

The Gravity Project: Early Reflections on the US Initiative to Create Social Risk Data and Data Standards



Health Terminology Standards Virtual Mini-Conference:
Incorporating Social Determinants of Health (SDOH)
Into Digital Health Systems

May 19, 2021



Our Speaker



Sarah C DeSilvey, DNP, FNP

Gravity Project
Clinical Informatics Director

Agenda

- Gravity Project Team
- Background (WHY)
- Terminology Workstream
- Technical Workstream
- Key Questions
- Accomplishments & Success Factors
- How to Engage

Gravity Project Team

Gravity Project Management Office (PMO)

- **Evelyn Gallego**, Program Manager, EMI Advisors
- **Carrie Lousberg**, Project Manager, EMI Advisors
- **Mark Savage**, SDOH Data Policy Lead,
- **Sarah DeSilvey**, Clinical Informatics Director, University of Vermont
- **Bob Dieterle**, Technical Director, EnableCare



Gravity Governance Structure (Federal Participation)

The Office of the National Coordinator for Health Information Technology



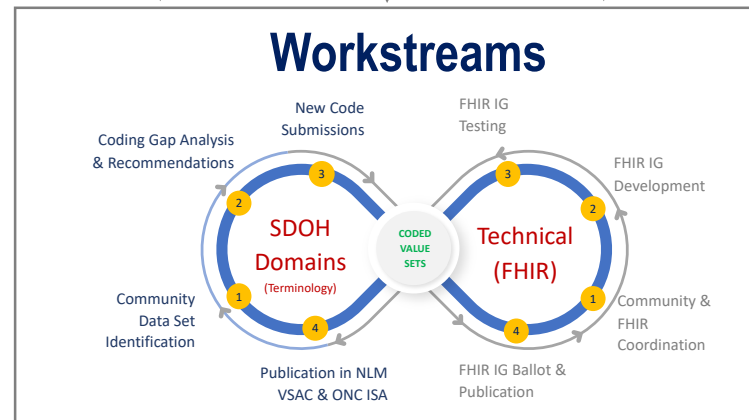
Executive Committee
15 members, at least 2 from each of:

1. Patients/Consumers
2. Providers (3)
3. Payers (3)
4. HIT Vendors (3)
5. Community Based Orgs
6. Federal Government

Program Management Office

Strategic Advisory Committee
All Financial Sponsors & Invited In-Kind Contributors. At least 2 of:

1. Patients/Consumers
2. Providers
3. Payers
4. HIT Vendors
5. Community Based Orgs
6. Federal Government



Technical Advisory Committee
At least 2 representatives from:

1. Patients/Consumers
2. Providers
3. Payers
4. HIT Vendors
5. Community Based Orgs
6. Federal Government

Gravity Public Collaborative
Elastic: 1,800+ members

HL7 SDOH FHIR IG Workgroup
Elastic: 50+ members



The Office of the National Coordinator for Health Information Technology



Gravity Operational Guidelines:

<https://confluence.hl7.org/pages/viewpage.action?pageId=91996161>

Project Founders, Grants, and In-Kind Support To-Date



<https://confluence.hl7.org/display/GRAV/Gravity+Project+Sponsors>



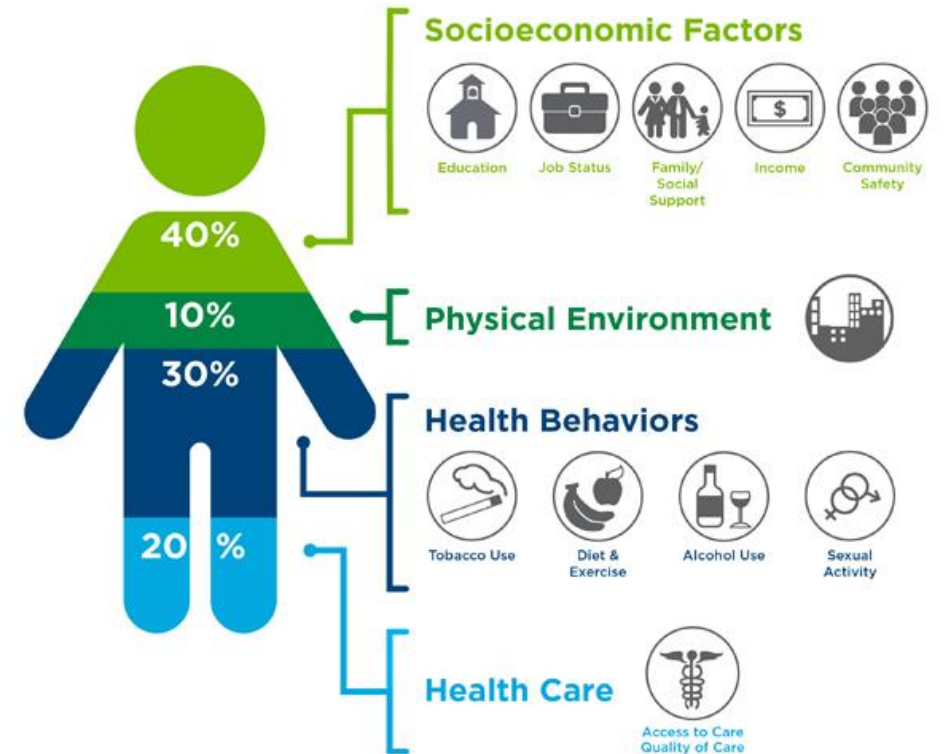
Background

Why Social Determinants of Health (SDOH) are Important

The role of social, environmental risks in health and health outcomes are well known

- **Food insecurity** correlates w/ Hypertension, Coronary heart disease, Stroke, Cancer, Asthma, Diabetes, Arthritis, Chronic obstructive pulmonary disease (COPD), Chronic kidney disease, Depression
- **Housing instability** poor neonatal growth, maternal depression
- **Transportation barriers** correlates with missed appointments, delayed care, and lower medication adherence

What Goes Into Your Health?



<https://www.bridgespan.org/insights/library/public-health/the-community-cure-for-health-care-1>
Source: Institute for Clinical System Improvement, Going Beyond the Community Cure for Health Care (October 2014)
The Bridgespan Group

Why capture social risk data in a standardized and structured way?

- As care for social needs has advanced in healthcare, there is an increasing demand to ***expand and standardize*** the terminology for social needs in order to:
 - Better care for patients with social needs and the populations they live within
 - Collaborate with clinical and community partners
 - Study social needs, their effect on health outcomes, and the effects of our interventions
 - Allocate resources toward social risk within value-based care

SIREN Social Risk Codes Review

133	Screening question panel codes
33	Screening procedure codes
686	Assessment/Diagnosis codes
243	Treatment/Intervention codes
1095	SDH Codes

Arons A, DeSilvey S, Fichtenberg C, Gottlieb L. [Documenting social determinants of health-related clinical activities using standardized medical vocabularies.](http://sirennetwork.ucsf.edu/tools-resources/mmi/compendium-medical-terminology-codes-social-risk-factors) JAMIA Open. 2018;2(1):81-88. (<http://sirennetwork.ucsf.edu/tools-resources/mmi/compendium-medical-terminology-codes-social-risk-factors>)

Challenges in SDOH Data Capture and Exchange

- Consent Management
- **Standardization of SDOH Data Collection and Storage**
- Data Sharing Between Ecosystem Parties
- Access & Comfort with Digital Solutions
- Concerns about Information Collection and Sharing
- Social Care Sector Capacity and Capability
- Unnecessary Medicalization of SDOH

https://www.nasdoh.org/wp-content/uploads/2020/08/NASDOH-Data-Interoperability_FINAL.pdf

Gravity Project History

In May 2019, the [Gravity Project](#) was launched as a multi-stakeholder public collaborative with the goal to develop, test, and validate standardized SDOH data for use in patient care, care coordination between health and human services sectors, population health management, public health, value-based payment, and clinical research.

The Gravity Project was initiated by the Social Interventions Research and Evaluation Network (SIREN) with funding from the Robert Wood Johnson Foundation and in partnership with EMI Advisors LLC

Gravity Project Goal

Goal- Develop consensus-driven data standards to support use and exchange of social determinants of health (SDOH) data within the health care sectors and between the health care sector and other sectors.



