Advancing Interoperability: Supporting Electronic Data Exchange Between PAC and Other Providers Using FHIR

2020 CMS Quality Conference

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Acronyms in this Presentation

- CMS – Centers for Medicare & Medicaid Services
- DCPAC – Division of Chronic and Post-Acute Care
- DEL – Data Element Library
- FHIR – Fast Healthcare Interoperability Resource
- HHA – Home Health Agency
- HIS – Hospice Item Set
- HIT – Health Information Technology
- IG – Implementation Guide
- IMPACT – Improving Medicare Post-Acute Care Transformation Act
- IRF – Inpatient Rehabilitation Facility
- IRF-PAI – Inpatient Rehabilitation Facility Patient Assessment Instrument
- ISA – Interoperability Standards Advisory
- LCDS – LTCH CARE Data Set
- LOINC – Logical Observation Identifiers Names and Codes
- LTCH – Long-Term Care Hospital
- MDS – Minimum Data Set
- OASIS – Outcome and Assessment Information Set
- ONC – Office of the National Coordinator
- PAC – Post-Acute Care
- SNF – Skilled Nursing Facility
- SNOMED-CT – Systematized Nomenclature of Medicine - Clinical Terms
- SPADEs – Standardized Patient Assessment Data Elements
- USCDI – US Core Data for Interoperability

Agenda

- Post-Acute Care Overview
- The CMS Data Element Library
- ONC Interoperability Update
- PAC Interoperability Activities
    - PACIO Project
    - Fast Healthcare Interoperability Resources (FHIR) Development
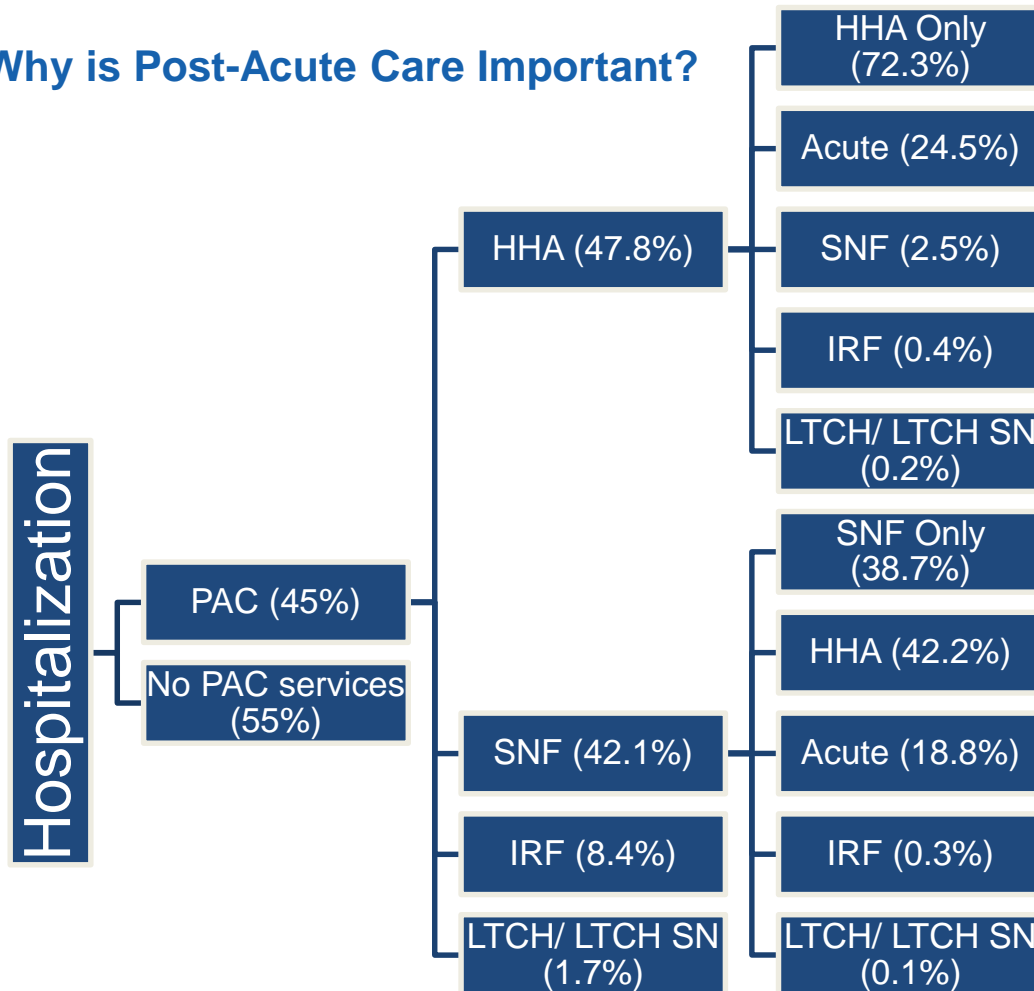- Opportunities/Next Steps
- Discussion

Post-Acute Care and the Data Element Library

Why is Post-Acute Care Important?

Hospitalization
- PAC (45%)
- No PAC services (55%)

PAC (45%) branches:
- HHA (47.8%)
  - HHA Only (72.3%)
  - Acute (24.5%)
  - SNF (2.5%)
  - IRF (0.4%)
  - LTCH/ LTCH SN (0.2%)
- SNF (42.1%)
  - SNF Only (38.7%)
  - HHA (42.2%)
  - Acute (18.8%)
  - IRF (0.3%)
  - LTCH/ LTCH SN (0.1%)
- IRF (8.4%)
- LTCH/ LTCH SN (1.7%)

- **Approximately 33,000 PAC Providers in the U.S. care for 6.9 million beneficiaries costing over $73.8 billion annually**

- **After a hospitalization, 45% of patients required PAC services.** HHA and SNFs were the most utilized services after a hospital admission

- Of those patients that required HHA services after a hospital admission, 72.3% did not require any further services

