



# PACIO-eLTSS Post-Acute Care Transition Summary Track

Report Out  
May 15, 2020



# Agenda

1. Background
2. Purpose of this track
3. Use case description and diagram
4. System diagram
5. Scene-by-scene screen captures
6. What went well
7. Challenges



# Background: CMS Assessments

Post-acute care (PAC) providers are required to complete and submit assessments at specified intervals. The assessment instruments that collect this data are:

- Long-Term Care Hospital CARE Data Set (LCDS) for LTCHs
- Minimum Data Set (MDS) for SNFs
- Outcome and Assessment Information Set (OASIS) for HHAs
- Inpatient Rehabilitation Facility Patient Assessment Instrument (IRF PAI) for IRFs
- Functional Assessment Standardized Items (FASI) for HCBS

In support of the 2014 Improving Medicare Post-Acute Care Transformation Act (IMPACT Act), CMS created the [Data Element Library \(DEL\)](#) to support standardization and interoperability of patient assessment data elements. The DEL is the centralized resource for CMS assessment instrument data elements (e.g. questions and responses) and their associated health information technology (IT) standards

CMS prioritized cognitive and functional status as an area of clinical importance in need of standardization

<sup>1</sup> <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Post-Acute-Care-Quality-Initiatives/IMPACT-Act-of-2014/IMPACT-Act-of-2014-Data-Standardization-and-Cross-Setting-Measures>



# Purpose of This Track

1. Test integration of CMS assessment data elements from the Data Element Library (DEL) into health IT systems using FHIR APIs.
2. Exchange patient level cognitive and functional status data between two disparate health IT (HIT) systems, incorporated with electronic Long-Term Services and Support (eLTSS) care plan and patient goals data, in a consumable format for clinicians, patients, and family members.



# Participants

## Organizations

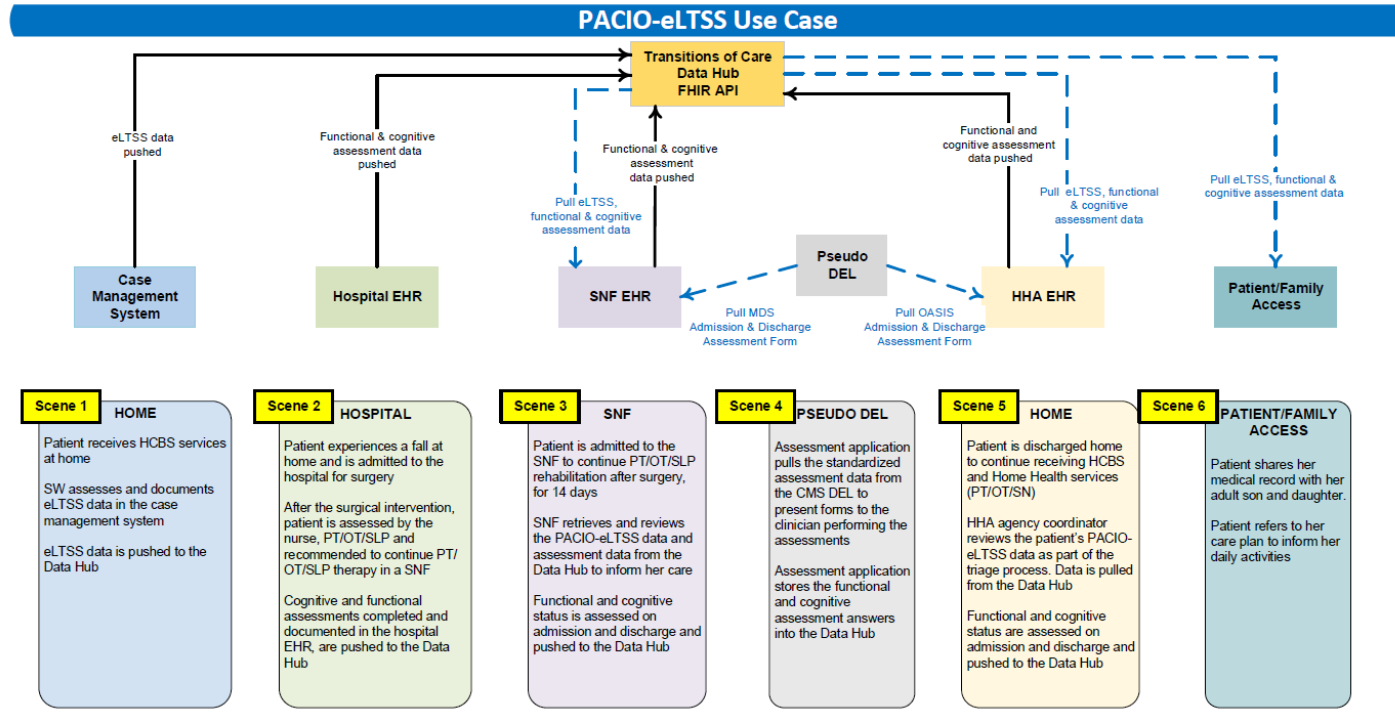
- Altarum
- MITRE
- Patient Centric Solutions