Gravity Project Use Cases

1. Document SDOH data in conjunction with the patient encounter.

2. Document and track SDOH related interventions to completion.

3. Gather and aggregate SDOH data for uses beyond the point of care (e.g., population health management, quality reporting, and risk adjustment/risk stratification).

<https://confluence.hl7.org/display/GRAV/Gravity+Use+Case+Package>

Public Collaboration

Gravity has convened over **1,800+** participants from across the health and human services ecosystem:

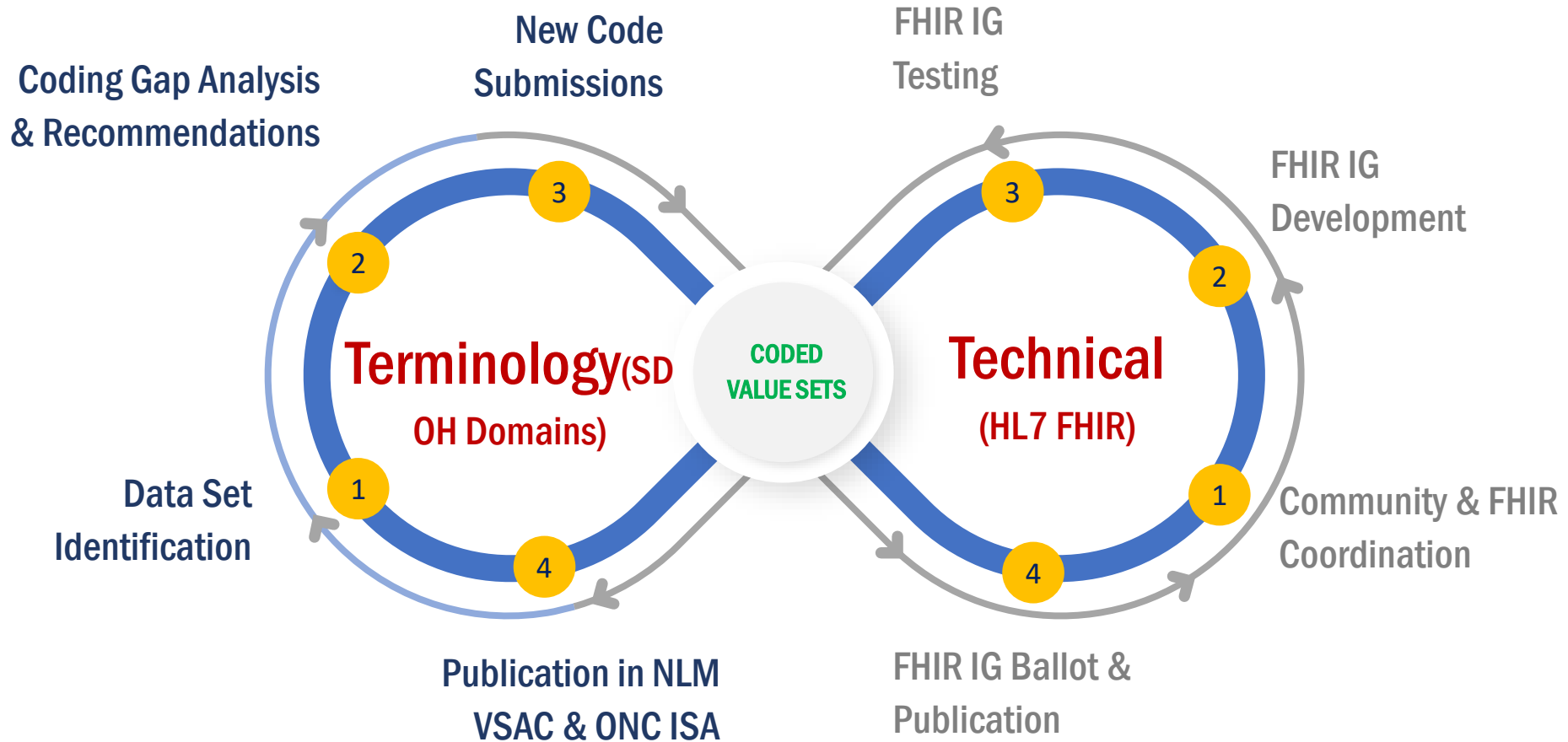
- clinical provider groups
- community-based organizations
- standards development organizations
- federal and state government
- payers
- technology vendors

Public Calls 4-5:30 EST every other Thursday

<https://confluence.hl7.org/pages/viewpage.action?pageId=46892669#JointheGravityProject-GravityProjectMembershipList>