- Of those patients that required SNF services 38.7% did not require any further services but 42.2% transitioned to HHA.
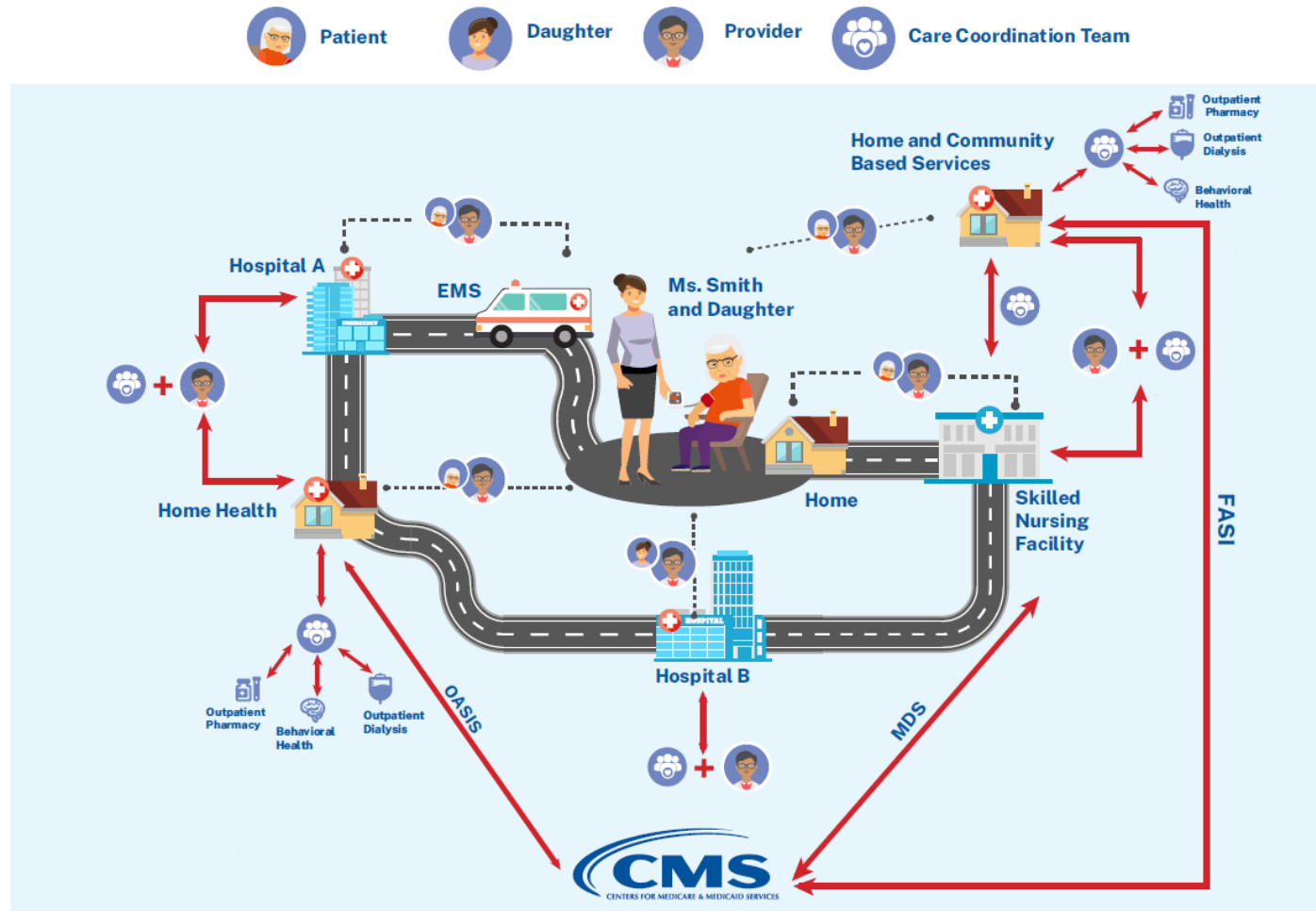
Distribution of Medicare FFS Beneficiaries by Number of Chronic Conditions & Total Medicare Spending in 2017

■ 0 to 1 condition ■ 2 to 3 conditions ■ 4 to 5 conditions ■ 6+ conditions
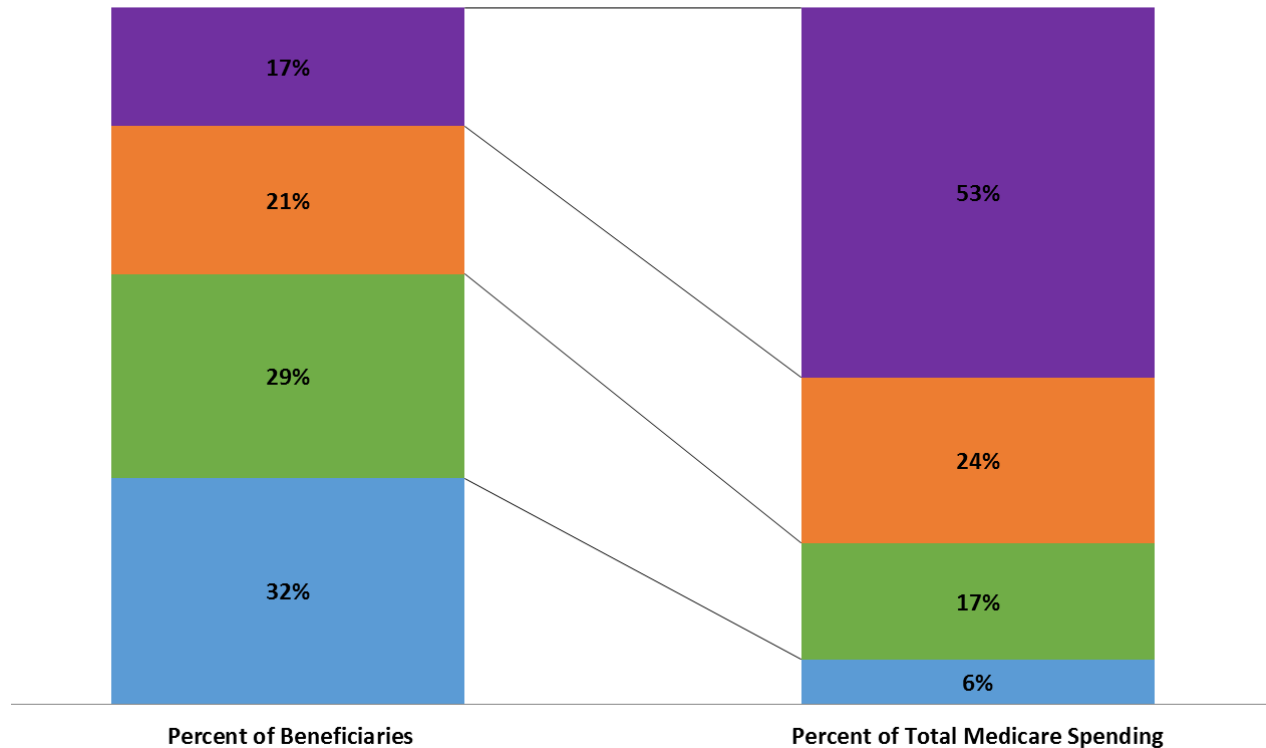
Percent of Beneficiaries
- 17%
- 21%
- 29%
- 32%