## Track Leads

- Ty Mullen, [tmullen@mitre.org](mailto:tmullen@mitre.org)
- Siama Rizvi, [rizvi@mitre.org](mailto:rizvi@mitre.org)
- Sean Mahoney,  
[smahoney@mitre.org](mailto:smahoney@mitre.org)
- Dave Hill, [dwhill@mitre.org](mailto:dwhill@mitre.org)



# Use Case Diagram



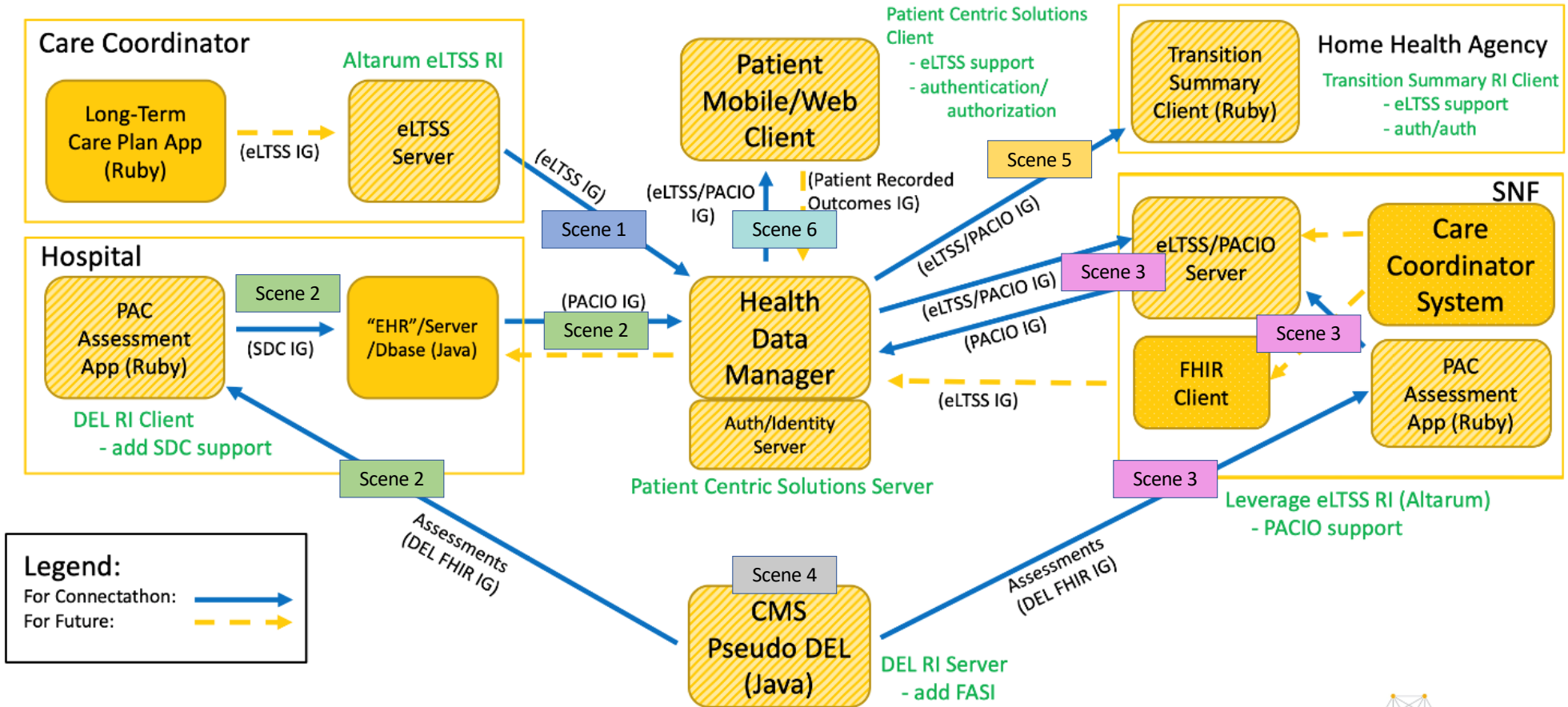
ACRONYMS			
HCBS	Home and Community Based Services	SW	Social Worker
SNF	Skilled Nursing Facility	SN	Skilled Nursing
HHA	Home Health Agency	EHR	Electronic Health Record
PT/OT/SLP	Physical Therapy/Occupational Therapy/ Speech Language Pathology	CMS DEL	Centers for Medicare and Medicaid Services Data Element Library