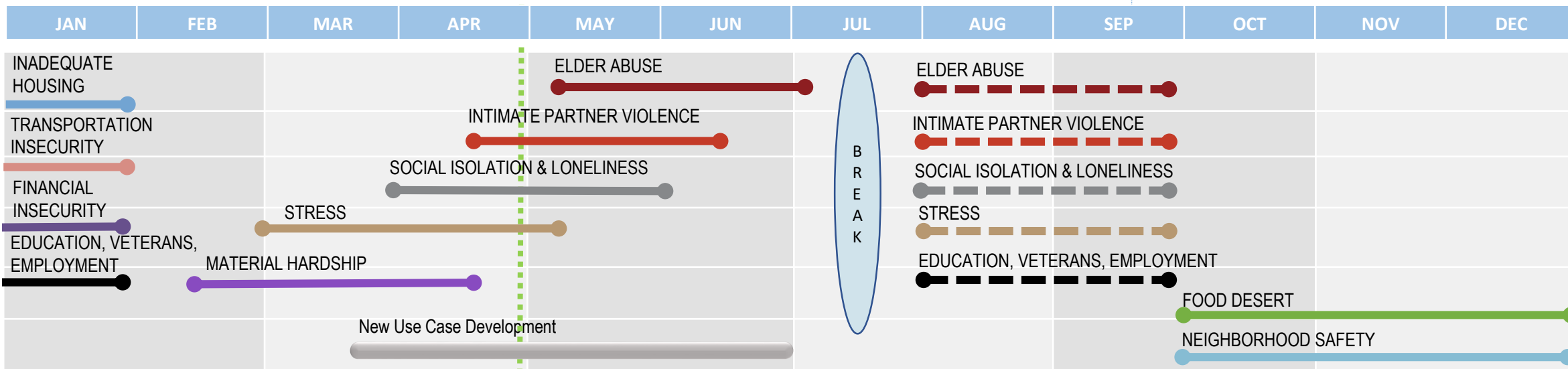


Gravity Overview: Two Streams

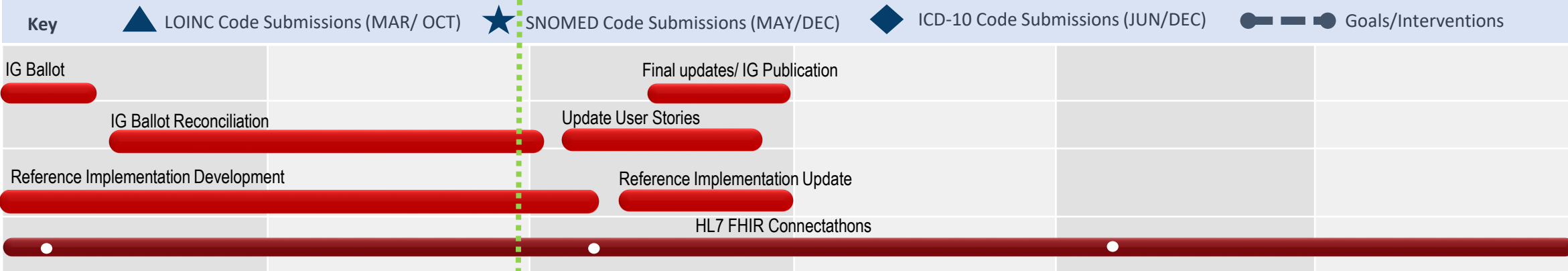


2021 Gravity Roadmap

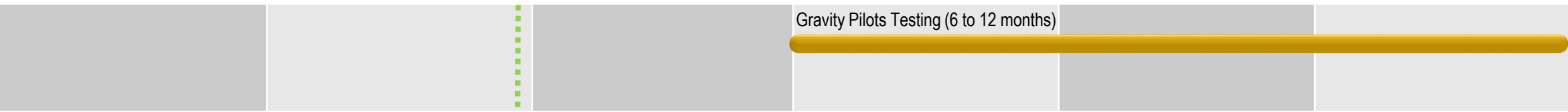
TERMINOLOGY



TECHNICAL



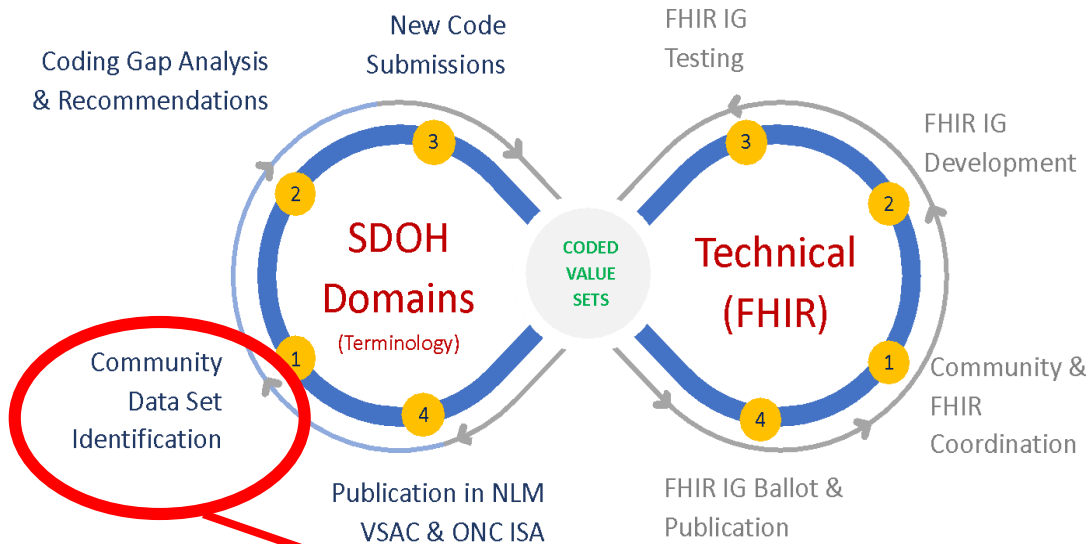
PILOTS



★ WE ARE HERE

Terminology Workstream

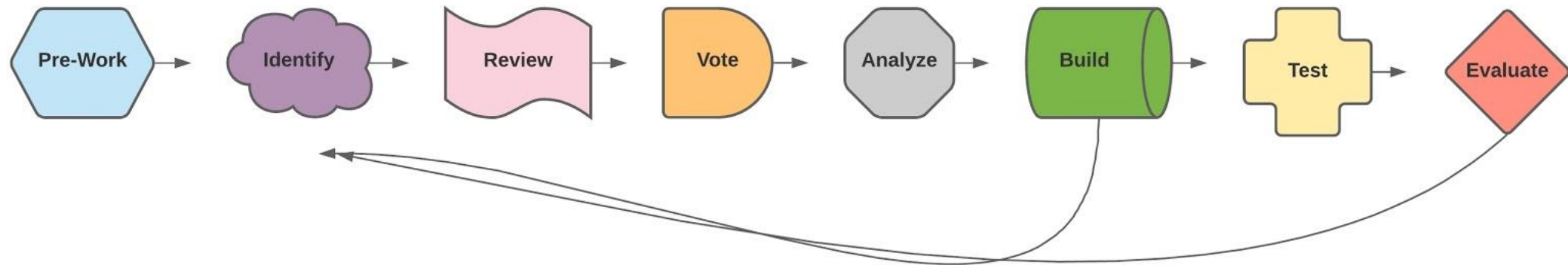
Community Data Set Identification



Community Data Set Identification

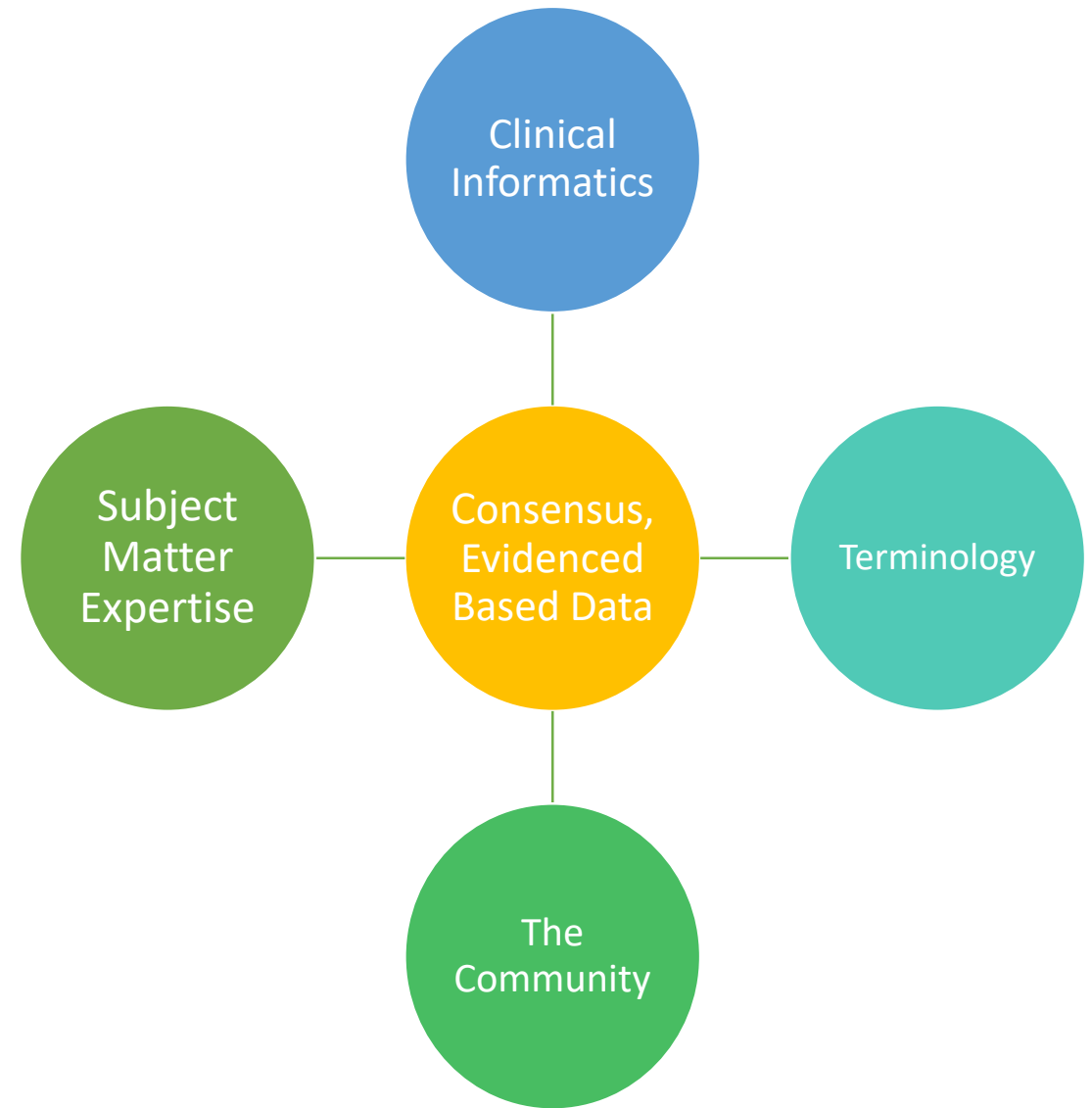
- A collaborative consensus process leveraging peer-reviewed literature, subject matter expertise, terminology and informatics insight, and the brainstorming of the collective to develop a comprehensive data set for each domain