Percent of Total Medicare Spending
- 53%
- 24%
- 17%
- 6%

The Patient Story

Post-Acute Care Assessments

IRF-PAI Form

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTER FOR MEDICARE & MEDICAID SERVICES

OMB No. 0938-0842

INPATIENT REHABILITATION FACILITY - PATIENT ASSESSMENT INSTRUMENT

Identification Information*	Payer Information*
1. Facility Information	20. Payment Source
A. Facility Name	*(02 - Medicare Fee For Service; 51- Medicare-Medicare Advantage; 99 - Not Listed)*
	A. Primary Source _____
	B. Secondary Source _____

Medical Information*

B. Facility Medicare Provider Number _____	21. Impairment Group
2. Patient Medicare Number _____	Admission Discharge
3. Patient Medicaid Number _____	Condition requiring admission to rehabilitation; code according to Appendix A.
4. Patient First Name _____	
5A. Patient Last Name _____	22. Etiologic Diagnosis A.
5B. Patient Identification Number _____	*(Use ICD codes to indicate the etiologic problem* B.
6. Birth Date _____ MM / DD / YYYY	*that led to the condition for which the patient is* C.
	receiving rehabilitation)
7. Social Security Number _____	23. Date of Onset of Impairment _____ MM / DD / YYYY
8. Gender *(1 - Male; 2 - Female)* _____	24. Comorbid Conditions
9. Race/Ethnicity *(Check all that apply)*	Use ICD codes to enter comorbid medical conditions

(race/ethnicity list with lettered blanks A–F and comorbid condition blanks A–Q)

10. Marital Status	24A. Are there
(1 - Never Married; 2 - Married; 3 - Widowed; 4 - Separated; 5 - Divorced)	all of the...
11. Zip Code of Patient's Pre-Hospital Residence	412.20(b)...
12. Admission Date _____ MM / DD / YYYY	25. DELETED
13. Assessment Reference Date _____ MM / DD / YYYY	26. DELETED
14. Admission Class	Height and
(1 - Initial Rehab; 2 - Evaluation; 3 - Readmission; 4 - Unplanned Discharge; 5 - Continuing Rehabilitation)	*(While me... up)*
15A. Admit From	25A. Height on
(01- Home (private home/apt., board/care, assisted living, group home, transitional living); 02- Short-term General Hospital; 03 - Skilled Nursing Facility (SNF); 04 - Intermediate care; 06 - Home under care of organized home health service organization; 50 - Hospice (home); 51 - Hospice (institutional facility); 61 - Swing bed; 62 - Another Inpatient Rehabilitation Facility; 63 - Long-Term Care Hospital (LTCH); 64 - Medicaid Nursing Facility; 65 - Inpatient Psychiatric Facility; 66 - Critical Access Hospital; 99 - Not Listed)	26A. Weight on Measure... a.m. after
16A. Pre-hospital Living Setting	27. DELETED
Use codes from 15A. Admit From	28. DELETED
17. Pre-hospital Living With	
(Code only if Item 16A is 01- Home: Code using 01 - Alone; 02 - Family/Relatives; 03 - Friends; 04 - Attendant; 05 - Other)	
18. DELETED	
19. DELETED	

OASIS C2

LIVING ARRANGEMENTS

(M1100) Patient Living Situation: Which of the following best describes the patient's residential circumstance and availability of assistance? **(Check one box only.)**

Living Arrangement	Around the clock	Regular daytime	(night)
a. Patient lives alone	☐ 01	☐ 02	
b. Patient lives with other person(s) in the home	☐ 06	☐ 07	
c. Patient lives in congregate situation (for example, assisted living, residential care home)	☐ 11	☐ 12	

(column header: Availabili...)

SENSORY STATUS

(M1200) Vision (with corrective lenses if the patient usually wears the...)

Enter Code		
	0	Normal vision: sees adequately in most situation... newsprint.
	1	Partially impaired: cannot see medication labels... path, and the surrounding layout; can count finge...
	2	Severely impaired: cannot locate objects withou... nonresponsive.

Section B — Hearing, Speech, and Vision

Patient _____ Identifier _____ Date _____

Section B	Hearing, Speech, and Vision

B0100. Comatose

Enter Code	Persistent vegetative state/no discernible consciousness
	0. **No** → *Continue to BB0700, Expression of Ideas and Wants*
	1. **Yes** → *Skip to GG0100, Prior Functioning: Everyday Activities*

BB0700. Expression of Ideas and Wants (3-day assessment period)

Enter Code	**Expression of ideas and wants** (consider both verbal and non-verbal expression and excluding language barriers)
	4. Expresses complex messages **without difficulty** and with speech that is clear and easy to understand
	3. Exhibits some **difficulty** with expressing needs and ideas (e.g., some words or finishing thoughts) or speech is not clear
	2. **Frequently** exhibits difficulty with expressing needs and ideas
	1. **Rarely/Never** expresses self or speech is very difficult to understand

BB0800. Understanding Verbal and Non-Verbal Content (3-day assessment period)