Last Updated 4/24/20





# System Diagram





# Scene 1 Screen Capture

Ms. Betsy Smith Johnson receives home community-based services (HCBS) services at home. A social worker documents eLTSS data including care plan and goals. eLTSS data is pushed to the Data Hub.

## Server

```
{
  "name": "Betsy Smith-Johnson",
  "family": "Smith-Johnson",
  "given": "Betsy",
  "telecom": [
    {
      "system": "phone",
      "value": "(210)222-1111",
      "use": "mobile"
    }
  ],
  "gender": "female",
  "birthdate": "1950-11-01",
  "address": [
    {
      "line": "111 Maple Ct",
      "city": "San Antonio",
      "state": "TX",
      "postalCode": "78212"
    }
  ]
}
```

## Viewer

## Push to Data Hub

```
curl -X POST -H "Content-Type: application/json" --data-binary '{"name": "Betsy Smith-Johnson", "family": "Smith-Johnson", "given": "Betsy", "telecom": [{"system": "phone", "value": "(210)222-1111", "use": "mobile"}], "gender": "female", "birthdate": "1950-11-01", "address": [{"line": "111 Maple Ct", "city": "San Antonio", "state": "TX", "postalCode": "78212"}]}'
```

**Name:** Betsy Smith-Johnson  
**ID:** patientBSJ1  
**Phone:** (210)222-1111  
**Gender:** female  
**Birthdate:** 1950-11-01  
**Address:** 111 Maple Ct, San Antonio, TX 78212



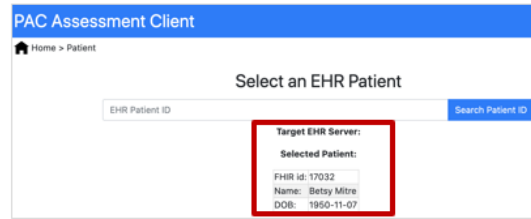


# Scene 2 Screen Capture

Betsy experiences a fall at home and is admitted to the hospital for surgery. After the surgical intervention, Betsy is assessed by physical, occupational & speech language pathology therapists (PT/OT/SLP) and is recommended to continue her therapy in a skilled nursing facility (SNF). Cognitive and functional assessments completed and documented in the hospital EHR are pushed to the Data Hub.