Community Terminology Development



Terminology Team Collaborative Structure

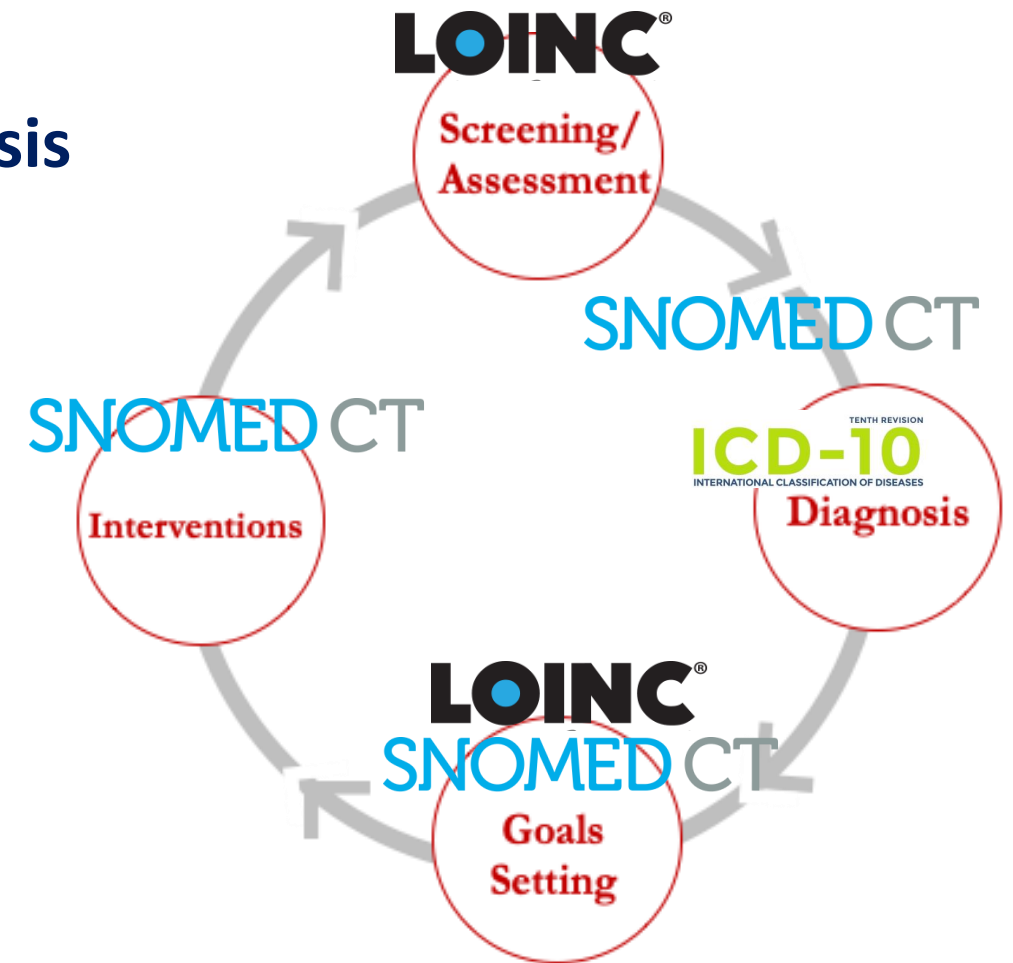
- Clinical and Process Insight
- Terminology and Taxonomy Insight
- Literature and Evidence
- Risk r/t Health Outcomes
- Practical Fit



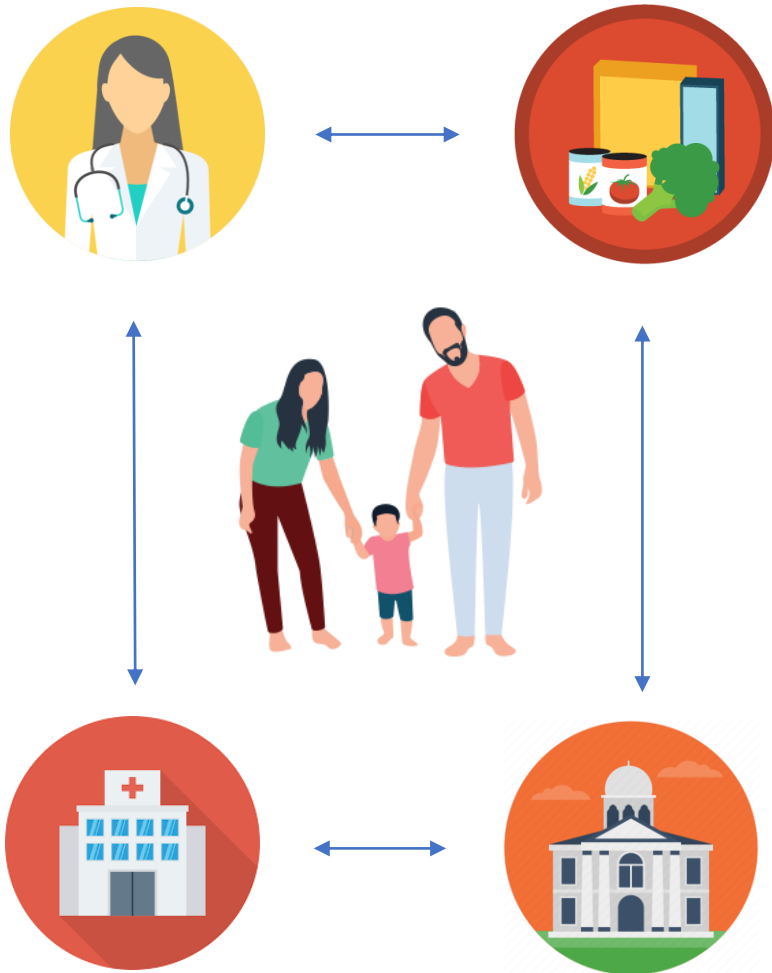
Terminology Workstream

Data Element Identification and Gap Analysis

- All data is sorted across four activities into a master set.
- For data within each domain, we ask:
 - What concepts need to be documented across the four activities?
 - What codes reflecting these concepts are currently available?
 - What codes are missing?



Stakeholder Perspectives on Data



What kinds of data does the provider need to care for their patients?

the hospital need to study the effects of provider interventions?

the community-based org need to address the need of their clients?

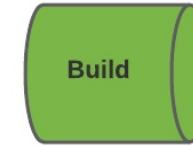
the state need to plan for population health needs?

And what are the principles we need to consider to keep patients at the center?