Enter Code	**Understanding Verbal and Non-Verbal Content** (with hearing aid or device, if used, and excluding language barriers)
	4. **Understands:** Clear comprehension without cues or repetitions
	3. **Usually Understands:** Understands most conversations, but misses some part/intent of message. Requires cues at times to understand
	2. **Sometimes Understands:** Understands only basic conversations or simple, direct phrases. Frequently requires cues to understand
	1. **Rarely/Never Understands**

Section H — Bladder and Bowel

Resident _____ Identifier _____ Date _____

Section H	Bladder and Bowel

H0100. Appliances

↓ Check all that apply

☐	A. **Indwelling catheter** (including suprapubic catheter and nephrostomy tube)
☐	B. **External catheter**
☐	C. **Ostomy** (including urostomy, ileostomy, and colostomy)
☐	D. **Intermittent catheterization**
☐	Z. **None of the above**

H0200. Urinary Toileting Program

Enter Code	A. Has a trial of a toileting program (e.g., scheduled toileting, prompted voiding, or bladder training) been attempted on admission/entry or reentry or since urinary incontinence was noted in this facility?
	0. **No** → Skip to H0300, Urinary Continence
	1. **Yes** → Continue to H0200B, Response
	9. **Unable to determine** → Skip to H0200C, Current toileting program or trial
Enter Code	B. **Response** - What was the resident's response to the trial program?
	0. **No improvement**
	1. **Decreased wetness**
	2. **Completely dry** (continent)
	9. **Unable to determine** or trial in progress
Enter Code	C. **Current toileting program or trial** - Is a toileting program (e.g., scheduled toileting, prompted voiding, or bladder training) currently being used to manage the resident's urinary continence?
	0. **No**
	1. **Yes**

H0300. Urinary Continence

Enter Code	**Urinary continence** - Select the one category that best describes the resident
	0. **Always continent**
	...onally incontinent (less than 7 episodes of incontinence)
	...ently incontinent (7 or more episodes of urinary incontinence, but at least one episode of continent voiding)
	...ently incontinent (no episodes of continent voiding)
	...ted, resident had a catheter (indwelling, condom, urinary ostomy, or no urine output for the entire 7 days

...nence - Select the one category that best describes the resident
...s continent
...onally incontinent (one episode of bowel incontinence)
...ently incontinent (2 or more episodes of bowel incontinence, but at least one continent bowel movement)
...s incontinent (no episodes of continent bowel movements)
...ted, resident had an ostomy or did not have a bowel movement for the entire 7 days

...ing Program
...program currently being used to manage the resident's bowel continence?

...ns
...present?

Final LTCH CARE Data Set Version 4.00, Admission - Effective July 1, 2018

The Data Element Library

- The (DEL) is a centralized resource for CMS assessment data elements (e.g. questions and response options), and their associated mappings to nationally accepted health information technology (IT) standards.
- Use is optional
  - Supports provider exchange of electronic health information for better care coordination
  - Enables more seamless/less costly health information exchange
  - Reduces overall provider burden through use and exchange of health care data
  - Promotes high quality, personalized, efficient health care
  - Supports real-time, data driven, clinical decision making
- Search and generate reports (assessment questions & response options, their attributes, and linked HIT standards)
- **No patient data**

Visit the DEL here: https://del.cms.gov

Data Element Library (DEL) Home Page

DEL Search

Making PAC Assessment Data Elements Standardized/Aligned and Interoperable

Align Data Questions and Responses in Federal Assessment Instruments

IRF-PAI ↔ LCDS ↔ MDS ↔ OASIS

HIT Content Standards (e.g.):
LOINC, SNOMED CT
HIT Exchange Standards (e.g.):
HL7 C-CDA Documents/Emerging standards (FHIR)

Relevant interoperable assessment data (such as functional status, cognitive status, etc.) can be used to populate documents

Documents:
Care Plan, Transfer Summary, Consultation Note, Referral

Source: RTI International

A Connected, Interoperable Healthcare System

ONC Interoperability Update

DRAFT 2020-2025 Federal Health IT Strategic Plan
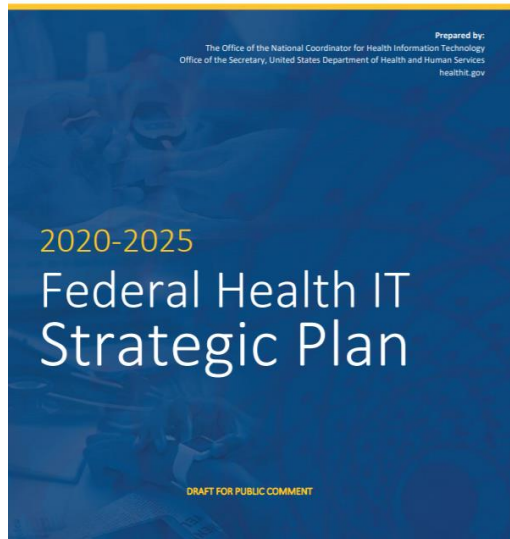
The plan explains how the federal government intends to use health IT to:

- Promote Health and Wellness;
- Enhance the Delivery and Experience of Care;
- Build a Secure, Data-Driven Culture to Accelerate Research and Innovation; and
- Connect Healthcare and Health Data through an Interoperable Health IT Infrastructure.

The public comment period on the draft of the *2020-2025 Federal Health IT Strategic Plan* ends on March 18, 2020 at 11:59 pm ET.

