Redefining Boundaries: The Impact of FHIR on Transitions of Care

ALIX GATES

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Agenda

- Introductions
- PACIO Project Overview
- Importance of Transitions of Care in PAC Settings
- Process Used to Develop IG
- FHIR IG Overview and Current Status
- Questions

Presenters

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Lead Health Program Analyst at MITRE and Program Management Lead for the PACIO Project's Transitions of Care Workgroup. Over the last decade, Alix analyzed the application of interoperability in healthcare, developed analytical pipelines with Medicare and Medicaid claims, performed mixed methods evaluations, and analyzed national and state Medicaid and CHIP policies. Alix holds an MS in Computational Analysis and Public Policy from the University of Chicago and an MPH and BA in Cello Performance from the University of Florida.

Thank you to the entire PACIO TOC team, including…

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- Dr. Terry O’Malley, M.D. | PACIO TOC Lead
- Dr. Holly Miller, M.D. | MedAllies, PACIO TOC Lead
- Chris Pugliese | Brightree, PACIO TOC Lead
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- Vanessa Fotso | MITRE
- Brian Meshell | MITRE

PACIO

PACIO Project: Background

Established February 2019, the PACIO Project is a collaborative effort between industry, government and other stakeholders, with the goal of establishing a framework for the development FHIR implementation guides to facilitate health information exchange.

http://pacioproject.org

TOC is sponsored by Patient Care Working Group.

Personal Functioning and Engagement

Working on draft STU2 PFE IG, which adds goals, interventions, completed services, and evaluation to the IG in addition to observations

Integrated PFE IG with testing TOC and SMP IGs in May 2024 Connectathon

Targeting STU2 to enter September 2024 Ballot

Pursuing pilot opportunities!

Advanced Directive Interoperability (ADI)

Working on draft STU2 ADI IG focusing on Portable Medical Orders and Mental Health Advance Directives

Working on vocabulary around STU2 Portable Medical Order concepts with HL7 Work Groups

Tested draft STU2 ADI IG in May 2024 Connectathon

Targeting STU2 to enter January 2025 HL7 Ballot

Pursuing pilot opportunities!

Transitions of Care (TOC)

New use case to advance interoperable health data exchange for transitions of care to, from, and between LTPAC

Formed multiple subgroups representing up to 15 different roles to define an LTPAC TOC data set that is pertinent to each role in the receiving care team

Tested draft TOC IG in May 2024 Connectathon

Targeting September 2024 ballot for STU1

Standardized Medication Profile (SMP)

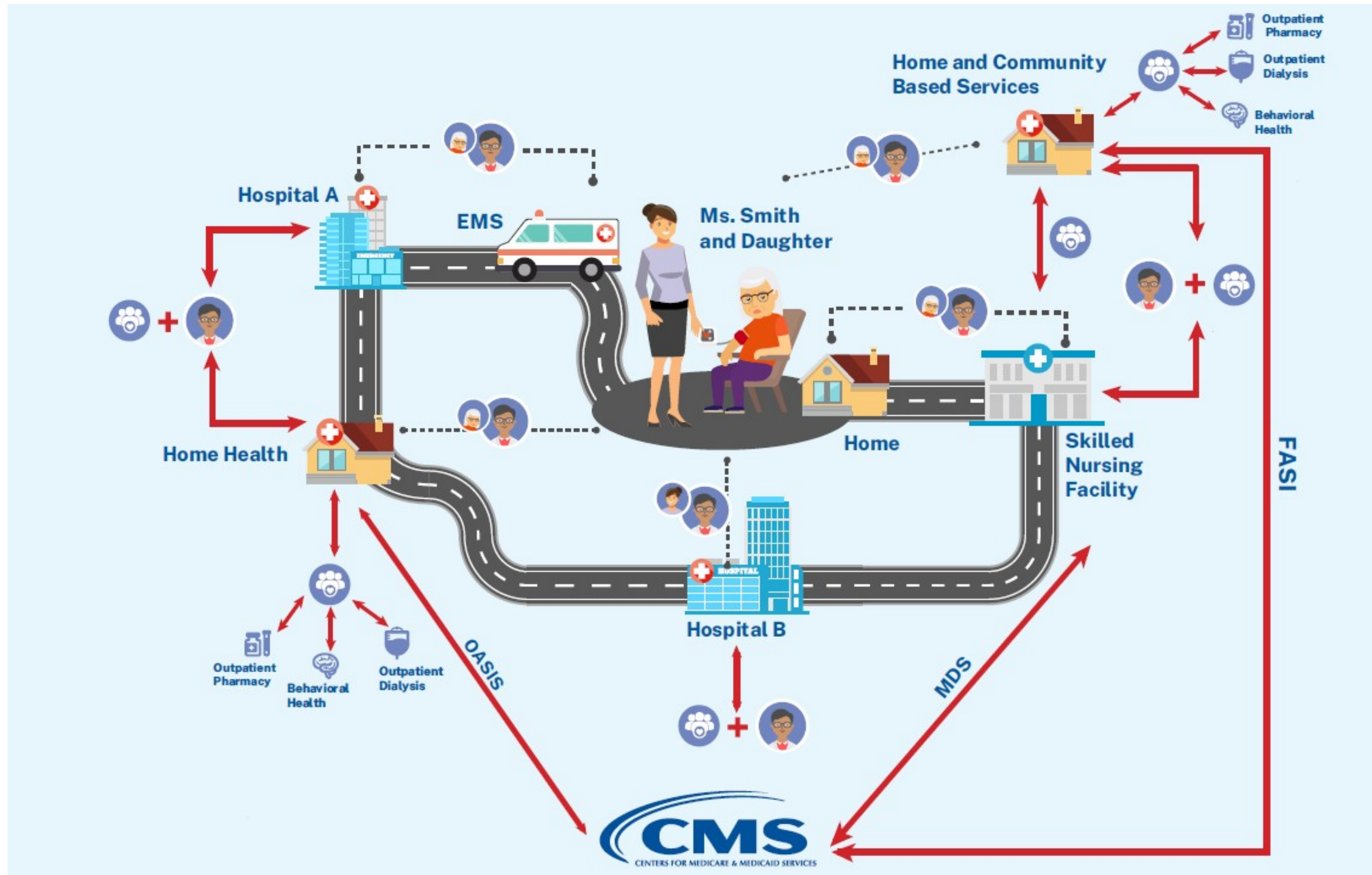
New use case to advance exchange of essential medication and medication-related information