Selects the EHR Patient for the PAC Assessment

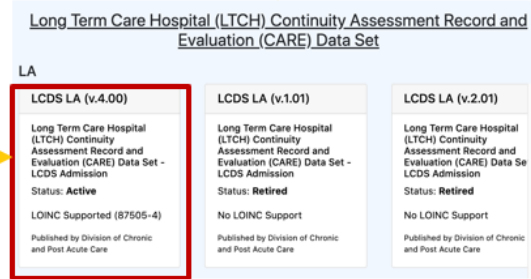
### 1. Select EHR Patient



Queries the pseudo-DEL for the list of available PAC Assessments

Converts the completed PAC Assessment QuestionnaireResponse to Structured Data Capture (SDC)

### 2. Select PAC Assessment



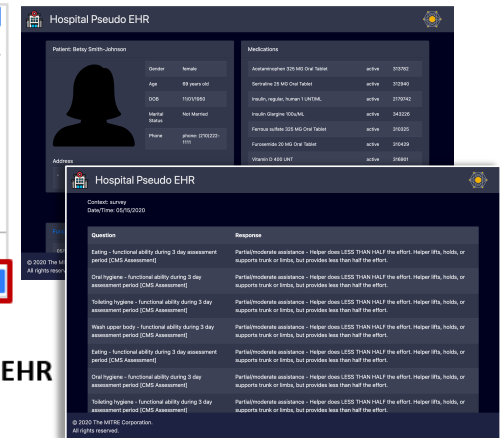
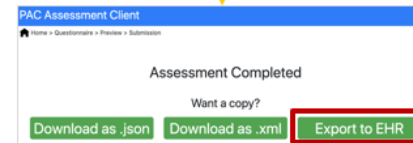
Sends the converted SDC QuestionnaireResponse to the EHR



### 3. Complete and review PAC Assessment



### 4. Submit to EHR



FHIR CREATE  
SDCQuestionnaireResponse





# Scene 3 Screen Capture

Betsy is admitted to the SNF for PT/OT/SLP services for 14 days. The SNF retrieves the eLTSS data and assessment data from the Data Manager to inform her care. Functional and cognitive status is assessed on admission and discharge and pushed to the Data Hub.

**Transitions of Care** HOME CONTACT US

Patient Demographics **Betsy Smith-Johnson**

**Medications**

Medication	Dose	Instruction
Acetaminophen 325 MG Oral Tablet	325 MG	Take Very 6 Hours Or As Needed
Sertraline 25 MG Oral Tablet	25 MG	Take Nightly
Insulin, Regular, Human 1 UNT/ML	3 ML	Take 3 MI With Each Meal
Insulin Glargine 100u/ML	0.24 ML	Take 0.24 MI SQ Nightly
Ferrous Sulfate 325 MG Oral Tablet	325 MG	Take Three Times A Day Prior To Meals
Furosemide 20 MG Oral Tablet	20 MG	Take Daily
Vitamin D 400 UNT	400 UNT	Take 2 Tabs Daily
Calcium Carbonate 500 MG Oral Tablet	500 MG	Take Daily

**Transitions of Care** HOME CONTACT US

Patient Demographics **Betsy Smith-Johnson**

**Conditions**

Condition	Onset Date	Clinical Status
Diabetes Mellitus Type 2 (Disorder)	2020-01-03	Active
Osteoarthritis (Disorder)	2020-01-01	Active
Bilateral Cataracts (Disorder)	2019-10-12	Active
Chronic Depression (Disorder)	2018-05-07	Active
Ischemic Heart Disease (Disorder)	2016-04-08	Active
Chronic Kidney Disease Stage 3 (Disorder)	2016-03-20	Active
Hyperlipidemia (Disorder)	2015-05-27	Active

**Transitions of Care** HOME CONTACT US

Patient Demographics **Betsy Smith-Johnson**

**Assessments**

Care Plan	Category	Start Date	End Date	Status
Careplan2	Assess Plan			Active
Betsy Smith Johnson's Services And Supports Plan	Assess Plan	05/01/2020	12/31/2020	Active

**Description:** A service and support plan that outlines Betsy's assessed needs, goals, strengths, preferences, and services/providers to meet those needs and goals.