Strategic Plan Framework

Promote Health and Wellness GOAL 1

Objective 1a: Improve individual access to health information

Objective 1b: Advance healthy and safe practices through health IT

Objective 1c: Integrate health and human services information

Enhance the Delivery and Experience of Care GOAL 2

Objective 2a: Ensure safe and high-quality care through the use of health IT

Objective 2b: Foster competition, transparency, and affordability in healthcare

Objective 2c: Reduce regulatory and administrative burden on providers

Objective 2d: Enable efficient management of resources and a workforce confidently using health IT

Build a Secure, Data-Driven Ecosystem to Accelerate Research and Innovation GOAL 3

Objective 3a: Advance individual- and population-level transfer of health data

Objective 3b: Support research and analysis using health IT and data at the individual and population levels

Connect Healthcare and Health Data through an Interoperable Health IT Infrastructure GOAL 4

Objective 4a: Advance the development and use of health IT capabilities

Objective 4b: Establish transparent expectations for data sharing

Objective 4c: Enhance technology and communications infrastructure

Objective 4d: Promote secure health information that protects patient privacy

21st Century CURES Section 4003 (b)

*"[T]he National Coordinator shall convene appropriate public and private stakeholders to develop or support a **trusted exchange framework** for trust policies and practices and for a **common agreement** for exchange between health information networks."*

Trusted Exchange Framework

GOAL 1	GOAL 2	GOAL 3
Provide a single "on-ramp" to nationwide connectivity	Electronic Health Information (EHI) securely follows you when and where it is needed	Support nationwide scalability

https://www.healthit.gov/topic/interoperability/trusted-exchange-framework-and-common-agreement

U.S. Core Data for Interoperability 2019 * Version 1 (NPRM)

A SET OF DATA CLASSES TO SUPPORT NATIONWIDE INTEROPERABILITY

The USCDI Version 1 (USCDI v1) is proposed as a standard (§ 170.213). It reflects the same data classes referenced by the CCDS definition and includes new required data classes and data elements, noted below.

If adopted, health IT developers will need to update their certified health IT to support the USCDI for all certification criteria affected by this change.

USCDI v1

USCDI Annual Update Schedule

- ONC intends to establish and follow a predictable, transparent, and collaborative process, to expand the USCDI, including providing, stakeholders with the opportunity to comment, on the USCDI's expansion.

https://www.healthit.gov/isa/us-core-data-interoperability-uscdi

ONC Interoperability Standards Advisory (ISA)

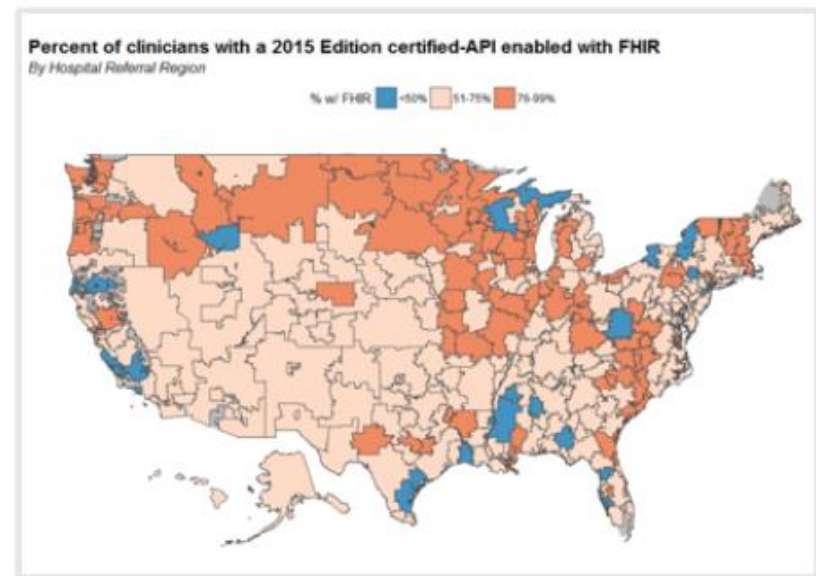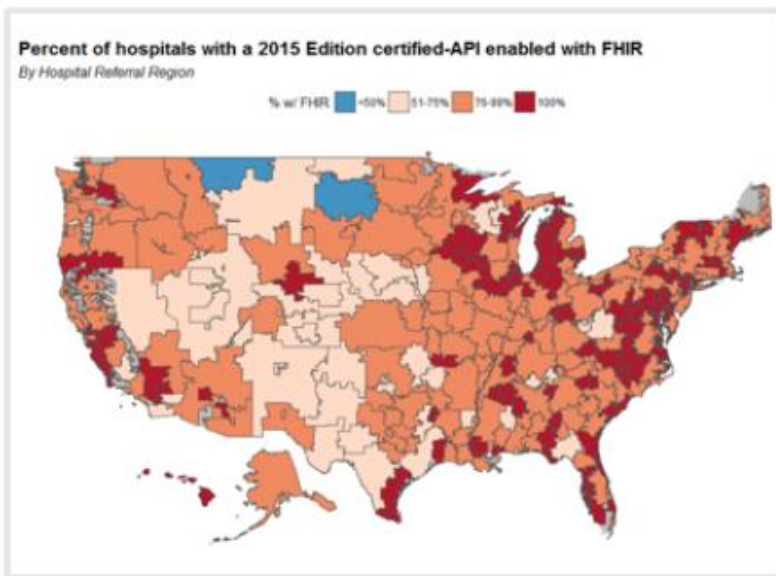# 2020 ISA Updates Relevant to Post-Acute Care

Examples:

- **Representing Patient Functional Status and/or Disability**
- **Representing Patient Cognitive Status**
- **Representing Transportation Insecurity**
- **Representing Food Insecurity**
- **Representing Housing Insecurity**
- **Referral from Acute Care to a Skilled Nursing Facility**
- **Referral to Extra-Clinical Services - Request, Updates, Outcome**

https://www.healthit.gov/isa/

FHIR Heat Wave

87% of hospitals and 69% of MIPS eligible clinicians
using EHRs certified to FHIR

Source: https://www.healthit.gov/buzz-blog/interoperability/heat-wave-the-u-s-is-poised-to-catch-fhir-in-2019

PAC Interoperability Activities

- **PACIO**
- **Fast Healthcare Interoperability Resources (FHIR) Development**

PACIO Project Mission

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

- Promote health data exchange in collaboration with policy makers, standards organizations, and industry through a consensus-based approach.

