



eLTSS Testing at HL7 Connectathon 25

Initial Report Out

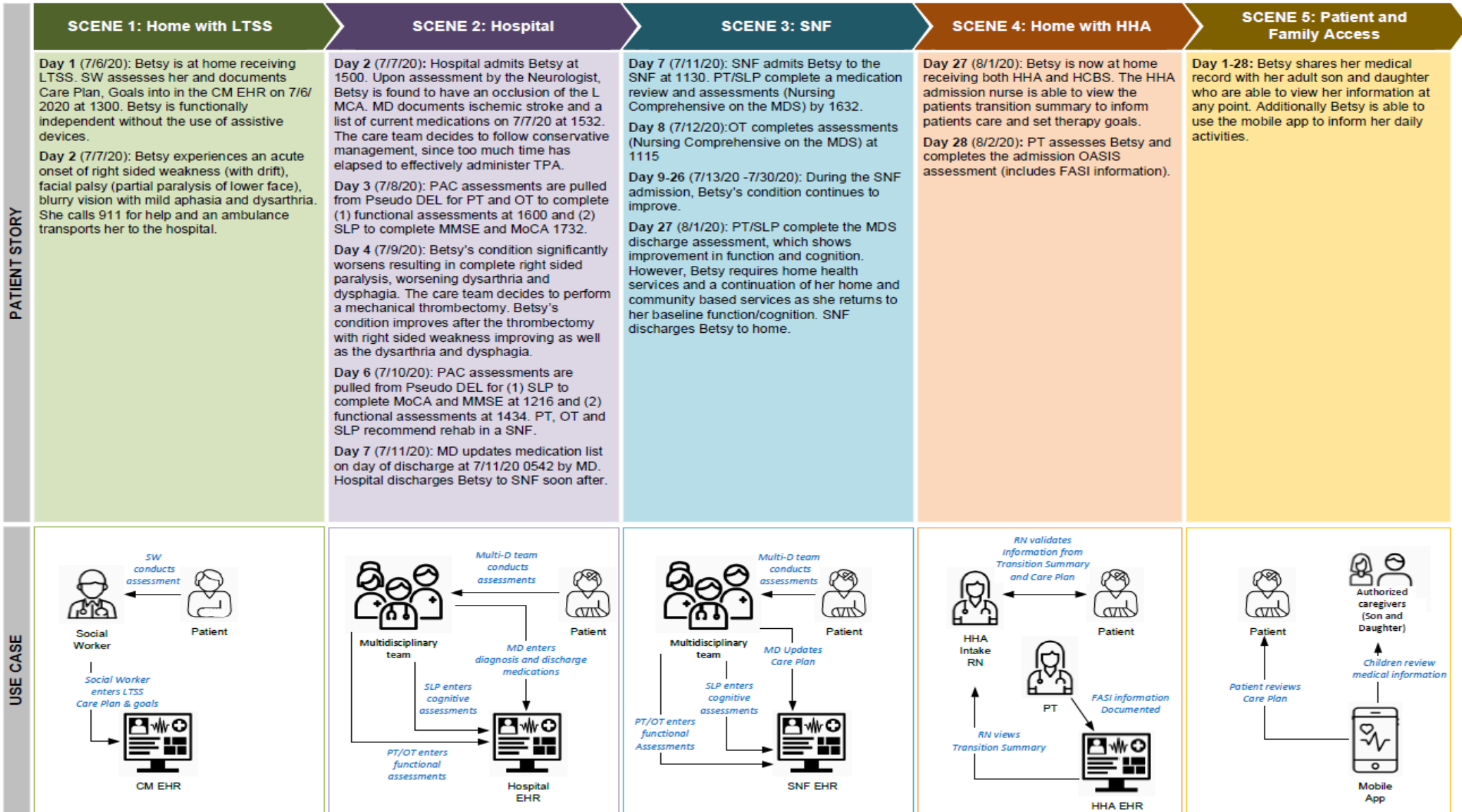
Agenda

1. Purpose of eLTSS Testing
2. PACIO-eLTSS Track Use Case
3. Pacio-eLTSS Testing Architecture
4. Scene 1
5. Scene 2
6. Scene 3
7. Scene 4
8. Scene 5
9. Outcomes
10. Lessons Learned
11. Acknowledgements

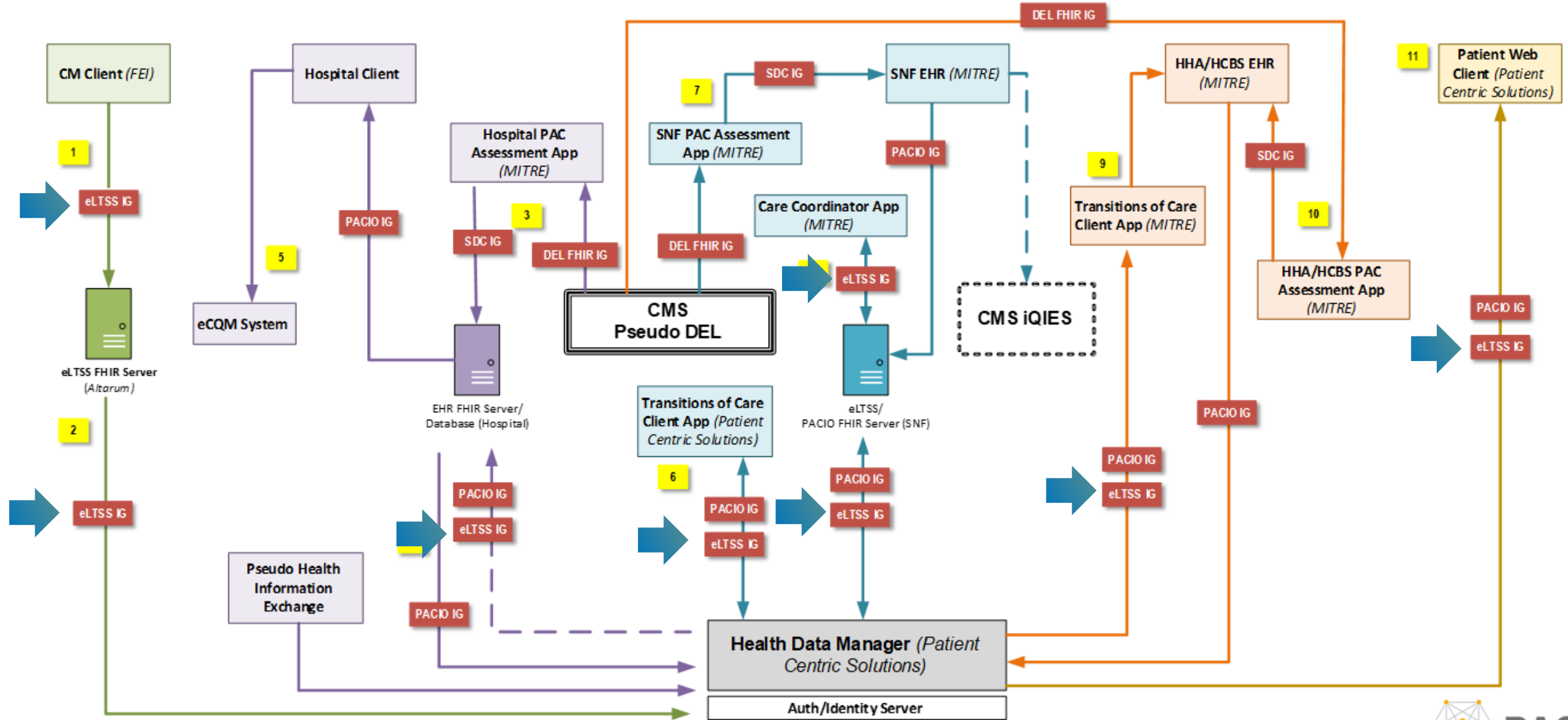
Purpose of eLTSS Testing

- Implement and test the eLTSS FHIR IG within a variety of independently developed systems
- Integrate the eLTSS IG with a production case management system and share data from that system with an independent server
- Utilize the eLTSS IG in conjunction with other FHIR IGs to support the aggregation of data
- Exchange eLTSS care plans among disparate health IT (HIT) systems and clients, and display care plans in a consumable format for care providers, beneficiaries, and family members
- Dynamically update eLTSS Care Plan data and share that update among systems