The NCPDP WG14/WG10 Standardized Medication Profile Task Group completed an analysis and documented existing data fields that meet patient and medication profile attributes and specific gaps

Tested draft SMP IG in May 2024 Connectathon

Targeting joint September 2024 Ballot with NCPDP for STU1

The patient experience is complex, involving multiple providers across acute and post-acute settings.



- **Poor communication across care providers**
  - Medication discrepancies such as drug omissions during transitions of care and multiple modes of information transmission result in delays in PAC services and can lead to adverse events and preventable readmissions
  - Redundant information collection creates inefficiencies and burden
- **Reliance on patient recall during periods of high stress**
  - Recall of information can be unreliable
  - Patients may be unconscious, incapacitated, or otherwise unresponsive / unable to communicate information
  - Increased patient / family stress
- **Increased Cost and Provider Burden**
  - Additional costs related to hospital stays from adverse events, readmissions
  - Additional administrative costs to locate, reconcile, and coordinate information

Source: CMS DCPAC

Current transitions of care may incur medical errors or poor outcomes.

- Data currently does not follow the patient during transition from acute care to post acute care, or between post-acute care settings, which may result in:
  - Increased or inconsistent documentation
  - Patient history errors or inconsistencies
  - Burden to carry physical records
  - Medication errors
  - Poor communication between providers

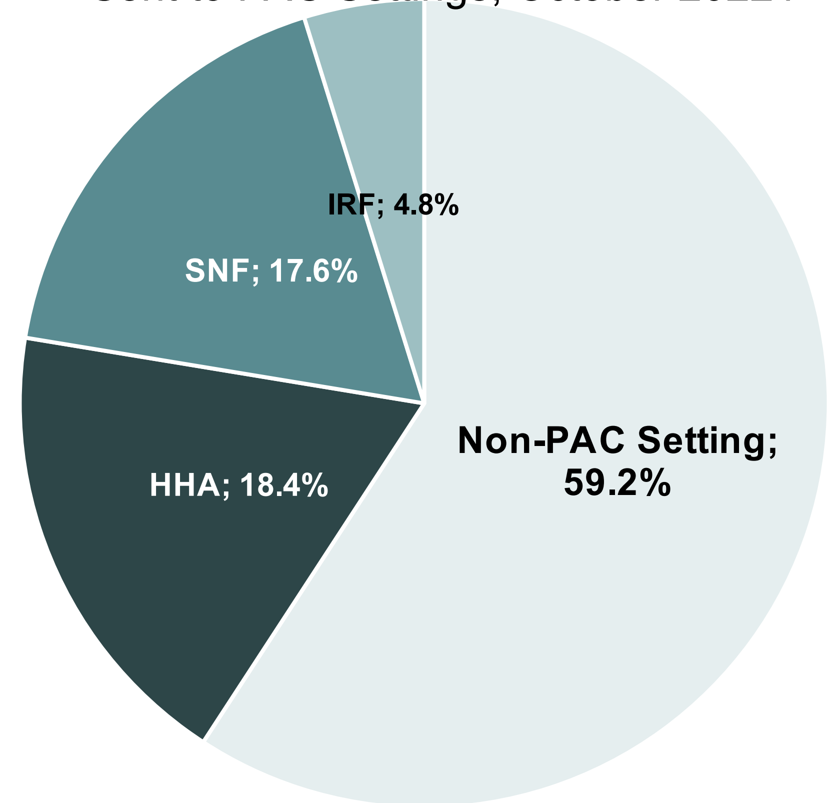
Nearly half (40.8%) of patients require PAC services after a hospitalization.

