cerner PowerChart - Outside Records MPage, Cerner Care Notifications	Electronic Health Record	HL7	IHE ITI	PCD	Data Query	ITI-21	Send	Consented patient demographics
			HL7	IHE ITI	PCD	Data Retrieval	ITI-21	Receive	Response
			HL7	IHE PCD	PCD	Direct Secure Messaging		Send	Communicate Admit and Discharge notification
MatrixCare	MatrixCare Home Health & Hospice	Electronic Health Record	CCD/HL7	IHE PCC	PCC TF2	COP ADT Alert		Receive	Receive referral via Direct Secure Message C-CDA from Cerner
Brightree	Home Medical Equipment	Referral Management	C-CDA	DIRECT		Direct Secure Messaging		Receive	Receive C-CDA Receive Device Order Alert Response Automation Patient Data Status of Order

Netsmart	Netsmart CareManager, CC Inbox, CareQuality myHealthPointe	Care Coordination	DIRECT SMTP XML	IHE-ITI	XDR, XCA, XCPD	Direct Secure Messaging	ITI-38, ITI-39, ITI-55, SMTP	Both	Receive ADT alerts via secure messaging, Query Carequality, Secure messaging on consumer portal
STChealth	Immunization Registry Platform	Immunization Registry (IIS)	HL7 2.5.1	VXU, ACK, QBP	HL7 2.5.1	Immunization Registry	VXU, ACK, QBP	Both	Immunization information is stored in the Registry and can be queried by connected systems
STChealth	Consumer Application	Consumer Vaccination Record	HL7 2.5.1	QBP	HL7 2.5.1	Consumer Application	QBP	Both	Consumer can view their vaccination record on their device

References:

IHE Patient Care Device (PCD)

https://www.ihe.net/uploadedFiles/Documents/PCD/IHE_PCD_TF_Vol1.pdf

HL7 V 2.5.1

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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https://www.ihe.net/uploadedFiles/Documents/PCC/IHE_PCC_TF_Vol2.pdf