PACIO-eLTSS Use Case

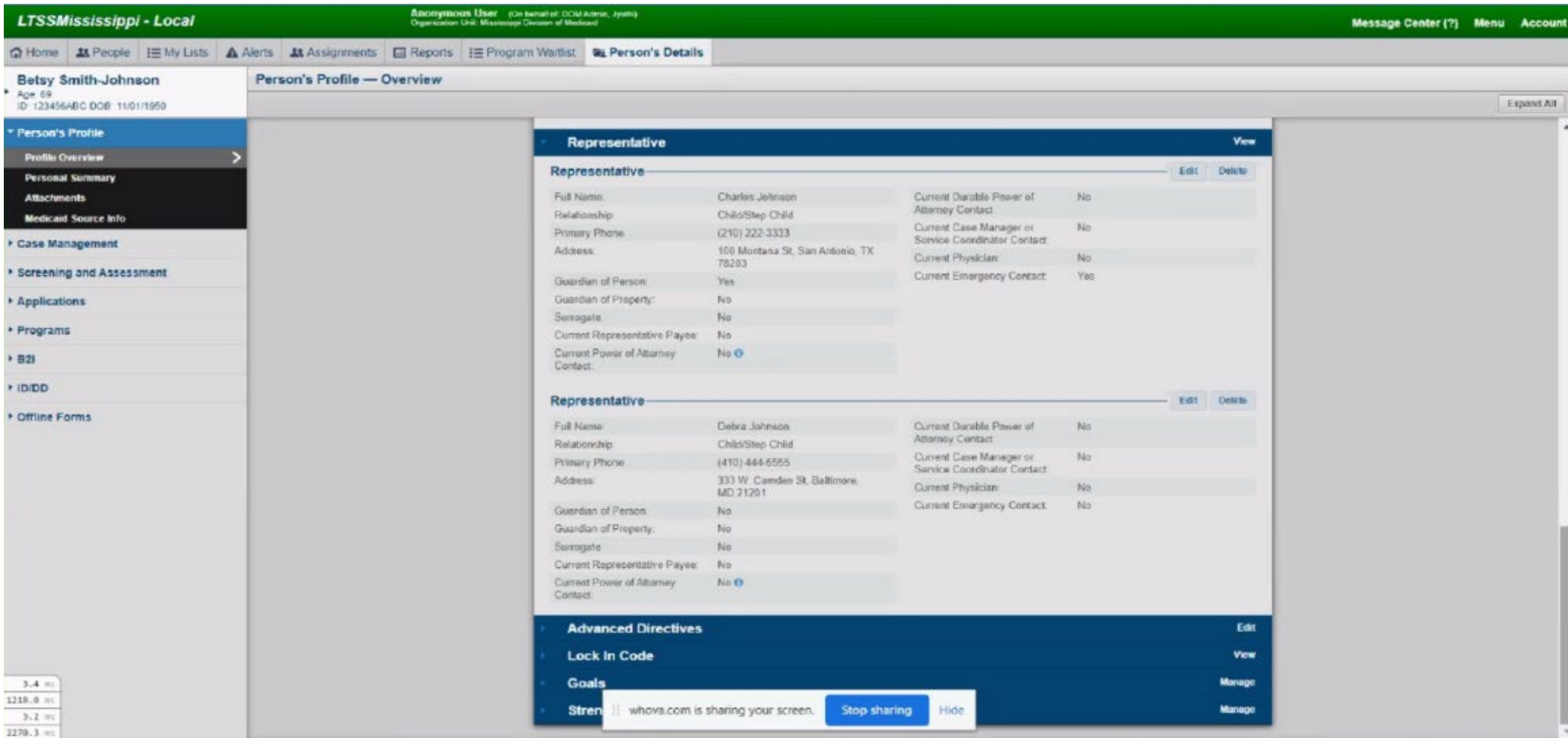


PACIO-eLTSS Track Testing Architecture



Scene 1 FEI Blue Compass Data Entry

Ms. Betsy Smith Johnson receives home community-based services (HCBS) services at home. A social worker documents eLTSS data, including care plan and goals in FEI's Blue Compass Mississippi system.



LTSSMississippi - Local Anonymous User (On behalf of: DDM Admin, Jyoti) Organization Unit: Mississippi Division of Medicaid Message Center (7) Menu Account

Home People My Lists Alerts Assignments Reports Program Waitlist **Person's Details**

Betsy Smith-Johnson
Age: 69
ID: 123456ABC DOB: 11/01/1950

Person's Profile — Overview Expand All

- Person's Profile
 - Profile Overview
 - Personal Summary
 - Attachments
 - Medicaid Source Info
- Case Management
- Screening and Assessment
- Applications
- Programs
- B2I
- ID/DD
- Offline Forms

Representative View

Representative Edit Delete

Full Name:	Charles Johnson	Current Durable Power of Attorney Contact:	No
Relationship:	Child/Step Child	Current Case Manager or Service Coordinator Contact:	No
Primary Phone:	(210) 222-3333	Current Physician:	No
Address:	100 Montana St, San Antonio, TX 78203	Current Emergency Contact:	Yes
Guardian of Person:	Yes		
Guardian of Property:	No		
Surrogate:	No		
Current Representative Payee:	No		
Current Power of Attorney Contact:	No		

Representative Edit Delete

Full Name:	Debra Johnson	Current Durable Power of Attorney Contact:	No
Relationship:	Child/Step Child	Current Case Manager or Service Coordinator Contact:	No
Primary Phone:	(410) 444-6555	Current Physician:	No
Address:	333 W Camden St, Baltimore, MD 21201	Current Emergency Contact:	No
Guardian of Person:	No		
Guardian of Property:	No		
Surrogate:	No		
Current Representative Payee:	No		
Current Power of Attorney Contact:	No		