MedPAC 2024 Report to Congress included HHA, SNF, and IRF.

HHA and SNF services were most utilized PAC services after inpatient discharge.

- HHAs provided care for roughly 2.8 million Medicare FFS beneficiaries costing roughly $16.1 billion in 2022.
- SNFs provided care for roughly 1.3 million Medicare beneficiaries costing roughly $29 billion in 2022.

Share of FFS Medicare Inpatient Discharges Sent to PAC Settings, October 20221



SOURCES: ALL DATA FROM MAR24_MEDPAC_REPORT_TO_CONGRESS_SEC.PDF.

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Consensus-based process used to develop a FHIR IG advancing interoperable health information exchange.

- Current IG includes representatives of the below provider types across PAC settings:
  - Nurses
  - Doctors
  - Nurse Practitioners
  - Physician Assistants
  - Physical Therapists
  - Occupational Therapists
  - Speech and Language Professionals
  - Dieticians
  - Pharmacists
- Initial data analysis focused on data elements included CMS PAC Assessments, which are captured in the CMS Data Element Library (DEL) (see appendix).
- Goal is to expand the roles represented in the IG to include:
  - Aide/Personal Care Attendant
  - Behavioral Health Clinicians
  - Clinical Administration
  - EMS
  - IT Quality Administration
  - Payer
  - Respiratory Therapy
  - Social Worker

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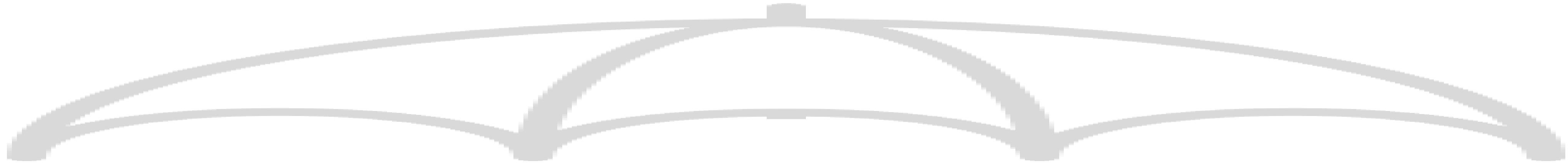
TOC IG encompasses many topics leveraging different resources.



Advanced Directives	Allergies	Functional Status	Immunizations	Instructions
Medication Equipment	Medications	Plan of Care	Problem	Procedures
Reason for Referral	Reason for Visit	Results	Social History	Vital Signs

Each color represents a different source:

PACIO IGs	US Core	Device	Other	Combination: Other, PACIO IG, US Core

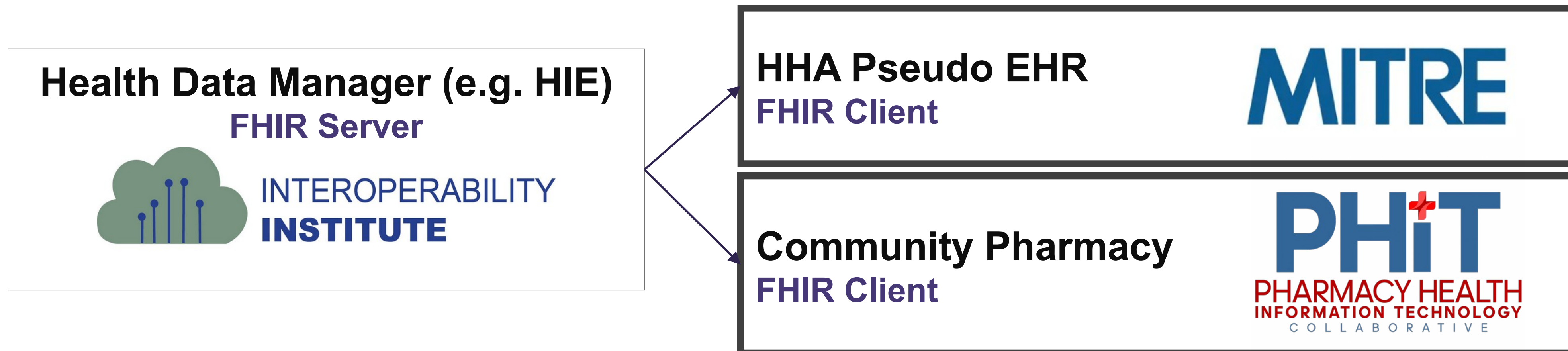
For additional detail, please visit: https://paciowg.github.io/transitions-of-care-fsh/guidance.html