**Intent:** Plan

**Author:** Mark Planner, phone: (210) 555 1221

**Funding Source:** Texas Department of Community Health  
7430 Louis Pasteur Dr, San Antonio, TX 78229

**Strengths:**

- Description:** Able to manage her bills.
- Independent walking with cane.

**Preferences:**

- Description:** Accessing the ICWP Waiver for her current service needs, and would like to remain on ICWP and continue with her current services.

**Goals:**

Description	Lifecycle Status	Plan
Improve balance skills	Accepted	Perform exercises to improve balance skills
Dance at son's upcoming wedding	Accepted	Work on mobility to dance at son's upcoming wedding

**Addresses:**

Description	Clinical Status	Verification Status	Categories
Needs transportation	Active	Confirmed	Assessed Need
Needs health / nutrition education for diabetes	Active	Confirmed	Assessed Need

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**COMPANY NAME**

YOUR SAMPLE TEXT HERE

This server provides a complete implementation of the FHIR Specification using a 100% open source. This is not a Secure Server. Please do not store other than TEST Data.

This server is built from a number of modules of the HAPI FHIR project, which is a 100% open source specification.

It includes:

- HAPI-FHIR-JPASESERVER 4.2.0
- FHIR R4 4.0.1
- FHIR US Core Implementation Guide STU3 Release 3.1.0 Published 20191106
- Electronic Long-Term Services and Supports (eLTSS) Release 1 - US Realm 20190912
- PACIO Cognitive Status Implementation Guide 0.1.0 - CI Build 20200504
- PACIO Functional Status Implementation Guide - 0.1.0 - CI Build 20200504

Server: HAPI FHIR R4 Server  
Software: HAPI FHIR Server - 4.2.0  
FHIR Base: <https://fhirconnect.altarum.org/hapi-fhir-jpase-server-pacio-SNF/fhir/>

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FHIR Base: <https://fhirconnect.altarum.org/hapi-fhir-jpase-server-pacio-SNF/fhir/>

Resources:

- Observation: 222
- Practitioner: 60
- SearchParameter: 64
- Organization: 67
- Location: 60
- StructureDefinition: 60

**ALTARUM FHIR VUHR**

Home Patient Search Admin

Patient Viewer **Betsy Smith-Johnson**

Records found: 88

▼ Patient: 1

**Name:** Betsy Smith-Johnson  
**ID:** patientBSJ1  
**Phone:** (210)222-1111  
**Gender:** female  
**Birthdate:** 1950-11-01  
**Address:** 111 Maple Ct, San Antonio, TX  
Link: <https://fhirconnect.altarum.org/hapi-fhir-jpase-server-pacio-SNF/fhir/>

**ALTARUM**

Home Patient Search Admin

**Betsy Smith Johnson's Services and Supports Plan**

A service and support plan that outlines Betsy's assessed needs, goals, strengths, preferences, and services/providers to meet those needs and goals.

**ID:** careplan1  
**Period:** 2020-05-01 - 2020-12-31  
**Status:** active

**Author:**

**Name:** Mark Planner  
**ID:** planner1  
**Phone:** (210) 555 1221

Link: <https://fhirconnect.altarum.org/hapi-fhir-jpase-server-pacio-SNF/fhir/Pr/Observation/28>

**Addresses:**

**ID:** need1  
**Status:** active  
**Verification:** confirmed

**Conditions:** List of assessment representation (fhir/us)

**ALTARUM**

Home Patient Search

▼ Observation: 28

**ID:** Connectionathon-Assessment-CS-Hospital-MOCA  
**Observation:** Montreal Cognitive Assessment [MoCA]  
Link: <https://fhirconnect.altarum.org/hapi-fhir-jpase-server-pacio-SNF/fhir/Pr/Observation/28>






# Scene 4 Screen Capture

The assessment application pulls the standardized assessment data from the CMS DEL and presents forms to the clinician performing the assessments.