Advanced Directives Edit

Lock In Code View

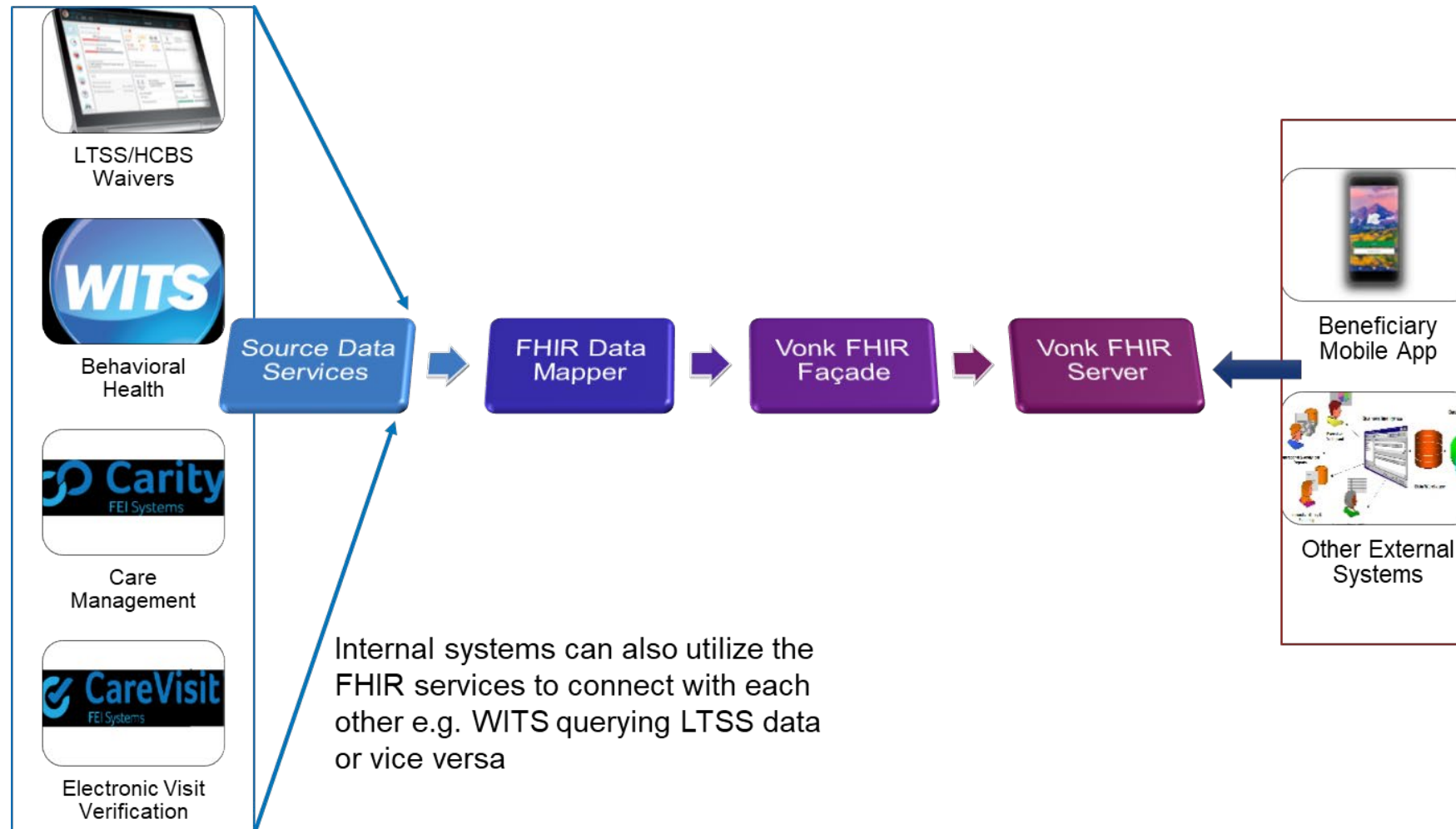
Goals Manage

Strengths Manage

whova.com is sharing your screen. Stop sharing Hide

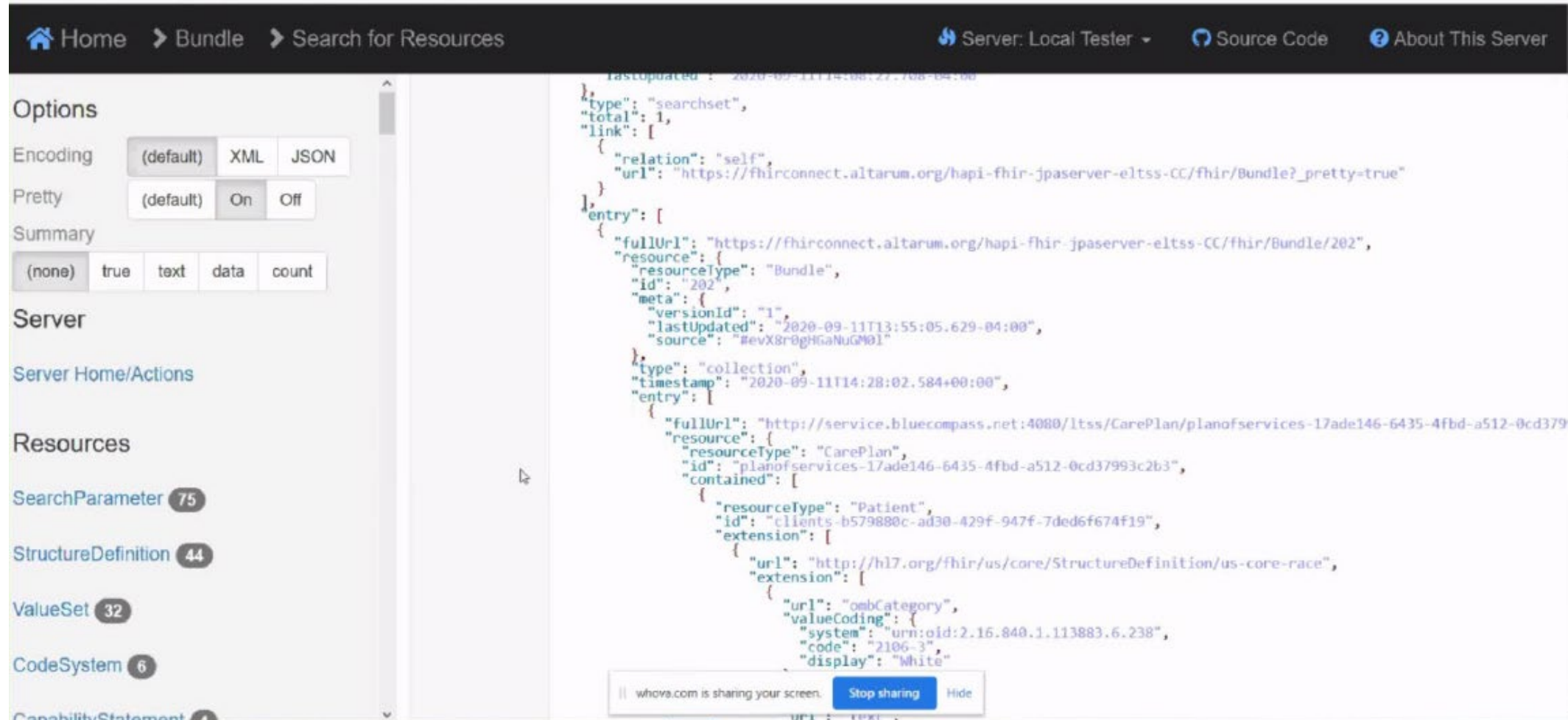
Scene 1 FEI Blue Compass Data Transmission Using the eLTSS IG

- FEI pushed Betsy's eLTSS care plan through their FHIR façade infrastructure



Scene 1 Data from a case management system is received by a FHIR server

Betsy's care plan bundle is posted on Altarum's Care Coordinator Server



The screenshot shows a web interface for a FHIR server. The top navigation bar includes "Home", "Bundle", and "Search for Resources". The server information shows "Server: Local Tester" and "Source Code".

On the left, there are options for "Encoding" (XML, JSON), "Pretty" (On, Off), and a "Summary" table:

(none)	true	text	data	count

Below the options, there are sections for "Server Home/Actions", "Resources", and a list of search parameters:

- SearchParameter 75
- StructureDefinition 44
- ValueSet 32
- CodeSystem 6
- CapabilityStatement 4

The main content area displays a JSON searchset response:

```

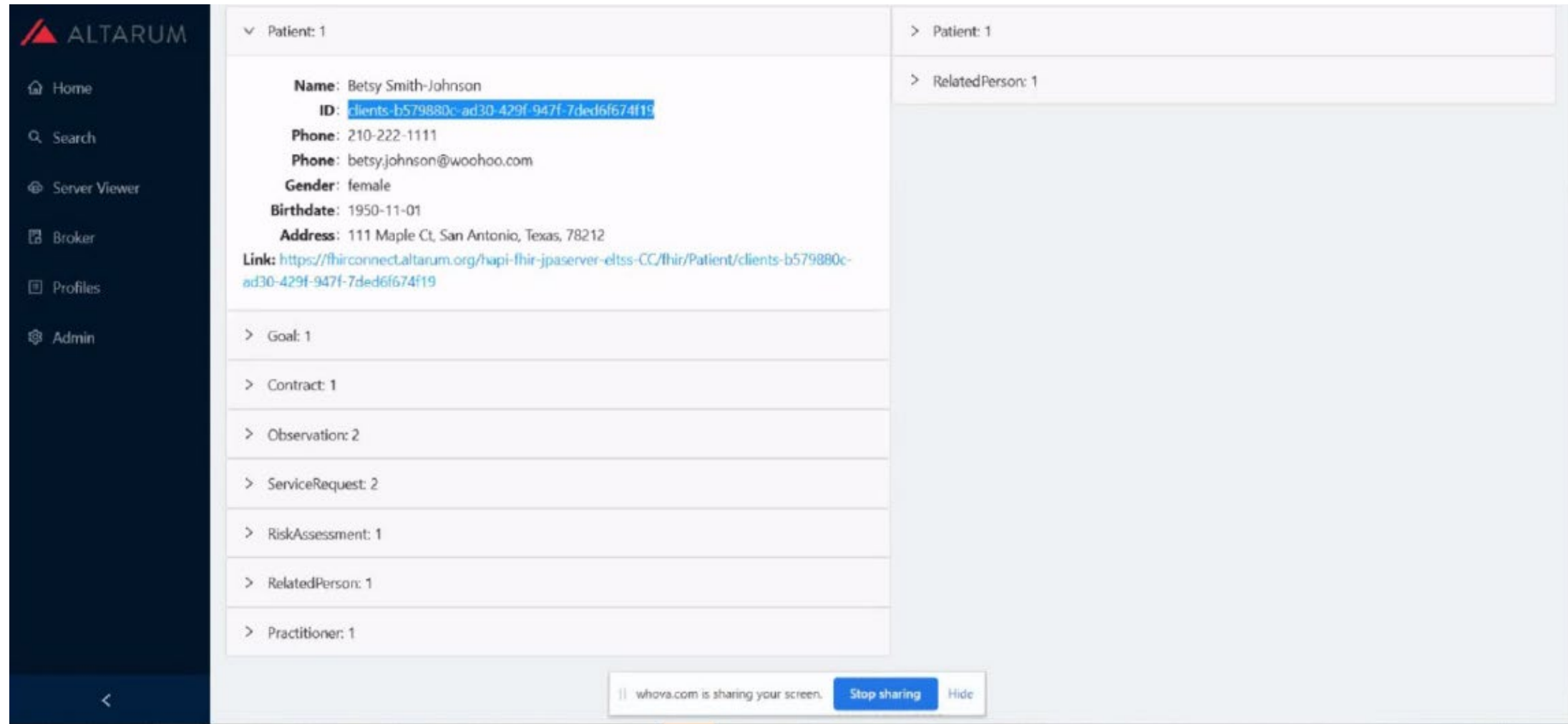
{
  "type": "searchset",
  "total": 1,
  "link": [
    {
      "relation": "self",
      "url": "https://fhirconnect.altarum.org/hapi-fhir-jpaserver-eltss-CC/fhir/Bundle?_pretty=true"
    }
  ],
  "entry": [
    {
      "fullUrl": "https://fhirconnect.altarum.org/hapi-fhir-jpaserver-eltss-CC/fhir/Bundle/202",
      "resource": {
        "resourceType": "Bundle",
        "id": "202",
        "meta": {
          "versionId": "1",
          "lastUpdated": "2020-09-11T13:55:05.629-04:00",
          "source": "#evX8r0gHGaNuGM01"
        },
        "type": "collection",
        "timestamp": "2020-09-11T14:28:02.584+00:00",
        "entry": [
          {
            "fullUrl": "http://service.bluecompass.net:4080/ltss/CarePlan/planofservices-17ade146-6435-4fbd-a512-0cd379",
            "resource": {
              "resourceType": "CarePlan",
              "id": "planofservices-17ade146-6435-4fbd-a512-0cd37993c2b3",
              "contained": [
                {
                  "resourceType": "Patient",
                  "id": "clients-b579880c-ad30-429f-947f-7ded6f674f19",
                  "extension": [
                    {
                      "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-race",
                      "extension": [
                        {
                          "url": "ombCategory",
                          "valueCoding": {
                            "system": "urn:oid:2.16.840.1.113883.6.238",
                            "code": "2106-3",
                            "display": "White"
                          }
                        }
                      ]
                    }
                  ]
                }
              ]
            }
          }
        ]
      }
    }
  ]
}