http://pacioproject.org

PACIO Project Organization

Organizational Chart
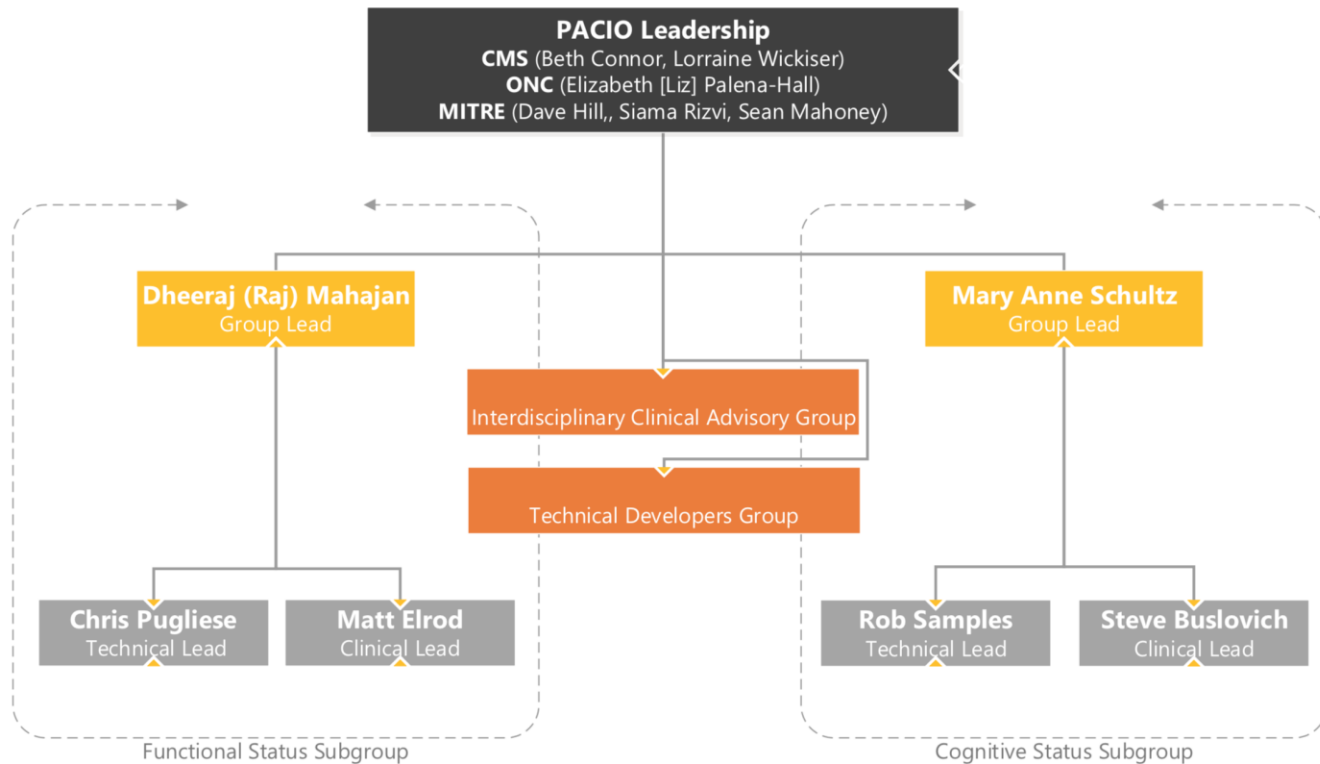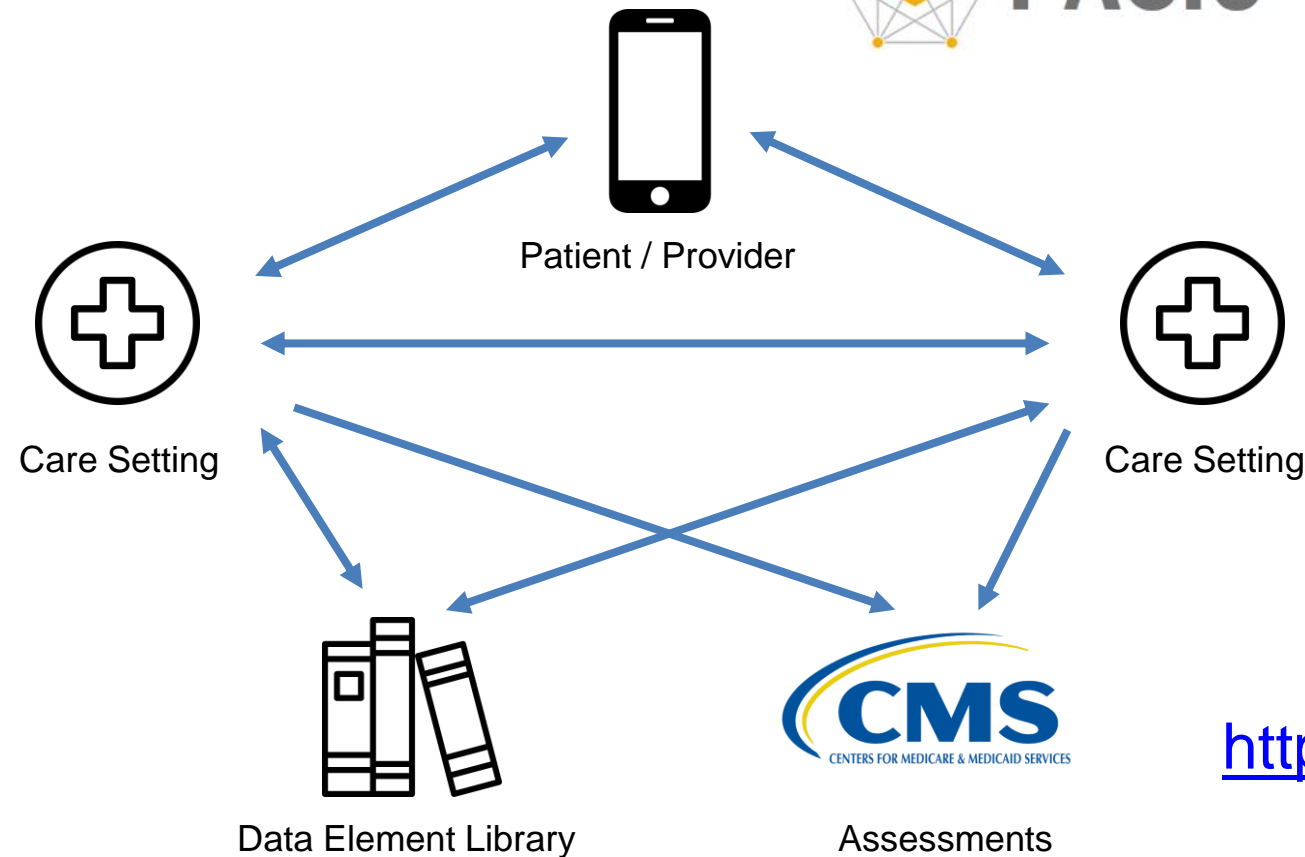
PACIO Leadership
CMS (Beth Connor, Lorraine Wickiser)
ONC (Elizabeth [Liz] Palena-Hall)
MITRE (Dave Hill,, Siama Rizvi, Sean Mahoney)

