

Use Case Title: Assembling the Lifetime Patient Record

Short Description:

Mrs. Jones is a 69-year-old Medicare beneficiary who used to be on Medicaid and more recently fee-for-service Medicare and now has just joined a Medicare advantage plan. Her health plan offers her an innovative app available via mobile phone or web that lets her aggregate her data from CMS fee for service, her old Medicaid provider, and her local tertiary care hospital and independent primary care practice. Her health plan uses these records to identify that she is caught up on her colonoscopy and diabetes care, while her congestive heart failure (CHF) was identified as something to monitor more closely. Her health plan also offers Mrs. Jones a wearable device to help manage and track her congestive heart failure at home while the plan's care team provides personalized care that is informed by her telehealth encounters with their national telehealth provider. Mrs. Jones accepts an invite to participate in a diabetes research study conducted by a partnering academic health center and uses the app to permit sharing her aggregated health records with the research team. With real world data and participant reported outcomes from people like Mrs. Jones, the research institution's big data / machine learning team uses their aggregated longitudinal real world evidence dataset to uncover new insights about what is most effective in improving patient engagement with their oral hypoglycemic regimen. Overall, this demo shows the benefit of inferring a lifetime person record by assembling claims, EHR, social determinants of health, wearable, and at-home care data for health care organizations committed to innovative patient centered care.

Value Statement: A lifetime medical record using patient-mediated access to provider, claims and wearable data increases individual control and convenience, enhances personalized care, and improves trial participation and results with real world evidence.

Participating Organizations: CareEvolution, i2i, Scripps Research

Demographics:

Header	Field	Value
Demographics		
	First Name	Mary
	Last Name	Jones
	Date of Birth	2/21/56
	Sex	Female
	Race	Caucasian
	Address	100 North Cherry Street
		Newark, NJ 07101
	Telephone	425-555-1212
Allergies	Allergies	Sulfa
Social History	Smoking Status	Never

Scenario	Vendor	Product	Standards
Mrs. Jones is a 69-year-old Medicare beneficiary who used to be on Medicaid and more recently fee-for-service Medicare and now has just joined a Medicare advantage plan. Her health plan offers her an innovative app available via mobile phone or web that enables her to aggregate her data from multiple sources and determine what services may be helpful for her care. She decides to download the mobile app from the health plan portal.	CareEvolution	MyDataHelps	
After downloading the app, Mrs. Jones enrolls and consents to share data with her Healthplan. She sees reminders to connect her data to her account and then chooses the provider from	I2iPophealth	i2iTracks	i2i (as hospital) uses PIX/XDS to push CCD A about patient admission to CareEvolution HIE

<p>various available sources which she can connect to her record. Mrs. Jones connects to her local health information exchange (HIE), CMS, and physician office to access a comprehensive and longitudinal representation of her healthcare. Although this request is quite straight forward for her, she is benefiting from significant integration and interoperability behind the scenes. Her first request is to her local health information exchange which eventually may become a QHIN connecting her to data across the country. A couple of months ago her HIE gathered information about her emergency room visit at a local hospital for CHF. After that visit, the hospital provided visit information to the HIE about her admission.</p>			
<p>In addition to information about her hospitalization the HIE has also previously collected information about her social determinants of health from FindHelp.org and recent telehealth visits from American Well. All this information is then provided to the patient's account in MyDataHelps when she requests her data from the HIE</p>	CareEvolution	HIEBUS and MyDataHelps	SMART on FHIR to transfer data between HIE and the Patient's MyDataHelps App Account
<p>After connecting to her HIE, Mrs. Jones connect her doctor's office to her account to bring in information from her visits with her physician who is not a member of the HIE</p>	CareEvolution	MyDataHelps	SMART on FHIR
<p>Mrs. Jones physician's office responds to request for information by Mrs. Jones</p>	i2iPophealth	i2iTracks	I2i (as physician practice) responds to SMART on FHIR request and provides information to CareEvolution MyDataHelps
<p>Mrs. Jones then connects to CMS to obtain her claims history for the 4 years prior to joining her new health plan.</p>	CareEvolution/CMS	MyDataHelps/CM S portal	MyDataHelps use SMART on FHIR/BlueButton 2.0 to retrieve data from CMS (via CMS BB Sandbox)
<p>After connecting all these data sources Mrs. Jones can see a comprehensive health and wellness dashboard of all her information standardized and organized for her review</p>	CareEvolution	MyDataHelps	deduplication, normalization (Labs → LOINC, Meds → RxNorm, Diagnoses → ICD10) and display of data received via