Interventions Framework

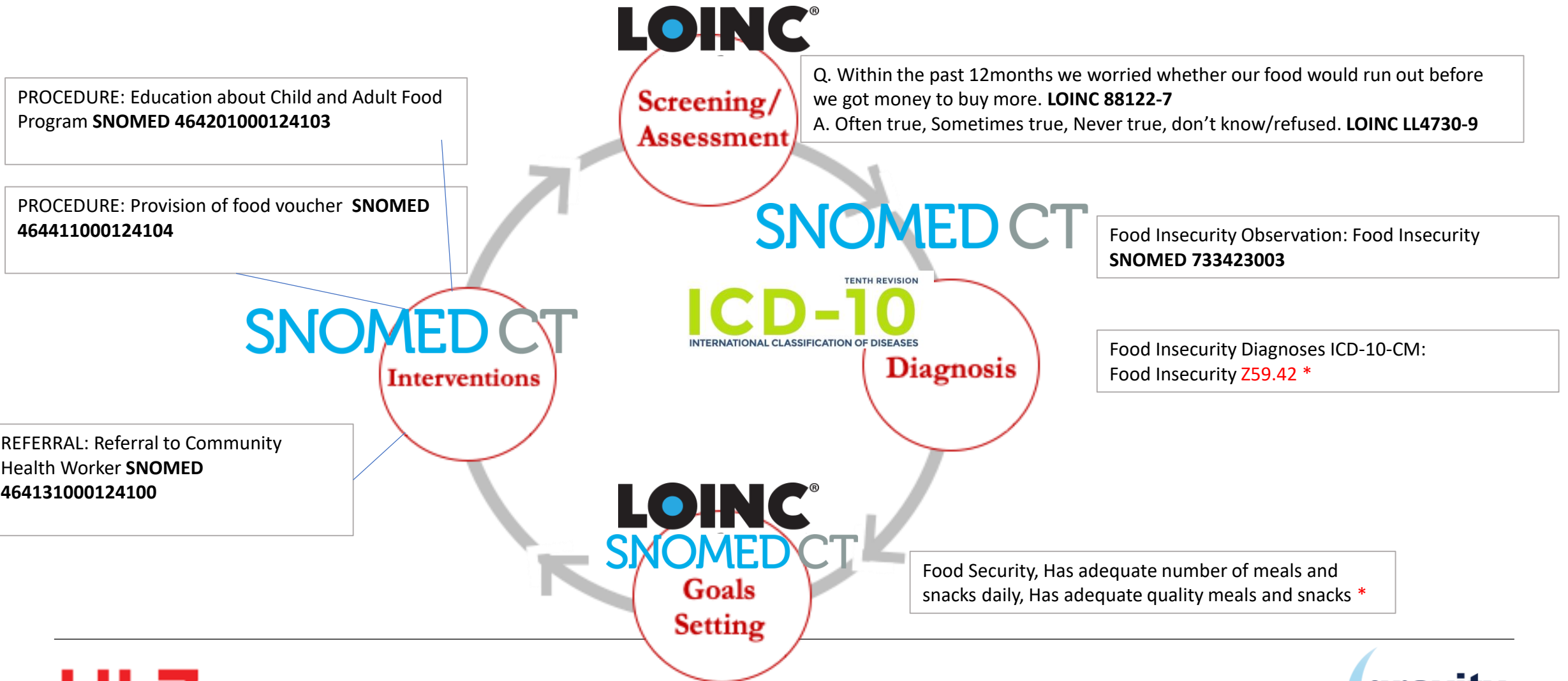
Gravity Term	Definitions
Assistance/ Assisting	To give support or aid to; help
Coordination	Process of organizing activities and sharing information to improve effectiveness
Counseling	Psychosocial procedure that involves listening, reflecting, etc. to facilitate recognition of course of action / solution.
Education	Procedure that is synonymous with those activities such as teaching, demonstration, instruction, explanation, and advice that aim to increase knowledge and skills.
Evaluation of eligibility (for <x> Subtype of Evaluation	Process of determining eligibility by evaluating evidence
Evaluation/ Assessment	Determination of a value, conclusion, or inference by evaluating evidence.
Provision	To supply/make available for use
Referral	The act of clinicians/providers sending or directing a patient to professionals and/or programs for services (e.g., evaluation, treatment, aid, information, etc.)

Terminology Submissions



- Over the course of the next months the Gravity team then creates submissions for the missing data elements
- Each submission is guided by the timelines and requirements of relevant terminologies (process for each in hyperlinks)
 - LOINC > [Regenstrief](#)
 - ICD-10-CM > [NCHS ICD-CM Coordination and Maintenance Committee Meeting](#)
 - SNOMED CT > US SNOMED Content Request System via [National Library of Medicine](#)
 - CPT®
 - HCPCS

Food Insecurity Terminology Build



ICD-10 CM Submission & March 10th Presentation



ICD-10 Coordination and Maintenance Committee Meeting

Diagnosis Agenda

Zoom Webinar and Dial-In Information

- This meeting will be conducted via Zoom Webinar. The URL to join the Zoom Webinar, the password, and the call-in numbers are the same for both days of the meeting
- Day 1: March 9, 2021: The meeting will begin promptly at 9:00 AM ET and will end at 5:00 PM ET. Lunch will be held from 12:30 PM to 1:30 PM.
- Day 2: March 10, 2021: The meeting will begin promptly at 9:00 AM ET and will end at 5:00 PM ET. Lunch will be held from 12:30 PM to 1:15 PM.

ICD-10 Coordination and Maintenance Committee Meeting March 9-10, 2021

Z59 Problems related to housing and economic circumstances Excludes2: problems related to upbringing (Z62.-)


New subcategory	Z59.0 Homelessness
New code	Z59.00 Homelessness unspecified
New code	Z59.01 Sheltered homelessness
Add	Doubled up
Add	Living in a shelter such as: motel, temporary or transitional living situation, scattered site housing
New code	Z59.02 Unsheltered homelessness
Add	Residing in place not meant for human habitation such as: cars, parks, sidewalk, abandoned buildings
Add	Residing on the street
Revise	Z59.4 Lack of adequate food and safe drinking water
Delete	Inadequate drinking water supply
	Excludes1: effects of hunger (T73.0)
	inappropriate diet or eating habits (Z72.4)
	malnutrition (E40-E46)
New code	Z59.41 Lack of adequate food
Add	Inadequate food
Add	Lack of food
New code	Z59.42 Food insecurity
	Z59.8 Other problems related to housing and economic circumstances
	Foreclosure on loan
	Isolated dwelling
	Problems with creditors
New sub subcategory	Z59.81 Housing instability, housed
Add	Past due on rent or mortgage
Add	Unwanted multiple moves in the last 12 months
New code	Z59.811 Housing instability, housed, with risk of homelessness
Add	Imminent risk of homelessness
New code	Z59.812 Housing instability, housed, homelessness in past 12 months

Housing Instability & Homelessness COVID Related Data Elements

***Use Case:** Discharge of COVID positive patients and ongoing monitoring—needed data to address inequities and management.*

<p>Diagnosis (ICD-10-CM and SNOMED CT <i>intnl</i>)</p>	<ul style="list-style-type: none"> • Homelessness, sheltered (sheltered need to consider transition to non-congregate housing) • Homelessness, unsheltered (unsheltered need to transition to non-congregate housing) • Substandard housing due to overcrowding (need to consider transition to supported housing to enable isolation) • Substandard housing due to lack of adequate plumbing (need to consider transition to supported housing to enable sanitation needs)
<p>Interventions (SNOMED-CT US extension)</p>	<ul style="list-style-type: none"> • Referral to community resource network program • Referral to Community Action Agency Program (often a pathway to homelessness case management) • Referral to community health worker (critical connector) • Referral for Coordinated Entry program (to enter HMIS process) • Referral to medical respite for homeless (covid positive would-be medical respite use case)

Gravity Confluence

 Gravity Project

Pages

» Blog

SPACE SHORTCUTS

- HL7 Documentation & Help

PAGE TREE



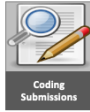


- Terminology Workstream Dashboard
 - Coding Submissions
 - Financial Strain
 - Food Insecurity
 - Housing Instability and Homelessness
 - Inadequate Housing
 - Terminology Overview
 - Transportation
 - Demographics Domain
 - Stress
- Technical Workstream Dashboard
- Gravity Project Meetings
- Gravity Project Events
- Consensus Process
- The Gravity Project Materials
 - Gravity Data Principles
- Gravity Project Communications
- Gravity Project Media and Public
- Gravity Project Executive Committee
- Gravity Project Strategic Advisory
- Gravity Project Technical Advisory
- Gravity Project Sponsors
- Gravity Project USCDI Submission
- Gravity SDOH COVID-19 Response
- Why the Name Gravity
- FAQ
- Join the Gravity Project
- ICD-10 Coding Submissions
- CMS RFI - Accelerating Adoption

Dashboard / The Gravity Project

Terminology Workstream Dashboard

Created by Carrie Lousberg, last modified on Mar 08, 2021

Overview and Information

 Terminology Overview	 Education Materials	 Coding Submissions	 Data Element Submission	 Community Meeting
---	--	---	--	--

Domains

FOOD INSECURITY	HOUSING INSTABILITY	INADEQUATE HOUSING	TRANSPORTATION INSECURITY	FINANCIAL INSECURITY
	HOMELESSNESS			MATERIAL HARDSHIP
UNEMPLOYMENT	STRESS	SOCIAL ISOLATION	NEIGHBORHOOD SAFETY	INTERPERSONAL VIOLENCE (IPV)
EDUCATION		Coming Soon!	Coming Soon!	Coming Soon!
VETERANS				

Gravity Project Data Use Principles for Equitable Health and Social Care

- Improving Personal Health Outcomes
- Improving Population Health Equity
- Ensuring Personal Control
- Designing Appropriate Solutions
- Ensuring Accountability
- Preventing, Reducing, and Remediating Harm