Dheeraj (Raj) Mahajan
Group Lead

Mary Anne Schultz
Group Lead

Interdisciplinary Clinical Advisory Group

Technical Developers Group

Chris Pugliese
Technical Lead

Matt Elrod
Clinical Lead

Rob Samples
Technical Lead

Steve Buslovich
Clinical Lead

Functional Status Subgroup

Cognitive Status Subgroup

Reaching the Long-Term Goal

PACIO

Transfer/Transition Summary

Overarching goal for PACIO

Cognitive Status

Functional Status

Use cases that will be going to ballot

BIMS	CAM	PHQ 2-9	Mobility	(In Progress)

CAM and Mobility were tested at the CMS Connectathon to strengthen our case for use cases going to ballot

CAM and Functional Status (Section GG) – Data Exchange

C1310. Signs and Symptoms of Delirium (from CAM©)

Code **after completing** Brief Interview for Mental Status and reviewing medical record.

A. Acute Onset Mental Status Change

Enter Code [ ] **Is there evidence of an acute change in mental status** from the patient's baseline?
0. **No**
1. **Yes**

Coding:
0. **Behavior not present**
1. **Behavior continuously present, does not fluctuate**
2. **Behavior present, fluctuates** (comes and goes, changes in severity)

↓ **Enter Code in Boxes**

[ ] **B. Inattention** - Did the patient have difficulty focusing attention, for example being easily distractible or having difficulty keeping track of what was being said?

[ ] **C. Disorganized thinking** - Was the patient's thinking disorganized or incoherent (rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject)?

[ ] **D. Altered level of consciousness** - Did the patient have altered level of consciousness as indicated by any of the following criteria?
- **vigilant** - startled easily to any sound or touch
- **lethargic** - repeatedly dozed off when being asked questions, but responded to voice or touch
- **stuporous** - very difficult to arouse and keep aroused for the interview
- **comatose** - could not be aroused

Adapted from: Inouye SK, et al. Ann Intern Med. 1990; 113: 941-948. Confusion Assessment Method. Copyright 2003, Hospital Elder Life Program, LLC. Not to be reproduced without permission.

Section GG	Functional Abilities and Goals

GG0170. Mobility (3-day assessment period)

Code the patient's usual performance at admission for each activity using the 6-point scale. If activity was not attempted at admission, code the reason. Code the patient's discharge goal(s) using the 6-point scale. Use of codes 07, 09, 10, or 88 is permissible to code discharge goal(s).

Coding:
Safety and **Quality of Performance** - If helper assistance is required because patient's performance is unsafe or of poor quality, score according to amount of assistance provided.

Activities may be completed with or without assistive devices.

06. **Independent** - Patient completes the activity by him/herself with no assistance from a helper.
05. **Setup or clean-up assistance** - Helper sets up or cleans up; patient completes activity. Helper assists only prior to or following the activity.
04. **Supervision or touching assistance** - Helper provides verbal cues and/or touching/steadying and/or contact guard assistance as patient completes activity. Assistance may be provided throughout the activity or intermittently.
03. **Partial/moderate assistance** - Helper does LESS THAN HALF the effort. Helper lifts, holds or supports trunk or limbs, but provides less than half the effort.
02. **Substantial/maximal assistance** - Helper does MORE THAN HALF the effort. Helper lifts or holds trunk or limbs and provides more than half the effort.
01. **Dependent** - Helper does ALL of the effort. Patient does none of the effort to complete the activity. Or, the assistance of 2 or more helpers is required for the patient to complete the activity.

If activity was not attempted, code reason:
07. **Patient refused**
09. **Not applicable** - Not attempted and the patient did not perform this activity prior to the current illness, exacerbation, or injury.
10. **Not attempted due to environmental limitations** (e.g., lack of equipment, weather constraints)
88. **Not attempted due to medical condition or safety concerns**

1. Admission Performance	2. Discharge Goal	
↓ Enter Codes in Boxes ↓		
[ ]	[ ]	**A. Roll left and right:** The ability to roll from lying on back to left and right side, and return to lying on back on the bed.
[ ]	[ ]	**B. Sit to lying:** The ability to move from sitting on side of bed to lying flat on the bed.
[ ]	[ ]	**C. Lying to sitting on side of bed:** The ability to move from lying on the back to sitting on the side of the bed with no back support.
[ ]	[ ]	**D. Sit to stand:** The ability to come to a standing position from sitting in a chair, wheelchair, or on the side of the bed.
[ ]	[ ]	**E. Chair/bed-to-chair transfer:** The ability to transfer to and from a bed to a chair (or wheelchair).
[ ]	[ ]	**F. Toilet transfer:** The ability to get on and off a toilet or commode. *If admission performance is coded 07, 09, 10, or 88 → Skip to GG0170I, Walk 10 feet*
[ ]	[ ]	**G. Car transfer:** The ability to transfer in and out of a car or van on the passenger side. Does not include the ability to open/close door or fasten seat belt.
[ ]	[ ]	**I. Walk 10 feet:** Once standing, the ability to walk at least 10 feet in a room, corridor, or similar space. *If admission performance is coded 07, 09, 10, or 88 → Skip to GG0170M, 1 step (curb)*
[ ]	[ ]	**J. Walk 50 feet with two turns:** Once standing, the ability to walk at least 50 feet and make two turns.
[ ]	[ ]	**K. Walk 150 feet:** Once standing, the ability to walk at least 150 feet in a corridor or similar space.