**SNF Pseudo EHR**

Patient: Betsy Smith-Johnson



Gender	female
Age	69 years old
DOB	11/01/1950
Marital Status	Not Married
Phone	phone: (210)222-1111

Address

111 Maple Ct  
San Antonio, TX 78212

**Medications**

Acetaminophen 325 MG Oral Tablet	active	313782
Sertraline 25 MG Oral Tablet	active	312940
Insulin, regular, human 1 UNT/ML	active	2179742
Insulin Glargine 100u/ML	active	343226
Ferrous sulfate 325 MG Oral Tablet	active	310325
Furosemide 20 MG Oral Tablet	active	310429
Vitamin D 400 UNT	active	316901
Calcium Carbonate 500 MG Oral Tablet	active	318076
Atorvastatin 40 MG Oral Tablet	active	617311
Lisinopril 10 MG Oral Tablet	active	314076

**Functional Status**

05/15/2020 [Mobility - discharge performance during 3 day assessment](#)

**Cognitive Status**

05/15/2020 [Signs and symptoms of delirium \(from CAM\)](#)

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**SNF Pseudo EHR**

Context: survey  
Date/Time: 05/15/2020

Question	Response
Is there evidence of an acute change in mental status from the patient's baseline during 3 day assessment period [CMS Assessment]	No
Did the (abnormal) behavior fluctuate during the day, that is, tend to come and go or increase and decrease in severity during 3 day assessment period [CMS Assessment]	No
Did the patient have difficulty focusing attention, for example, being easily distractible or having difficulty keeping track of what was being said during 3 day assessment period [CMS Assessment]	No
Was the patient's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject during 3 day assessment period [CMS Assessment]	No

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# Scene 5 Screen Capture

After 14 days, Betsy is ready for discharge back home. The HHA agency coordinator reviews the patient's data from the Data Manager as part of the triage process.

**Transfer Summary**

**Patient: Betsy Smith-Johnson**



**Gender:** female  
**Age:** 69 years old  
**DOB:** 11/01/1950  
**Marital Status:** Not Married  
**Phone:** phones: (210)222-1111

**Address:**  
111 Maple Ct.  
San Antonio, TX 78212

**Medications**

Acetaminophen 325 MG Oral Tablet	active	313782
Sertraline 25 MG Oral Tablet	active	312940
Insulin, regular, human 1 UNT/ML	active	2179742
Insulin Glargine 100u/ML	active	343226
Ferrous sulfate 325 MG Oral Tablet	active	310325
Furosemide 20 MG Oral Tablet	active	310429
Vitamin D 400 UNT	active	316901
Calcium Carbonate 500 MG Oral Tablet	active	318076
Atorvastatin 40 MG Oral Tablet	active	617311
Lisinopril 10 MG Oral Tablet	active	314076

**Betsy Smith Johnson's Services and Supports Plan**

**Patient:** Betsy PatientShare

**Description:** A service and support plan that outlines Betsy's assessed needs, goals, strengths, preferences, and services/providers to meet those needs and goals.

**Time Period:** 05/01/2020 - 12/31/2020

**Status:** active

**Intent:** plan

**Conditions**

- Needs transportation
- Needs health / nutrition education for diabetes
- Depression (on treatment)

**Goals**

- Improve balance skills
- Dance at son's upcoming wedding

**Functional Status**

05/13/2020	Mobility - discharge performance during 3 day assessment period [CMS Assessment]
05/13/2020	Self-care - discharge performance [CMS Assessment]
04/23/2020	Self-Care - Discharge Performance
04/09/2020	Self-Care - Admission Performance
04/09/2020	Self-Care - Discharge Performance
04/02/2020	Self-Care - Admission Performance
04/24/2020	Self-Care - Admission Performance
05/01/2020	Self-Care - Discharge Performance