<https://confluence.hl7.org/display/GRAV/Gravity+Data+Principles>

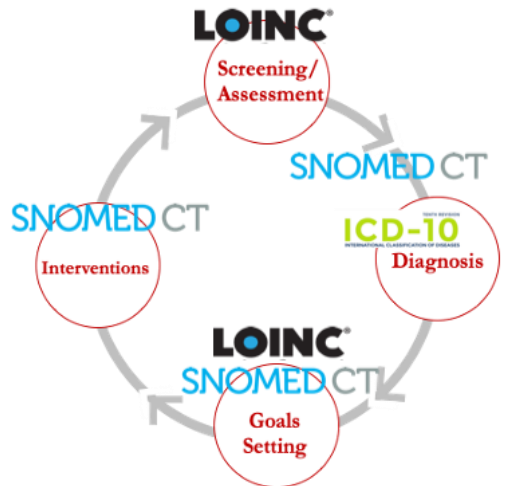
Technical Workstream

Accelerating Adoption Using Nationally Recognized Standards

Consensus Approved SDOH Data Elements

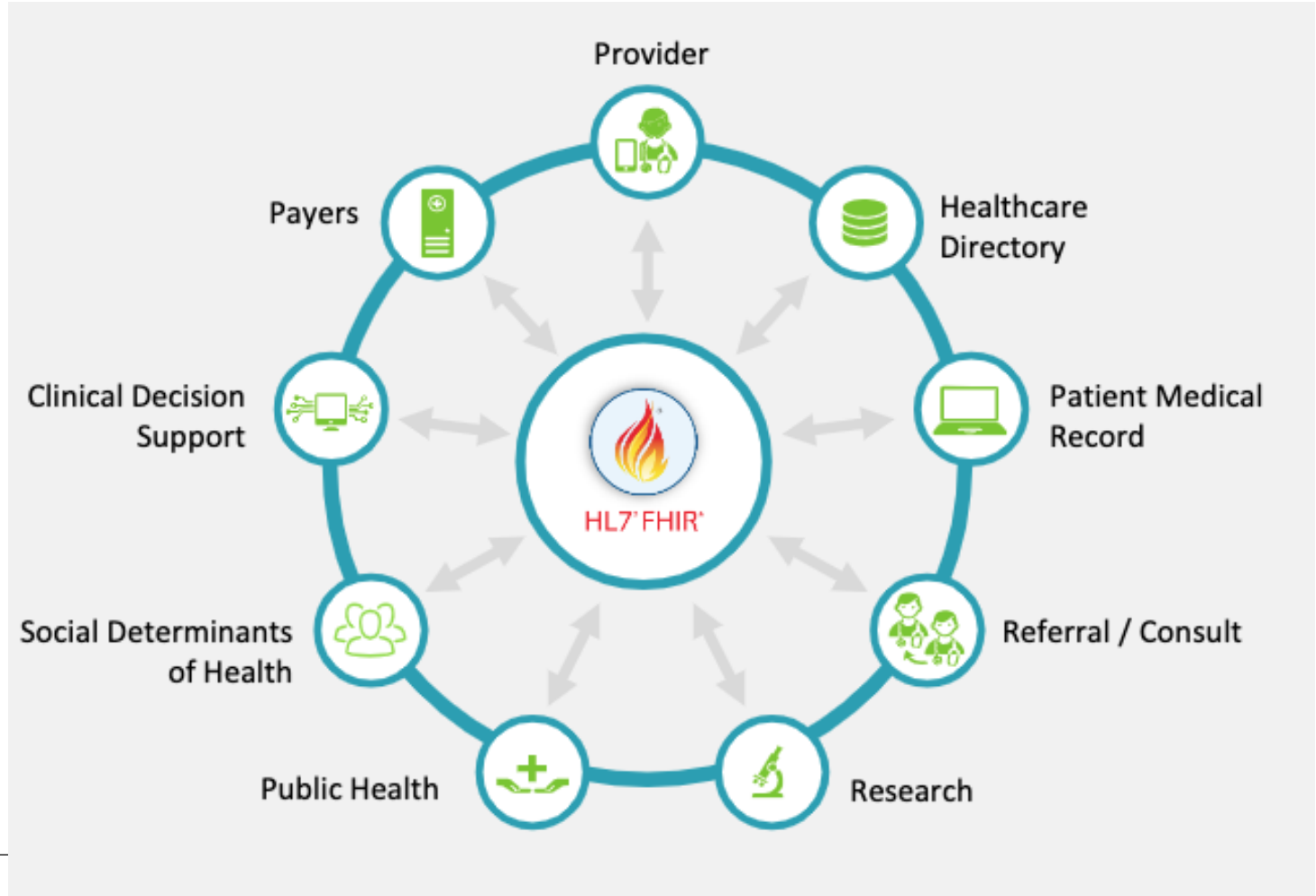


Coded SDOH Data Elements



FHIR

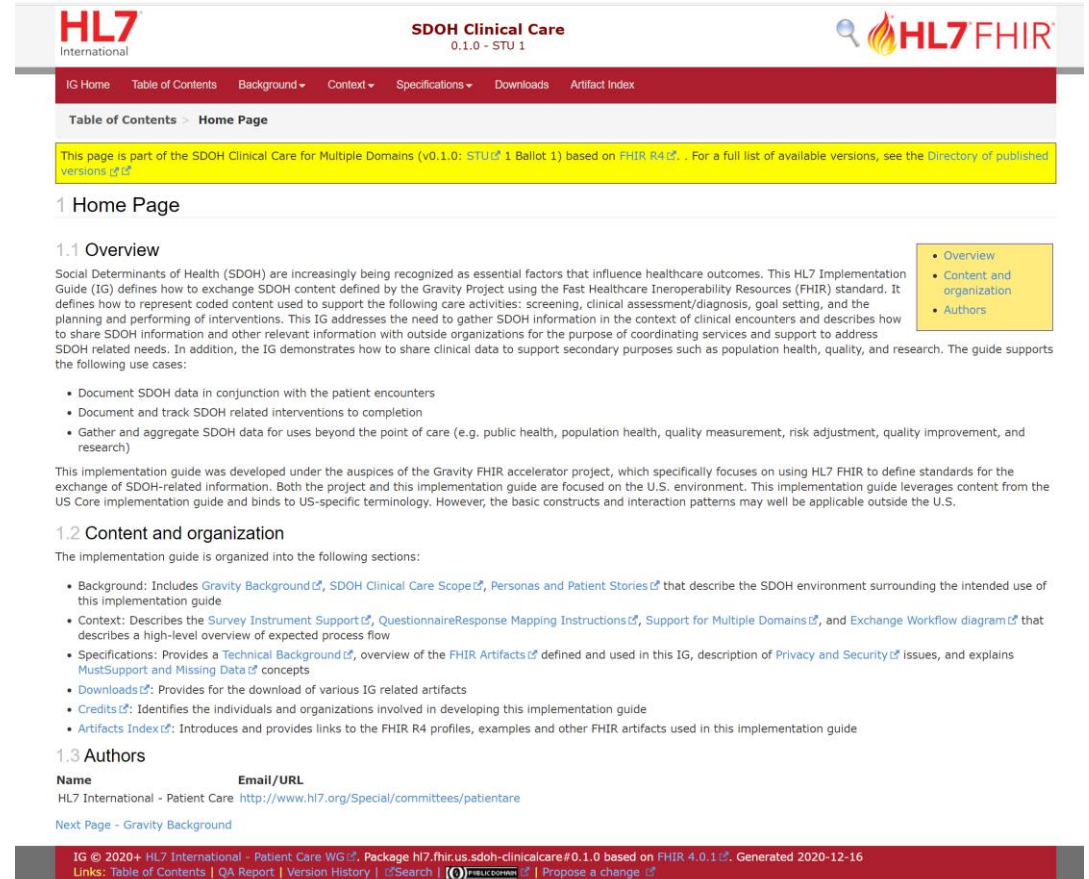
Fast Healthcare Interoperability Resources



SDOH Clinical Care FHIR Implementation Guide

1. The SDOH Clinical Care IG is a framework Implementation Guide (IG) and supports multiple domains
2. The IG supports the following clinical activities
 - Assessments
 - Health Concerns / Problems
 - Goals
 - Interventions/ Referrals
 - Consent
 - Aggregation for exchange/reporting
3. Completed January 2021 ballot as a Standard for Trial Use Level 1 (STU1)

<http://hl7.org/fhir/us/sdoh-clinicalcare/2021Jan/>



HL7 International

SDOH Clinical Care
0.1.0 - STU 1

HL7 FHIR

IG Home | Table of Contents | Background | Context | Specifications | Downloads | Artifact Index

Table of Contents > Home Page

This page is part of the SDOH Clinical Care for Multiple Domains (v0.1.0: STU 1 Ballot 1) based on FHIR R4. For a full list of available versions, see the Directory of published versions.