```

At the bottom, a notification states "whoops.com is sharing your screen" with "Stop sharing" and "Hide" buttons.

Scene 1 The transferred care plan can now be viewed on the FHIR server

Altarum's portal displays the care plan sent by FEI Systems



The screenshot displays the Altarum FHIR server portal interface. On the left is a dark navigation sidebar with the Altarum logo and menu items: Home, Search, Server Viewer, Broker, Profiles, and Admin. The main content area shows a patient profile for Betsy Smith-Johnson. The profile includes the following details:

- Name:** Betsy Smith-Johnson
- ID:** clients-b579880c-ad30-429f-947f-7ded6f674f19
- Phone:** 210-222-1111
- Phone:** betsy.johnson@woohoo.com
- Gender:** female
- Birthdate:** 1950-11-01
- Address:** 111 Maple Ct, San Antonio, Texas, 78212
- Link:** <https://fhirconnect.altarum.org/hapi-fhir-jpaserver-eltss-CC/fhir/Patient/clients-b579880c-ad30-429f-947f-7ded6f674f19>

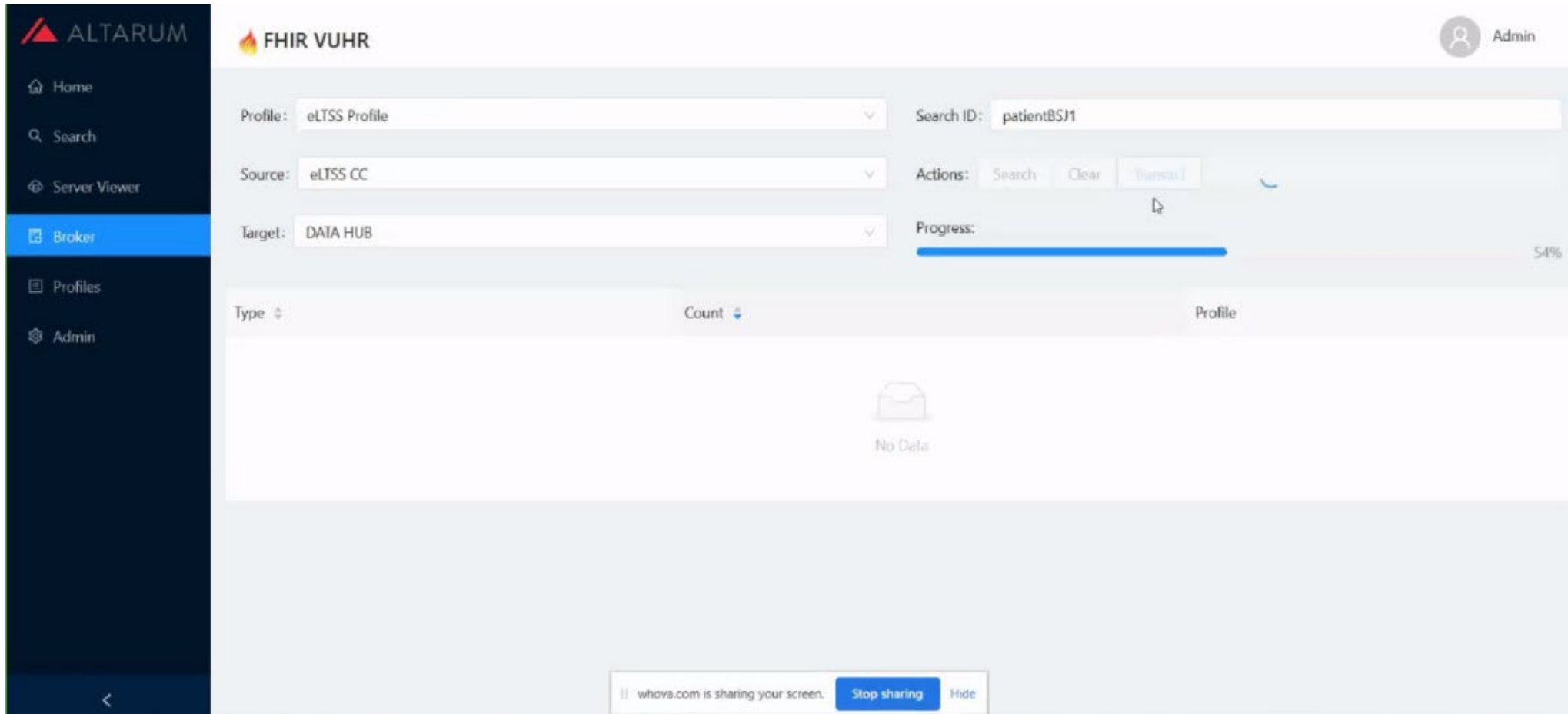
Below the patient information, there is a list of resources with expandable arrows:

- > Patient: 1
- > RelatedPerson: 1
- > Goal: 1
- > Contract: 1
- > Observation: 2
- > ServiceRequest: 2
- > RiskAssessment: 1
- > RelatedPerson: 1
- > Practitioner: 1

At the bottom of the screen, a notification bar indicates that 'whova.com is sharing your screen' and provides buttons for 'Stop sharing' and 'Hide'.

Scene 1 A data transfer tool is used to move a complete eLTSS data collection to another server

Altarum's eLTSS data tool was used to efficiently move a complete collection of eLTSS data to Patient Centric Solutions' data hub










The screenshot displays the Altarum FHIR VUHR interface. On the left is a dark navigation sidebar with the Altarum logo and menu items: Home, Search, Server Viewer, Broker (highlighted), Profiles, and Admin. The main content area is titled 'FHIR VUHR' and shows a search for 'patientBSJ1'. The search parameters are: Profile: eLTSS Profile, Source: eLTSS CC, and Target: DATA HUB. The 'Actions' section includes buttons for Search, Clear, and Transfer. A progress bar indicates that the transfer is 54% complete. Below the progress bar is a table with columns for Type, Count, and Profile, but it is currently empty, displaying a 'No Data' message with a folder icon. At the bottom of the screen, a notification from whova.com states 'whova.com is sharing your screen.' with 'Stop sharing' and 'Hide' buttons.

Scene 2 Clinical and assessment data are aggregated with eLTSS data in the data hub

Betsy’s clinical data was imported to the data hub from a pseudo HIE, and her assessment data was added from the MITRE PAC assessment app. This data was successfully aggregated with the eLTSS data on the hub and displayed in Patient Centric Solutions Transitions of Care app.