PACIO

Current Status: TOC track at Connectathons.

- May 2024 Connectathon in Dallas:
  - Successfully used the TOC IG to transfer diagnoses, conditions, medications, orders, and single observation information from a Skilled Nursing Facility (SNF) to a Home Health Agency (HHA) for a post-stroke patient in preparation for a STU1 version of the standard.
  - Three pieces of software communicated to transition this data.

- July 2024 Virtual CMS Connectathon:
  - Will incorporate additional partners in the Connectathon Test Environment (graphic below).



PACIO TOC and Standardized Medication Profile (SMP) Use Case for 2024 Connectathons.

PATIENT PERSONA

Patient Background:

- Betsy Smith Johnson is a 65-year-old retired white female widow.
- She originally lived in Texas alone, but moved to Michigan to be closer to her son Charles.
- Has listed her son Charles as her Primary HCA and her daughter Debra as 1st alternate HCA.

Past Medical History

- Breast Cancer
- Hypertension
- Depression
- Hyperlipidemia
- Osteoarthritis
- Osteopenia
- Ischemic heart disease
- Type II Diabetes
- Stage III Kidney Disease

Home Medications

- Lisinopril 40mg twice a day
- Glipizide 2.5mg daily
- Atorvastatin 40mg nightly
- Calcium 500mg daily
- Carvedilol 6.25mg twice daily
- Sertraline 25mg nightly
- Metformin 500mg daily
- Vitamin D 800IU daily
- Tylenol 650mg every 6 hours or as needed.
- Furosemide 20mg daily
- Ferrous Sulfate 325mg three times a day prior to meals

PATIENT STORY

BACKGROUND: Pre-stroke

Betsy Smith-Johnson is a 65 year old female. In the last year she moved from Texas to Michigan in order to be closer to her son and his family. After moving, she was diagnosed with breast cancer and received successful treatment. She is now participating in a prescription exercise program through a neighborhood gym to recover muscle mass lost as a result of chemotherapy.

SCENE 1: Stroke / Hospitalization

Betsy suffered from an ischemic stroke. She was able to alert her daughter-in-law who recognized that some of Betsy's symptoms matched the FAST stroke recognition acronym. She called 911 immediately and Betsy was transported to a comprehensive stroke center where she received tPA in less than 2 hours.

Betsy's condition improved, and some of her symptoms resolved completely following treatment! She still has a serious functional deficit (right arm weakness) but her condition is stabilized.

The hospital created new diagnostic information, new condition information, performed labs, performed imaging, and began new medication regimens as part of Betsy's treatment. As part of her medication regimen, medication reconciliation was performed by the hospital team. A new medication list and discontinued medication list were created.

Betsy is transferred from the stroke center to a Skilled Nursing Facility (SNF) for rehabilitation and ongoing nursing care. The information from the hospital is pushed to a Health Information Exchange (HIE).

SCENE 2: Skilled Nursing Facility

The SNF care team provided Betsy with comprehensive care, including rehabilitation, nursing, medication management, and other ancillary services. Her medication regimen changes again as her care transitions to post-acute stroke management and secondary stroke prevention. As part of her medication management, another medication reconciliation is performed, and new medication and discontinued medication lists are created.

Betsy's care is complex - there are many providers involved in her care, and each brings specialty knowledge, assessments, and interventions to her ongoing recovery.

Betsy stays in the SNF for three weeks. Her condition continues to improve, and she is responding well to therapy. She is also treated for lower body muscle deconditioning, which began to occur as part of her hospital stay.

At the conclusion of her three week care episode, Betsy is reassessed. Her condition is stable, and her rehabilitation has progressed to a point where she is ready for discharge to care delivered at home.