			SMART on FHIR from both HIE and specific sources
Based on her consent her Healthplan receives her data and uses it to determine that she is caught up on her colonoscopy and diabetes care	CareEvolution representing Health Plan	Broadview	Healthplan uses FHIR Bulk Import/Export of aggregated patient data
Additionally, based on her history, the health plan recommends that she enrolls in an at home CHF program and qualifies for a diabetes trial they are collaborating on with their academic partner, Scripps Research.	Scripps	MyDataHelps API post	Healthplan uses FHIR Bulk Import/Export of aggregated patient data
Scripps Research invites Mrs. Jones to join the Type II diabetes glycemic response study. Mrs. Jones receives a continuous glucose monitor and a wearable to track her activity, nutrition, and glycemic response which leverage industry standard Healthkit, Fitbit, and Google Health standards for wearable data. Mrs. Jones connects to the devices and completes the FHIR questionnaire-based surveys	Apple/Google	Apple Health/Fitbit	Healthkit, Google Health, and Fitbit standards for wearable data
On an ongoing basis Scripps Research receives study data in OMOP and FHIR standards which is leveraged by their big data team to perform research	Scripps	Tableau	Export FHIR/OMOP data from CareEvolution to import by Scripps

Data Exchange Standards:

Vendor	Product	Category	Protocol	Interop Body	Interop Profile	Interop Actor	Interop Message	Send or Receive	Transaction Description
CareEvolution	Orchestrate	HIE	ebXML	IHE (ITI)	PIX, XDS.b	PIX Manager, Document Registry, Repository	ITI-8, ITI-41	Receive	PIX Patient Identity Feed, XDS.b Provide and Register Document Set-b

			CDA	HL7 v3	CCDA R2.1	Content Consumer	N/A	Receive	Create Continuity of Care Document (CCD)
			REST	HL7 FHIR	SMART on FHIR	Server	N/A	Respond	SMART on FHIR in order to transfer data from HIE to the Patient's MyDataHelps App Account
i2i	i2iTracks	Physician Office	REST	HL7 FHIR	SMART on FHIR	Server	N/A	Send	Support Patient Mediated FHIR Exchange via API
	i2iTracks	Hospital EMR	ebXML	IHE (ITI)	PIX, XDS.b	PIX Source, Document Source	ITI-8, ITI-41	Receive	PIX Patient Identity Feed, XDS.b Provide and Register Document Set-b to HIE
	i2iTracks		CDA	HL7 v3	CCDA R2.1	Content Creator	N/A	Receive	Create Continuity of Care Document (CCD)
CareEvolution	MyDataHelps	Patient Portal	REST	HL7 FHIR	Blue Button 2.0	Client	N/A	Receive	FHIR queries from the App to CMS Blue Button 2.0 API to retrieve history based on Claims
			REST	HL7 FHIR	SMART on FHIR	Client	N/A	Receive	FHIR queries from App to the FHIR API endpoint of the Provider clinic
			OMOP	OHDSI	OMOP CDM 5.4			Send	CareEvolution sends OMOP output to Scripts
			Apple Healthkit	Apple Health		Client	NA	Receive	CareEvolution Receives Glucose Values via Apple Health Kit

Scripps	Tableau	Analytics Platform	OMOP	OHDSI	OMOP CDM 5.4			Receive	Scripps Receives OMOP input and views with Tableau
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White Paper