HOME CONTACT US LOGOUT

-  Patient Demographics
-  Medications
-  Allergies
-  Immunizations
-  Vital Signs
-  Conditions
-  Lab Results
-  Assessments
-  Care Plan

▶ 08/02/2020 Mobility - Admission Performance Sky Harbor Home Health Services 8810 Old Sky Harbor, San Antonio, TX 78242 Luna Baskins, Physiotherapist

▶ 08/30/2020 Mobility - Discharge Performance Sky Harbor Home Health Services 8810 Old Sky Harbor, San Antonio, TX 78242 Scott Dumble, Physiotherapist

▼ Summary










Question	07/08/2020 San Antonio General Hospital Mobility - Admission Performance	07/08/2020 San Antonio General Hospital Mobility - Discharge Goal	07/10/2020 San Antonio General Hospital Mobility - Discharge Performance	07/11/2020 Happy Nursing Facility Mobility - Admission Performance	07/11/2020 Happy Nursing Facility Mobility - Discharge Goal	08/01/2020 Happy Nursing Facility Mobility - Discharge Performance	08/02/2020 Sky Harbor Home Health Services Mobility - Admission Performance	08/30/2020 Sky Harbor Home Health Services Mobility - Discharge Performance	Trend
Roll left and right	Substantial/maximal Assist	Partial/moderate Assist	Partial/moderate Assist	Partial/moderate Assist	Supervision or touching assistance	Supervision or touching assistance	Supervision or touching assistance	Independent	
Sit to lying	Substantial/maximal Assist	Partial/moderate Assist	Partial/moderate Assist	Partial/moderate Assist	Setup or clean-up assistance	Setup or clean-up assistance	Setup or clean-up assistance	Independent	
Lying to sitting on side of bed	Substantial/maximal Assist	Partial/moderate Assist	Partial/moderate Assist	Partial/moderate Assist	Setup or clean-up assistance	Setup or clean-up assistance	Setup or clean-up assistance	Independent	
Sit to stand	Substantial/maximal Assist	Partial/moderate Assist	Partial/moderate Assist	Partial/moderate Assist	Supervision or touching assistance	Supervision or touching assistance	Supervision or touching assistance	Independent	
Chair/bed-to-chair transfer	Dependent	Substantial/maximal Assist	Substantial/maximal Assist	Substantial/maximal Assist	Partial/moderate Assist	Partial/moderate assistance	Partial/moderate assistance	Independent	
Toilet transfer	Not attempted due to medical condition or safety concerns	Substantial/maximal Assist	Substantial/maximal Assist	Substantial/maximal Assist	Partial/moderate Assist	Partial/moderate assistance	Partial/moderate assistance	Independent	
Car	Not attempted due to medical condition	Dependent	Not attempted due to medical condition	Not attempted due to medical condition	Partial/moderate	Partial/moderate	Partial/moderate	Supervision or touching	

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Scene 3 A client displays the care plan

Betsy is admitted to the SNF. From the SNF, a clinician used the Transitions of Care client, by Patient Centric Solutions, to access both clinical data and the eLTSS care plan from the hub to inform care.

Transitions of Care
HOME CONTACT US LOGOUT

-  Patient Demographics
-  Medications
-  Allergies
-  Immunizations
-  Vital Signs
-  Conditions
-  Lab Results
-  Assessments
-  Care 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
Depression (on treatment)	Active	Confirmed	Assessed Need
Needs physical exercises	Active	Confirmed	Assessed Need

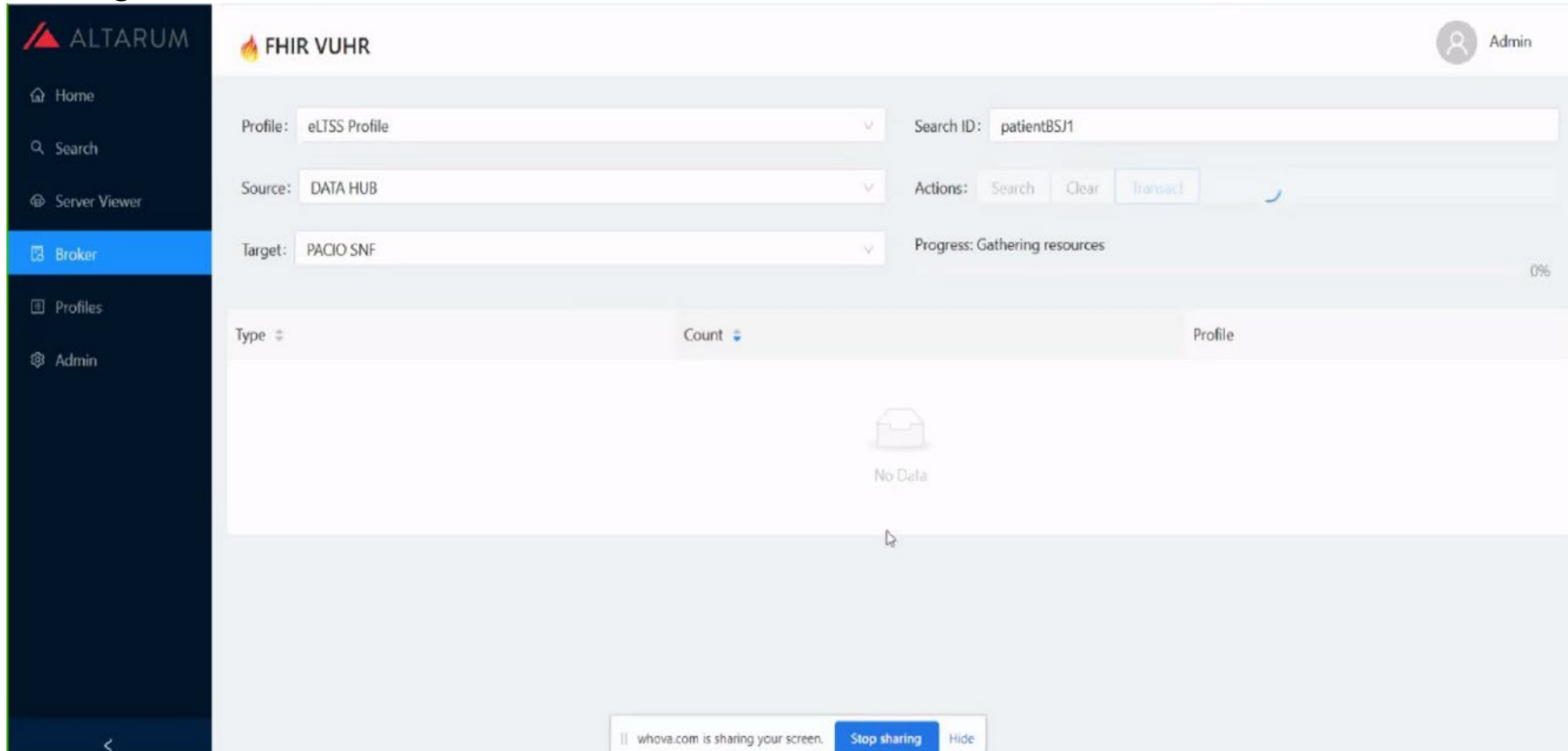
Activities:

Description	Intent	Start Date	End Date	Frequency	Cost per Unit	# Units	Total cost per service	Performer	Location	Status
Bath tub wall rail, each (self-directed)	Plan	05/01/2020	12/31/2020	1 install				Charles Johnson, son	In Home	Active
Non-emergency transportation; encounter/trip (Service provider will provide a reminder the business day before the trip, and will call when on the way.)	Plan	07/01/2020	12/31/2020	2 trips per 1 month	60	10	600	The Transporter, Inc., phone: (210) 555 1313		Active

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Scene 3 A separate server receives both eLTSS and PACIO data from a data hub

The Altarum data tool is used to pull both the eLTSS and PACIO data from the Data Manager to a SNF server to inform her care