SCENE 3: Transition of Care

The SNF creates a Transition of Care Composition in preperation for a Home Health Agency (HHA) to assume responsibility for Betsy's care. The bundle includes discharge orders, conditions, diagnoses, observations, a discharge medication list, a discontinued medication list, and other critical data that will facilitate a safe and efficient start of care after Betsy is moved home.

The information is sent to a Health Data Manager such as an HIE, and then pulled by both the HHA EHR and Community Pharmacy System.

Betsy is transferred home by wheelchair van.

Her HHA care team, including her Occupational Therapist, Speech Language Pathologist, Physical Therapist, Nursing Team, and Primary Care Provider, recieve pertinent and discrete health information ahead of their first patient encounter.

SCENE 4: Medication Reconciliation

The Community Pharmacy also receives a full Transition of Care Composition which contains a Standardized Medication Profile. This profile contains an encoded list of Betsy's medications. The Community Pharmacist is able to follow his company's medication reconciliation procedure. The SMP provides the RXNorm numbers and diagnostic information for each of Betsy's medications. The pharmacist is also able to look at her historic medication lists and see the changes that the hospital and SNF made as part of her stroke management care, and ensure that her other chronic conditions are being considered appropriately.

ACRONYMS

APP	Consumer Facing Application
EHR	Electronic Health Record
ePCR	Electronic Patient Care Report
EP	Exercise Physiologist
FAST	Face - Arm - Speech - Time
HHA	Home Health Agency
HIE	Health Information Exchange
IG	Implementation Guide
OT	Occupational Therapist
PCP	Primary Care Physician
PT	Physical Therapist
SLP	Speech Language Pathologist
SMP	Standardized Medication Profile
SNF	Skilled Nursing Facility
TOC	Transitions of Care

Data flow: →

USE CASE

Background: Betsy Smith-Johnson

Scene 1: Nura Mekel (Neurologist); Hospital EHR; Hospital Pharmacy System; HIE

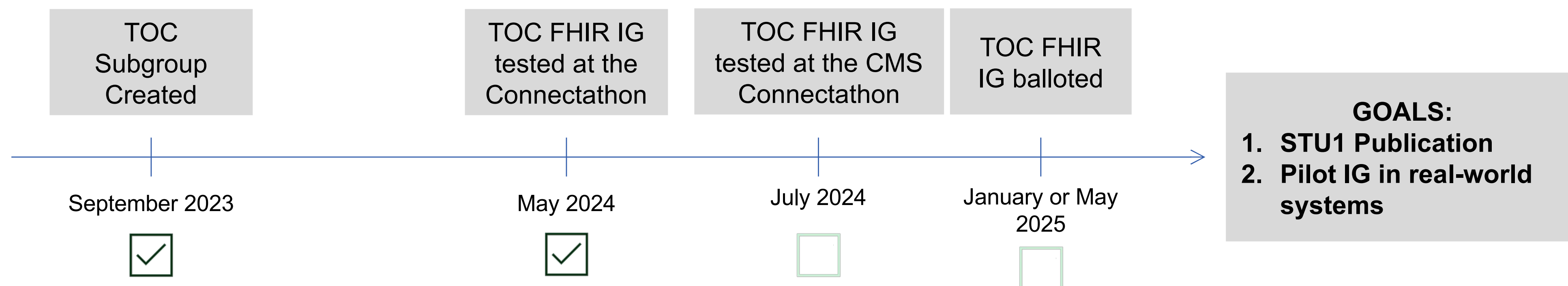
Scene 2: SNF Care Team; Tracy Count (Pharmacist); Betsy Smith-Johnson; Gerald Park (Practitioner)

Scene 3: SMP Client; Gerald Park (Practitioner); TOC Client; Medication Profile; Transition of Care Composition; SMP Server (Future); HIE; Anita Chu (PCP); HHA EHR; HHA Rehab Team

Scene 4: SMP Client; TOC Client; Medication Profile; Transition of Care Composition; HIE; Phil Chekhov (Pharmacist); Pharmacy System

Next steps are balloting and expanding partners.

- TOC FHIR IG tested at CMS Connectathon July 2024 and becomes a STU1 version of the standard in January or May 2025.
- Expand the roles represented in the IG to include:
  - Aide/Personal Care Attendant
  - Behavioral Health Clinicians
  - Clinical Administration
  - EMS
  - IT Quality Administration
  - Payer
  - Respiratory Therapy
  - Social Worker
- Incorporate systems and IT of additional partners, such as an HIE or EHR/health IT vendor for PAC settings.



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Questions?

Appendix

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

[1] 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