PACIO Project Overview PACIO

PACIO Meetings

Platform for members to provide input into the use cases, data models and development of the FHIR framework

Connectathons

Opportunity for vendors to test the client and/or server and provide feedback
_____
Participants take the role of server or client depending on the organization they represent
_____
Connectathon is like a "test kitchen" where the Implementation Guide is a "recipe" that can be tested and refined by participants

Balloting

Proposing a standard that is validated and accepted by HL7 community
_____
To participate in a ballot, the group must strengthen their case by participating in Connectathons

Adoption

EHR Vendors adopt the IG
_____
Adoption of the framework across the healthcare spectrum

Develop a FHIR Implementation Guide and Reference Implementation validated by the HL7 Community that EHR vendors will build into their system

Provide a standardized method of exchanging health information across healthcare settings

HL7 Connectathons – DEL and PACIO Tracks

CMS Connectathon Goals

- DEL: Testing the FHIR API prototype and Implementation Guide for the CMS Data Element Library
  - Assess whether the standardized assessments and responses can be used by EHR and assessment software to render assessment forms
  - Socialize the CMS Data Element Library and the FHIR API
  - Attract vendor participation in developing solutions using the CMS Data Element Library
- PACIO Project: Exchanging the short CAM for cognitive status and CMS assessment functional status items (Section GG)
  - Test a small piece of cognitive status and functional status to validate the current Implementation Guide and Reference Implementation
  - Assess whether CAM and GG items can be exchanged between two disparate Health IT systems in a consumable format for clinicians
  - Socialize the PACIO Project among the FHIR community
  - Satisfy HL7 requirement to participate in a Connectathon prior to taking PACIO Project IGs to ballot

CMS Connectathon Results

General
- Very successful Connectathon!
- Three PAC tracks: CMS Data Element Library (DEL) API, PACIO Functional Status, PACIO Cognitive Status
  - Hosted 6-10 people at each table
  - Good collaboration and discussion around requirements and Implementation Guides
  - Several issues identified and improvements made to implementation guides for all three tracks

CMS DEL
- Two independent software clients successfully displayed assessment forms from pseudo-DEL FHIR server (Reference implementation client and mobile client from Prepared Health)
- Prepared Health indicated they would use a DEL FHIR API as soon as publicly available

PACIO Functional Status/Cognitive Status
- Two independent software clients successfully displayed sample data from PACIO FHIR server (Reference implementation client and web client from Patient Centric Solutions)
- Displayed functional/cognitive status observations, including snapshots in time

Vhi Vendor Implementations

Source: Patient Centric Solutions, Inc.

PACIO Project Status

- Working on two use cases in parallel
  - Functional Status
  - Cognitive Status
- Created two HL7 Projects, one for each use case, sponsored by:
  - HL7 Patient Care Work Group
  - HL7 Community-Based Care and Privacy Work Group
  - Note: HL7 Patient Administration Work Group is an interested party
- Participated in two Connectathons
  - September 2019 HL7 Connectathon in Atlanta, GA
  - January 2020 CMS Connectathon in Baltimore, MD

Opportunities and Next Steps

- PACIO Project
  - Visit http://pacioproject.org
  - Contact info@pacioproject.org
- 2020 HL7 Connectathons (May 16-17 in San Antonio, TX; Sept. 19-20 in Baltimore, MD)
  - Select the Post-Acute Care track
  - Reach out to the track lead via Zulip
    - https://chat.fhir.org
  - Get your system(s) ready to interact with others
  - Bring your FHIR knowledge and development tools

What's next for our Interoperability Strategy?

- **Continued collaboration with the Standards Community:**
  - Support development of the Implementation Guides (IG)s and industry engagement in work groups
  - Identify and implement critical use cases for the exchange of healthcare information
  - Promote industry wide standards for adoption

- **Support Connectathons to test implementation guides**
  - Highlight use cases that prove viability of specifications
  - Minimize and discourage deployment of unique solutions
  - Encourage greater stakeholder collaboration & engagement in standards development & testing

- **Publish the Interoperability rules**

- **Support CMS and industry implementation**
  - Provide Leadership & Guidance
  - Encourage and support innovation

Questions?

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Lorraine.Wickiser@cms.hhs.gov
Elizabeth.PalenaHall@hhs.gov
DWHill@mitre.org

Additional Resources

PAC Quality Reporting Programs and DEL Resources

- For more information on the IMPACT Act, visit the **IMPACT Act** webpage

- For more information on Post-Acute Care Quality Reporting Programs, visit:
  - **Home Health Agencies**
  - **Hospice Agencies**
  - **Inpatient Rehab Facilities**
  - **Long-term Care Hospitals**
  - **Skilled Nursing Facilities**

- For DEL updates, sign up for the listserv **here**
- For DEL feedback or questions, contact: **DELHelp@cms.hhs.gov**
- For PACIO information or questions, please visit: http://pacioproject.org/

PACIO Implementation Guides

- Developed two HL7 FHIR Implementation Guides
  - Functional Status
    - https://paciowg.github.io/functional-status-ig/
  - Cognitive Status
    - https://paciowg.github.io/cognitive-status-ig/

Reference Implementation

PACIO

- Developing a Transfer Summary FHIR reference implementation
  - Demonstrates both Functional and Cognitive Status use cases
- Sample Data:
  - Use Case: https://github.com/paciowg/sample-data
  - FHIR Format: https://github.com/paciowg/connectathon-data
- Hosted Reference Implementations
  - Server: http://hapi.fhir.org/baseR4
  - Client: https://snf-transfer-summary.herokuapp.com/
- Reference Implementation Code (Apache 2.0 license)
  - Server: https://github.com/jamesagnew/hapi-fhir
  - Client: https://github.com/paciowg/transfer-summary-ri-client