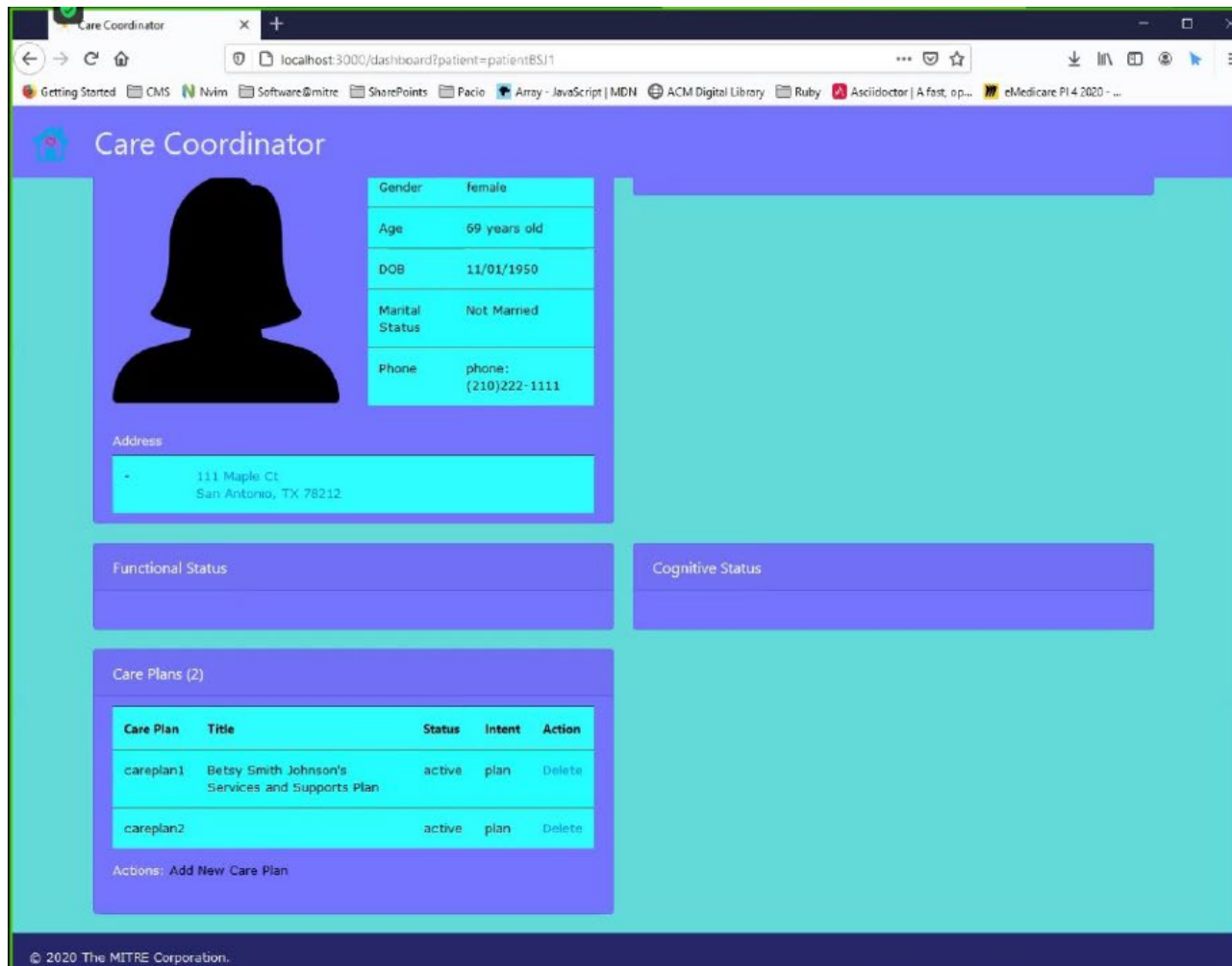
The screenshot displays the Altarum FHIR VUHR interface. The left sidebar contains navigation options: Home, Search, Server Viewer, Broker (highlighted), Profiles, and Admin. The main content area shows search filters: Profile (eLTSS Profile), Source (DATA HUB), and Target (PACIO SNF). The Search ID is patientBSJ1. Actions include Search, Clear, and Transact. The progress bar indicates 'Gathering resources' at 0%. Below the filters is a table with columns for Type, Count, and Profile. The table is currently empty, displaying 'No Data' with a folder icon.

Type	Count	Profile
No Data		

whova.com is sharing your screen. [Stop sharing](#) [Hide](#)

Scene 3 eLTSS data is moved into and displayed by a care coordinator app

Betsy's data was pulled into and displayed by MITRE's SNF Care Coordinator application



The screenshot shows the SNF Care Coordinator application interface. The patient information is as follows:

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

Functional Status: [Redacted]

Cognitive Status: [Redacted]

Care Plans (2)

Care Plan	Title	Status	Intent	Action
careplan1	Betsy Smith Johnson's Services and Supports Plan	active	plan	Delete
careplan2		active	plan	Delete

Actions: Add New Care Plan

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```

"intent": "plan",
"category": [
  {
    "coding": [
      {
        "system": "http://hl7.org/fhir/us/core/CodeSystem/careplan-category",
        "code": "assess-plan"
      }
    ]
  },
  {
    "description": "Weather Emergency: A shelf-stable meal is delivered to Meals On Wheels clients. It is to be eaten in the unlikely event of cancellation. Weather meals are donated by the Sheboygan Service Club.",
    "subject": {
      "reference": "Patient/patientBSJ1"
    }
  }
],
"search": {
  "mode": "match"
}
}
}
]
D, [2020-09-11T14:41:57.494800 #16584] DEBUG -- : Parsing response with {klass: FHIR::carePlan, format: application/fhir+json, code: 200}.
Rendering dashboard/index.html.erb within layouts/application
Rendered partials/_address.html.erb (1.3ms)
Rendered dashboard/_patient-card.html.erb (17.1ms)
Rendered dashboard/_medications-card.html.erb (0.7ms)
Rendered dashboard/_functional-status-card.html.erb (0.5ms)
Rendered dashboard/_cognitive-status-card.html.erb (1.7ms)
Rendered dashboard/_careplan-card.html.erb (2.8ms)
Rendered dashboard/index.html.erb within layouts/application (38.0ms)
Rendered partials/_head.html.erb (203.1ms)
Rendered partials/_header.html.erb (3.6ms)
Rendered partials/_messages.html.erb (0.6ms)
Rendered partials/_footer.html.erb (0.4ms)
Completed 200 OK in 8084ms (Views: 265.1ms | ActiveRecord: 0.0ms)

```

Scene 3 eLTSS data is dynamically updated using a care coordinator app

A goal was added to Betsy's care plan using MITRE's SNF Care Coordinator app



Care Coordinator

Goal Edit

Id	not yet assigned
Subject	Patient/patientBSJ1
Description text (for the codeable concept)	Stroke Education
Lifecyclestatus	proposed
Priority	high-priority

Save Goal

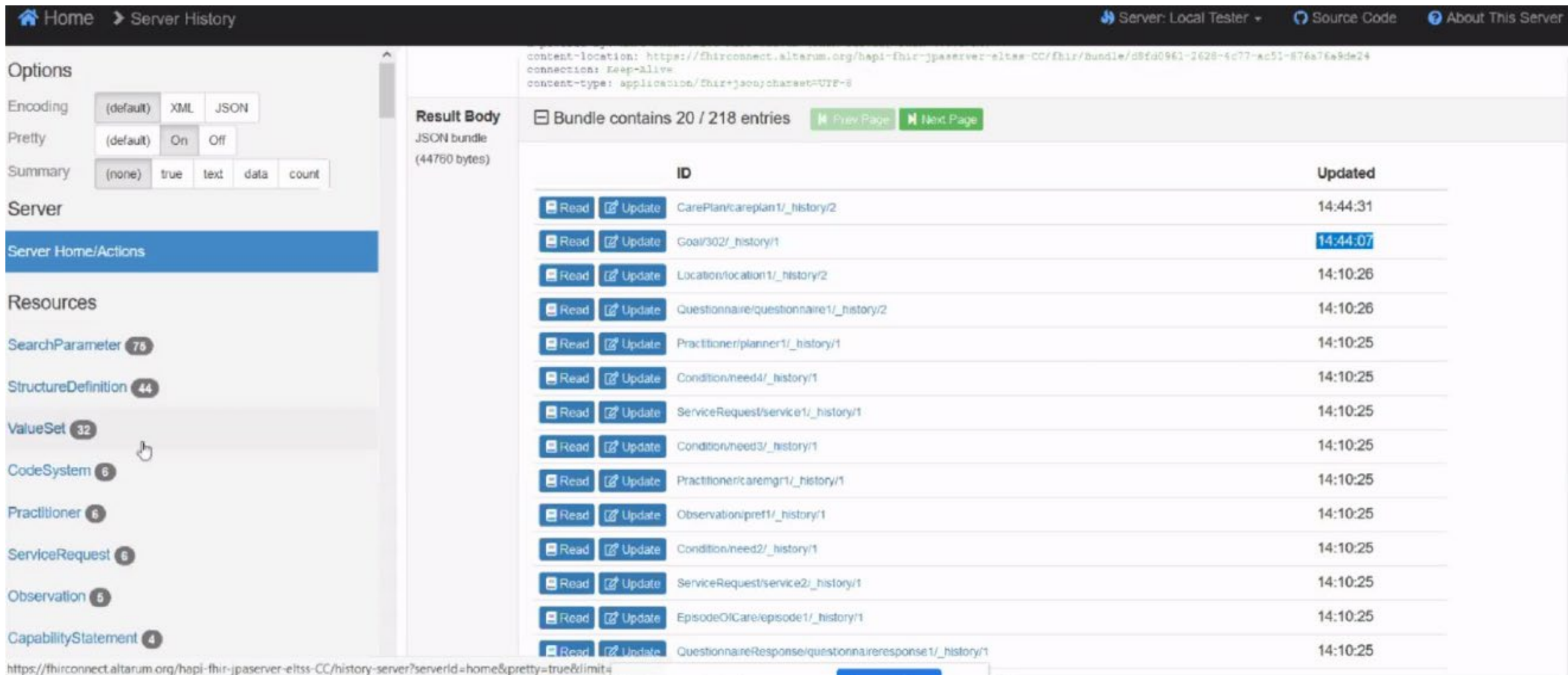
```