1 Home Page

1.1 Overview

Social Determinants of Health (SDOH) are increasingly being recognized as essential factors that influence healthcare outcomes. This HL7 Implementation Guide (IG) defines how to exchange SDOH content defined by the Gravity Project using the Fast Healthcare Interoperability Resources (FHIR) standard. It defines how to represent coded content used to support the following care activities: screening, clinical assessment/diagnosis, goal setting, and the planning and performing of interventions. This IG addresses the need to gather SDOH information in the context of clinical encounters and describes how to share SDOH information and other relevant information with outside organizations for the purpose of coordinating services and support to address SDOH related needs. In addition, the IG demonstrates how to share clinical data to support secondary purposes such as population health, quality, and research. The guide supports the following use cases:

- Document SDOH data in conjunction with the patient encounters
- Document and track SDOH related interventions to completion
- Gather and aggregate SDOH data for uses beyond the point of care (e.g. public health, population health, quality measurement, risk adjustment, quality improvement, and research)

This implementation guide was developed under the auspices of the Gravity FHIR accelerator project, which specifically focuses on using HL7 FHIR to define standards for the exchange of SDOH-related information. Both the project and this implementation guide are focused on the U.S. environment. This implementation guide leverages content from the US Core implementation guide and binds to US-specific terminology. However, the basic constructs and interaction patterns may well be applicable outside the U.S.

1.2 Content and organization

The implementation guide is organized into the following sections:

- Background: Includes Gravity Background, SDOH Clinical Care Scope, Persones and Patient Stories that describe the SDOH environment surrounding the intended use of this implementation guide
- Context: Describes the Survey Instrument Support, QuestionnaireResponse Mapping Instructions, Support for Multiple Domains, and Exchange Workflow diagram that describes a high-level overview of expected process flow
- Specifications: Provides a Technical Background, overview of the FHIR Artifacts defined and used in this IG, description of Privacy and Security issues, and explains MustSupport and Missing Data concepts
- Downloads: Provides for the download of various IG related artifacts
- Credits: Identifies the individuals and organizations involved in developing this implementation guide
- Artifacts Index: Introduces and provides links to the FHIR R4 profiles, examples and other FHIR artifacts used in this implementation guide

1.3 Authors

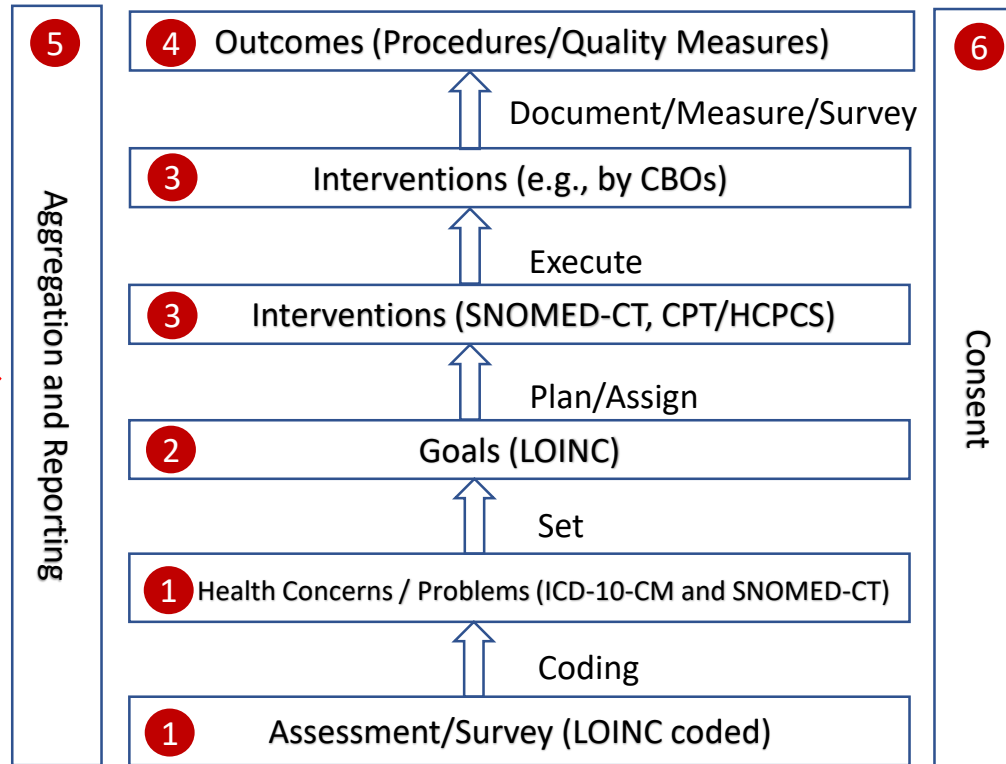
Name	Email/URL
HL7 International - Patient Care	http://www.hl7.org/Special/committees/patientcare

Next Page - Gravity Background

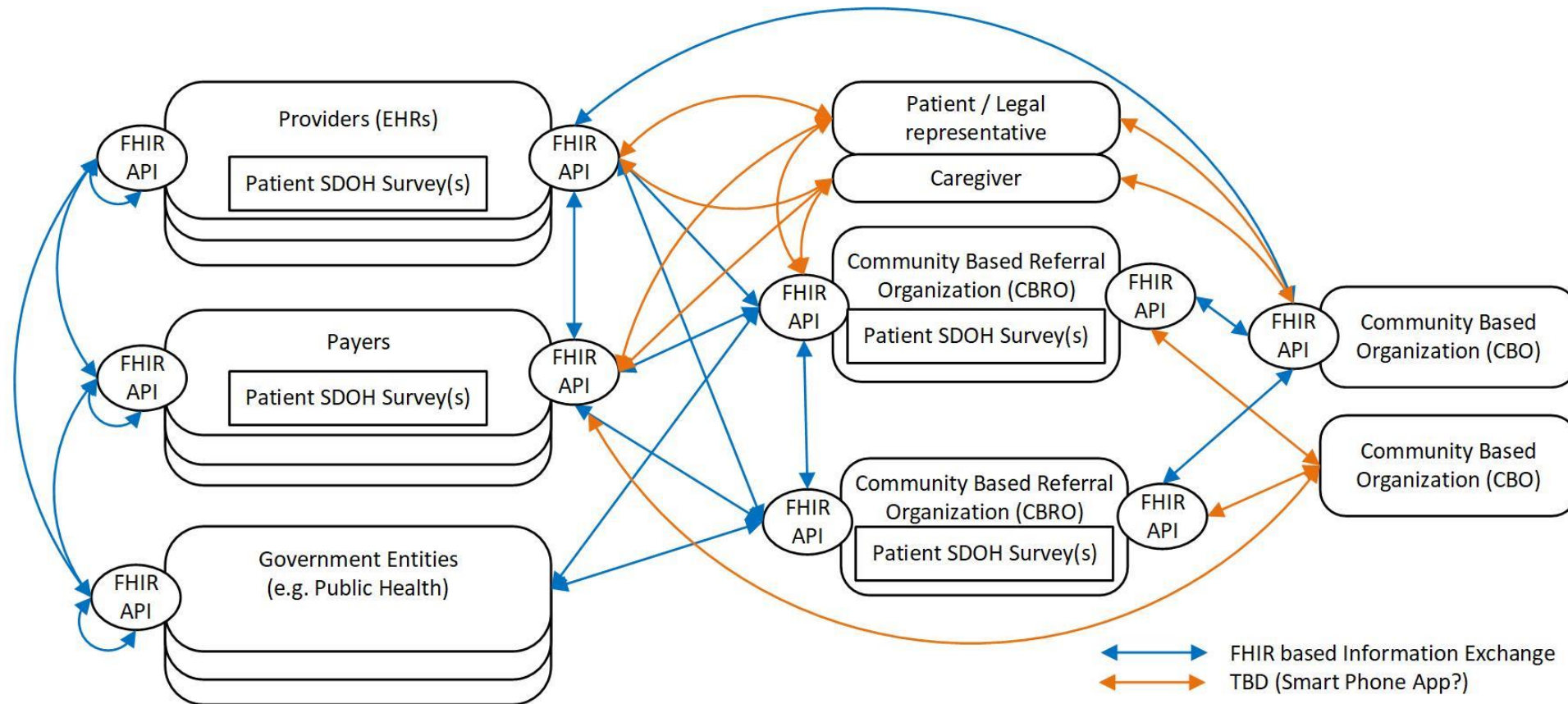
IG © 2020+ HL7 International - Patient Care WG. Package hl7.fhir.us.sdoh-clinicalcare#0.1.0 based on FHIR 4.0.1. Generated 2020-12-16
Links: Table of Contents | QA Report | Version History | Search | Feedback | Propose a change