**Cognitive Status**

05/13/2020	Signs and symptoms of delirium (from CAM)
05/13/2020	Signs and symptoms of delirium (from CAM)
05/13/2020	Signs and symptoms of delirium (from CAM)
05/13/2020	Signs and symptoms of delirium (from CAM)
05/13/2020	Signs and symptoms of delirium (from CAM)
05/13/2020	Signs and symptoms of delirium (from CAM)
04/09/2020	Resident Mood Interview (PHQ-9)
04/09/2020	Brief Interview for Mental Status (BIMS)

**Activities**

- Perform exercises to improve balance skills
- Work on mobility to dance at son's upcoming wedding

**Supporting info**

strength	Able to manage her bills.
strength	Independent walking with cane.



# Scene 6 Screen Capture

While at home, Betsy and her authorized family caregiver access the eLTSS data and assessment data through a patient mobile/web application.

**PatientShare** HOME

**Betsy Smith-Johnson**

- Condition**
  - ▶ Diabetes Mellitus Type 2 (Disorder) 2020-01-03 Active
  - ▶ Osteoarthritis (Disorder) 2020-01-01 Active
  - ▶ Bilateral Cataracts (Disorder) 2019-10-12 Active
  - ▶ Chronic Depression (Disorder) 2018-05-07 Active
  - ▶ Ischemic Heart Disease (Disorder) 2016-04-08 Active
  - ▶ Chronic Kidney Disease Stage 3 (Disorder) 2016-03-20 Active
  - ▶ Hyperlipidemia (Disorder) 2015-05-27 Active
  - ▶ Hypertensive Disorder, Systemic Arterial (Disorder) 2015-02-12 Active
- Assessed Need**
  - ▶ Depression (On Treatment) Active
  - ▶ Needs Health / Nutrition Education For Diabetes Active
  - ▶ Needs Transportation Active

**Navigation:** Patient Demographics, Medications, Allergies, Immunizations, Vital Signs, Conditions, Lab Results, Assessments

**PatientShare**

B I, Betsy Smith Johnson, authorize

To disclose my information to  
PatientShare Charles Johnson

**Medical Information**  
Select how you would like to share your medical information

- SHARE ALL information in my medical Record
- SHARE SPECIFIC medical data sets

**Consent Term**  
Enter a start and end date during which your medical data will be shared

Consent Start: 13 May 2020  
Consent End: 12 May 2021

**Status**  
This consent is Active.

**Consents for Betsy Smith Johnson**

SHARED WITH	ORGANIZATION	START DATE	END DATE	STATUS	EDIT	RE-SEND	REVOKE
Charles Johnson		05/13/2020	05/12/2021	Active	<input type="button" value="EDIT"/>	<input type="button" value="RE-SEND"/>	<input type="button" value="REVOKE"/>
Debra Johnson		05/13/2020	05/12/2021	Active	<input type="button" value="EDIT"/>	<input type="button" value="RE-SEND"/>	<input type="button" value="REVOKE"/>
Dr Erica Physician	Holistic Care	05/13/2020	10/31/2020	Active	<input type="button" value="EDIT"/>	<input type="button" value="RE-SEND"/>	<input type="button" value="REVOKE"/>

**Navigation:** My Medical Data, Consents, Transparency, Care Team, LOGOUT



# What Went Well

- Patient Centric Solutions' and MITRE's client was able to get PACIO and eLTSS data from the Altarum server first time with no prior integration work
  - That is a testament to the interoperability of the eLTSS and PACIO IGs



# Challenges

- Assessment data coming from Pseudo-DEL sometimes does not contain LOINC codes for answers
  - Requires an additional mapping step to work with PACIO resources, which require LOINC codes



The PACIO Project is a collaborative effort to advance interoperable health data exchange between post-acute care (PAC) and other providers, patients, and key stakeholders across health care and to promote health data exchange in collaboration with policy makers, standards organizations, and industry through a consensus-based approach.

Learn and share more about the PACIO Project at  
[www.PACIOproject.org](http://www.PACIOproject.org)