    }
    "code": {
      "coding": [
        {
          "system": "http://snomed.info/sct",
          "code": "183301007",
          "display": "Physical exercises (regime/therapy)"
        }
      ],
      "text": "Needs physical exercises"
    },
    "subject": {
      "reference": "Patient/patientBSJ1"
    }
  }
}
D, [2020-09-11T14:43:57.432378 #16584] DEBUG -- : Parsing
response with {klass: , format: application/fhir+json, cod
e: 200}.
[#<FHIR::Coding:0x0000000016368e48 @id=nil, @extension=[],
@system="http://terminology.hl7.org/CodeSystem/condition-
clinical", @version=nil, @code="active", @display=nil, @us
erSelected=nil>][#<FHIR::Coding:0x000000001d27f10 @id=nil
, @extension=[], @system="http://terminology.hl7.org/CodeS
ystem/condition-clinical", @version=nil, @code="active", @
display=nil, @userSelected=nil>][#<FHIR::Coding:0x00000000
1d816948 @id=nil, @extension=[], @system="http://terminolo
gy.hl7.org/CodeSystem/condition-clinical", @version=nil, @
code="active", @display=nil, @userSelected=nil>][#<FHIR::C
oding:0x000000001d85d0c8 @id=nil, @extension=[], @system="
http://terminology.hl7.org/CodeSystem/condition-clinical",
@version=nil, @code="active", @display=nil, @userSelected
=nil>] Rendered care_plans/_care-plan-card-form.html.erb
(7490.2ms)
  Rendered care_plans/_form.html.erb (7494.9ms)
  Rendered care_plans/edit.html.erb within layouts/applica
tion (7499.9ms)
  Rendered partials/_head.html.erb (338.2ms)
  Rendered partials/_header.html.erb (2.9ms)
  Rendered partials/_messages.html.erb (0.8ms)
  Rendered partials/_footer.html.erb (0.7ms)
Completed 200 OK in 10161ms (Views: 7868.1ms | ActiveRecor
d: 0.0ms)

```

Scene 3 eLTSS update is pushed from an app into the SNF server

Betsy's new goal was shared with Altarum's eLTSS+PACIO SNF FHIR server



Home > Server History

Server: Local Tester | Source Code | About This Server

Options

Encoding: (default) XML JSON

Pretty: (default) On Off

Summary: (none) true text data count

Server

Server Home/Actions

Resources

- SearchParameter 76
- StructureDefinition 44
- ValueSet 32
- CodeSystem 6
- Practitioner 6
- ServiceRequest 6
- Observation 6
- CapabilityStatement 4

content-location: https://ehirconnect.altarum.org/hapi-fhir-jpaserver-elts-CC/fhir/Bundle/d5fd0961-2628-4c77-ac51-876a76e9de24

connection: Keep-Alive

content-type: application/fhir+json;charset=UTF-8

Result Body

JSON bundle (44760 bytes)

Bundle contains 20 / 218 entries

ID	Updated
Read Update CarePlan/careplan1/_history/2	14:44:31
Read Update Goal/302/_history/1	14:44:07
Read Update Location/location1/_history/2	14:10:26
Read Update Questionnaire/questionnaire1/_history/2	14:10:26
Read Update Practitioner/planner1/_history/1	14:10:25
Read Update Condition/need4/_history/1	14:10:25
Read Update ServiceRequest/service1/_history/1	14:10:25
Read Update Condition/need3/_history/1	14:10:25
Read Update Practitioner/caremgr1/_history/1	14:10:25
Read Update Observation/pref1/_history/1	14:10:25
Read Update Condition/need2/_history/1	14:10:25
Read Update ServiceRequest/service2/_history/1	14:10:25
Read Update EpisodeOfCare/episode1/_history/1	14:10:25
Read Update QuestionnaireResponse/questionnaireresponse1/_history/1	14:10:25

https://fhirconnect.altarum.org/hapi-fhir-jpaserver-elts-CC/history-server?serverId=home&pretty=true&limit=

Scene 3 eLTSS update pushed from the SNF server to the data hub

Betsy's new goal was pushed to the Patient Centric Solutions data hub and displayed in the PatientShare app



PatientShare HOME CONTACT US

Betsy Smith-Johnson

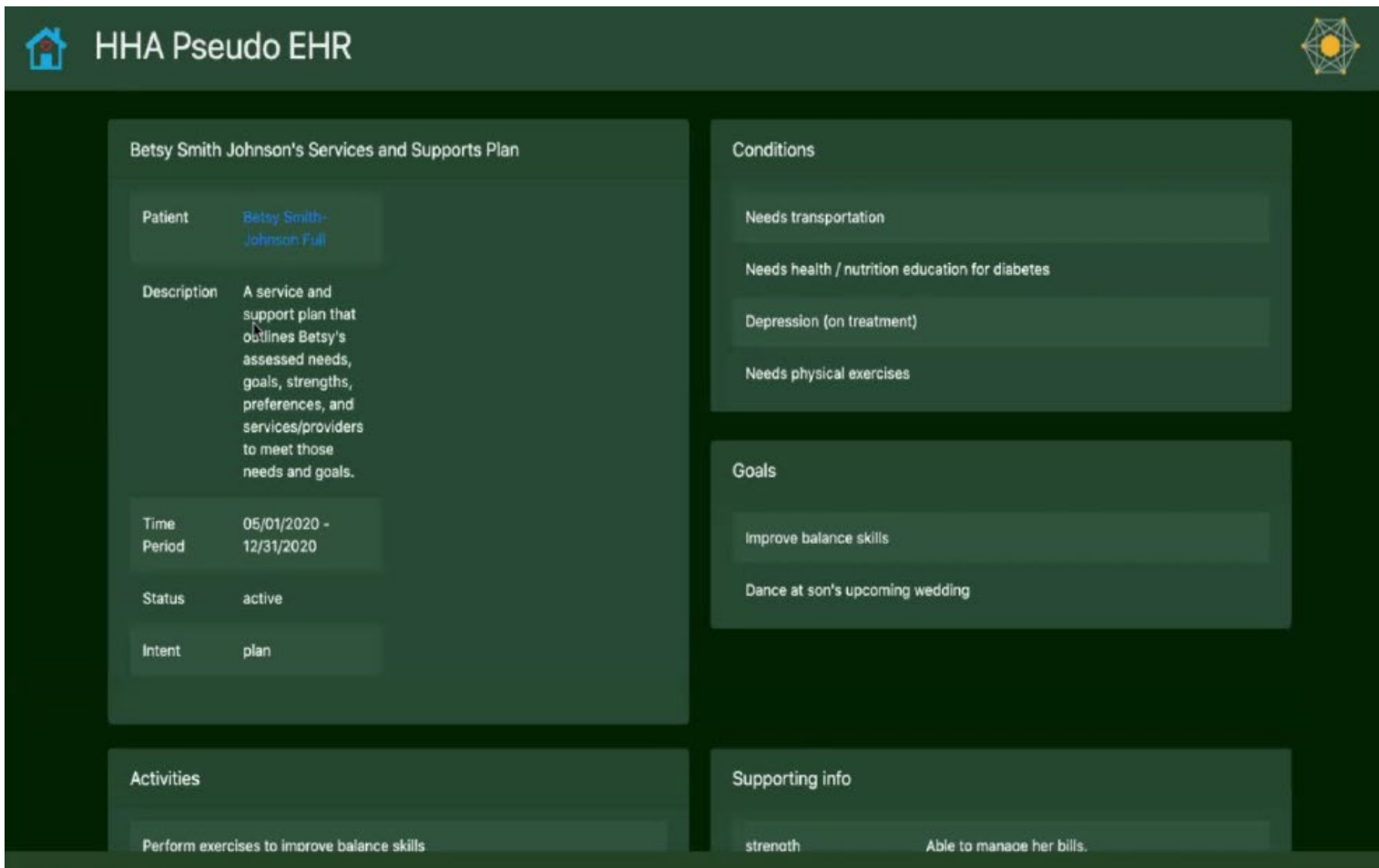
Care Plan

Care Plan	Category	Start Date	End Date	Status
▼ Careplan2	Assess Plan			Active
Description: Weather Emergency: A shelf-stable meal is delivered to Meals On Wheels clients. It is to be eaten in the unlikely event of cancellation. Weather meals are donated by the Sheboygan Service Club.				
Intent: Plan				
▼ Betsy Smith Johnson's Services And Supports Plan	Assess Plan			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				
Goals:				
Description	Lifecycle Status	Plan		
Improve balance skills	Accepted			
Dance at son's upcoming wedding	Accepted			
Stroke Education	Proposed			

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Scene 4 eLTSS data is pushed from data hub to an HHA application

Betsy returns home from the SNF and receives HHA and HCBS care. Her care plan is forwarded to the HHA

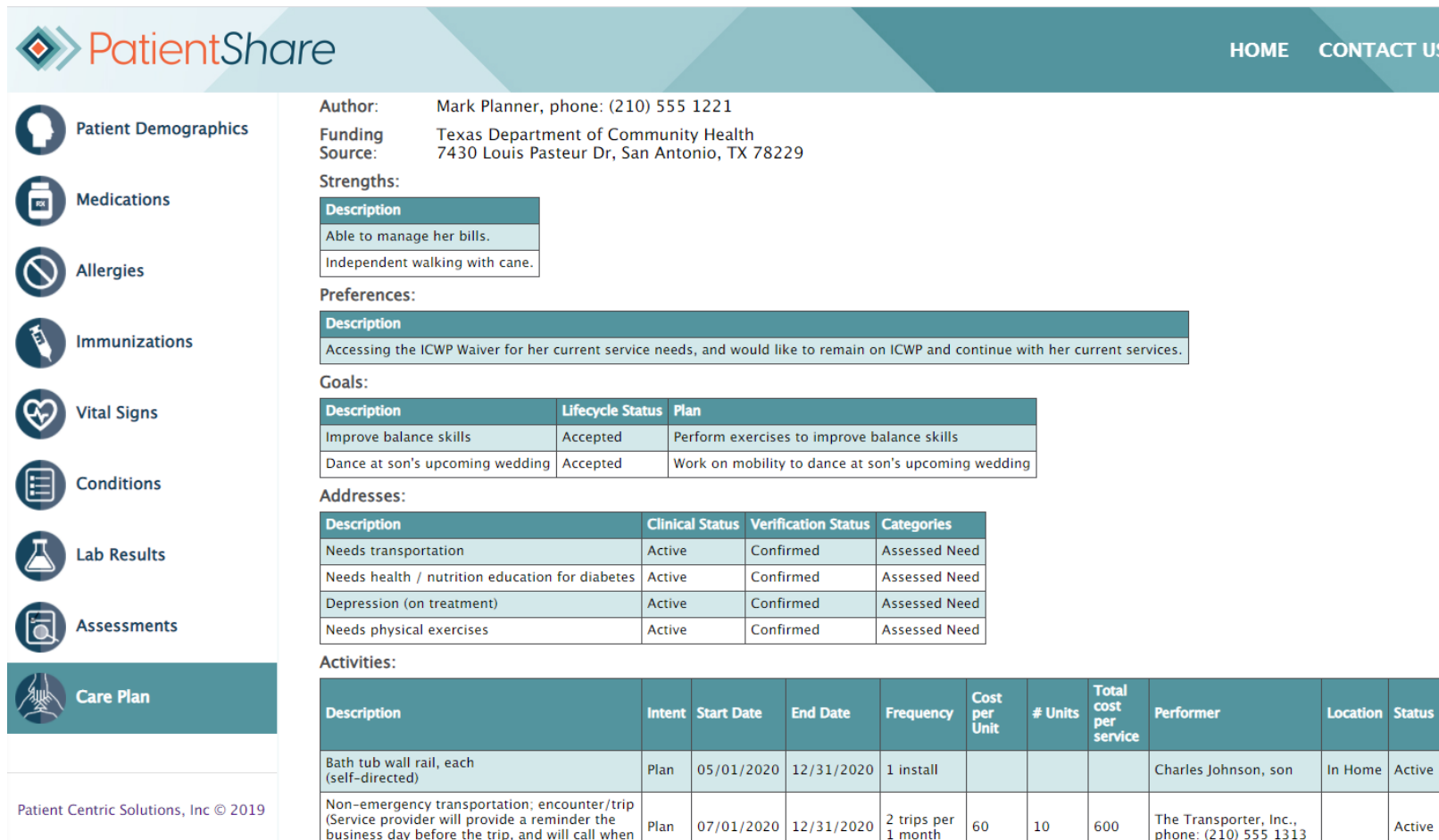


The screenshot displays the 'HHA Pseudo EHR' interface. At the top left is a home icon and the text 'HHA Pseudo EHR'. At the top right is a network icon. The main content is divided into several sections:

- Betsy Smith Johnson's Services and Supports Plan**
 - Patient:** Betsy Smith-Johnson Full
 - 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)
 - Needs physical exercises
- Goals**
 - Improve balance skills
 - Dance at son's upcoming wedding
- Activities**
 - Perform exercises to improve balance skills
- Supporting info**
 - strength
 - Able to manage her bills.

Scene 5 The care plan is displayed in a patient facing application

Betsy and her son Charles were able to view her care plan using Patient Centric Solutions PatientShare application



PatientShare HOME CONTACT US

Patient Demographics

Author: Mark Planner, phone: (210) 555 1221
Funding Source: Texas Department of Community Health
7430 Louis Pasteur Dr, San Antonio, TX 78229

Medications

Allergies

Immunizations

Vital Signs

Conditions

Lab Results

Assessments

Care Plan

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
Depression (on treatment)	Active	Confirmed	Assessed Need
Needs physical exercises	Active	Confirmed	Assessed Need

Activities:

Description	Intent	Start Date	End Date	Frequency	Cost per Unit	# Units	Total cost per service	Performer	Location	Status
Bath tub wall rail, each (self-directed)	Plan	05/01/2020	12/31/2020	1 install				Charles Johnson, son	In Home	Active
Non-emergency transportation; encounter/trip (Service provider will provide a reminder the business day before the trip, and will call when	Plan	07/01/2020	12/31/2020	2 trips per 1 month	60	10	600	The Transporter, Inc., phone: (210) 555 1313		Active

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Outcomes

- eLTSS data stored in FEI System's Blue Compass Mississippi system was pushed through a FHIR façade and received in Altarum's eLTSS Care Coordinator server. The case management system used in this demonstration is a development version of a production system used by the state of Mississippi.
- The eLTSS care plan was displayed in a reader-friendly manner in Altarum's FHIR VUHR client
- eLTSS data was effectively and rapidly “pushed” from Altarum's eLTSS server to a Patient Centric Solutions data hub using Altarum's FHIR Broker Tool. This tool supported the efficient delivery of a complete eLTSS dataset of 35 resources
- eLTSS data was aggregated with clinical data imported from a pseudo HIE into the hub effectively combining clinical and non-clinical data within a single server
- eLTSS data was aggregated with PACIO functional and cognitive assessment data within the hub, representing the successful integration of three different FHIR IGs
- At the SNF, the clinician used the Transitions of Care client, by Patient Centric Solutions, to access both clinical data and the eLTSS care plan from the hub to inform care

Outcomes

- eLTSS and PACIO data, were efficiently “pulled” from the data hub into Altarum's eLTSS+PACIO SNF FHIR server. This server also demonstrated the successful integration of three separate IGs
- eLTSS care plan was pulled into MITRE’s Care Coordinator application, displayed in that application, and dynamically updated using that application. The update was then pushed to Altarum's eLTSS+PACIO SNF FHIR server, and from there it was pushed to the data hub.
- eLTSS care plan was pulled from the data hub to MITRE’s HHA EHR system and displayed
- SMART on FHIR clients and authentication requirements were utilized in the display of eLTSS data
- Demonstrated eLTSS and PACIO data moving from numerous systems across facilities using the FHIR API for both read and write scenarios
- The patient and her family caregivers were able to access her data as she moved across the continuum of care.

Lessons Learned

- Working with real world systems provides real world challenges such as patient matching, reconciling different approaches to storing and sharing data using FHIR, and recognizing that systems may not support the complete set of data specified in an IG
- Relying on FHIR's \$everything operation to share care plan data has some limitations. This operation can only capture resources that have direct references to the patient resource. Additionally, by pulling all information related to a patient, this operation could result in the sharing of extraneous information. Finally, some FHIR servers may not have activated support for operation.
- In a production environment, application functionality certification will be critical to maintain accurate data
- Data can be effectively shared using the FHIR API. Customized data transfer tools, such as the one developed and demonstrated by Altarum at this event, can also facilitate the exchange of comprehensive care plans.

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