Gravity FHIR SDOH Clinical Care IG Scope

- 1 Document SDOH data in conjunction with the patient encounter
- 2 Set SDOH related goals.
- 3 Establish and related interventions to completion.
- 4 Document and measure outcomes.
- 5 Gather and aggregate SDOH data or uses beyond the point of care (e.g. population health management, quality reporting, and risk adjustment/ risk stratification).
- 6 Manage patient consent



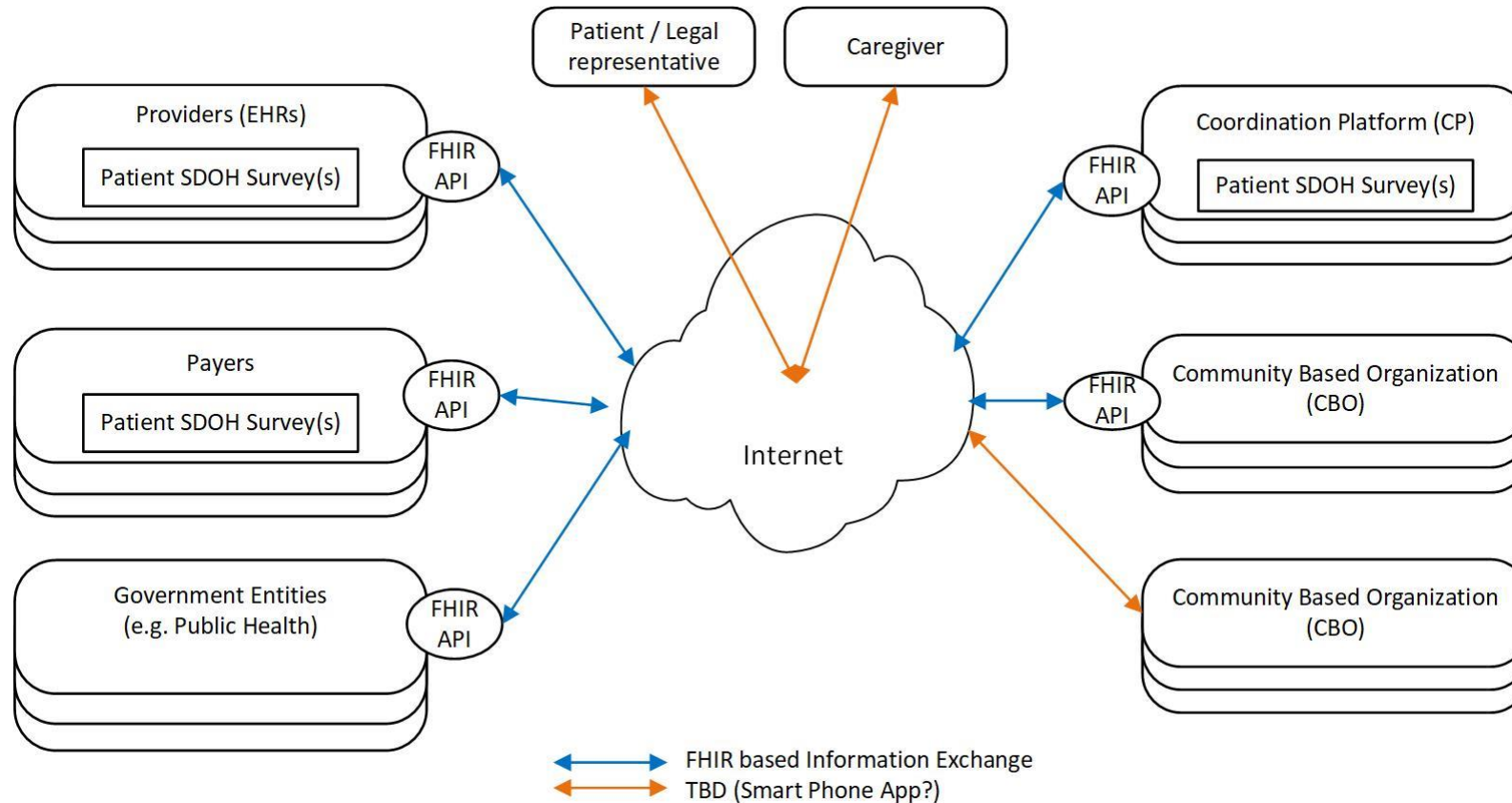
Expanded workflow guidance for other actors



Note: Where two FHIR APIs are shown, it is for drawing simplicity and not a technical requirement

Interaction with a patient or caregiver may required alternative methods if internet access is not available

Simplified Interaction Picture



Coordination Platform (CP) – Typically CPs are based on a referral platforms such as UniteUs, Aunt Bertha, NowPow, 211 (this is not an exhaustive list)

Community Based Organizations (CBO) -- Typically CBOs provide the services to address social risk and need (e.g. food pantry)

Both CPs and CBOs may provide a number of services that overlap and differ substantially by community.

Interaction with a patient or caregiver may required alternative methods if internet access is not available

Key Questions

All Gravity Terminology and Technical Considerations

1. On adapting public health social risk tools and definitions to clinical use cases
2. On addressing the injustice of invisibility and needing to address the risk of being visible
3. On consent
4. On representing goals (patient goals, provider goals, and patient reported outcomes)
5. On what information is necessary to exchange
6. On the need for a national taxonomy of programs
7. On mapping health and human service terminologies and ontologies
8. On how to address cascading referral patterns within needs for referral feed back
9. On technology gaps and how to bridge them (and how to support CBOs in the labor of doing so)

How Can Implementers Incorporate SDOH Data Standards?

Regardless of policy drivers for standards adoption, Implementers can play a role in incorporating SDOH data standards via:

- **Data Integration.** Software platform and application vendors should demonstrate how SDOH data captured from external sources can be integrated into clinical workflows, and the value of such integration.
 - e.g., Social risk screening completed on patient's mobile app or community-based platform
- **Data Standards Adoption.** Implementers should work together to agree upon the best SDOH data exchange specifications and then make them available to their customers.
- **Patient/Caregiver Engagement in Platform Design.** Implementers should actively engage patients/ caregivers in their technology development and improvement while developing a vigorous security and privacy protection framework that respects their data exchange wishes.
- **Shared Testing Infrastructure.** Established platforms should contribute to a shared testing infrastructure for device manufacturers and mobile technology innovators to test connectivity with enterprise systems.

Accomplishments & Success Factors

Success Factors—Integration of Data Standards Into...

INNOVATION:

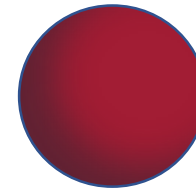
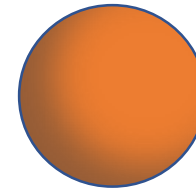
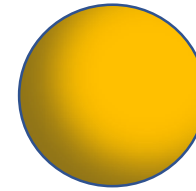
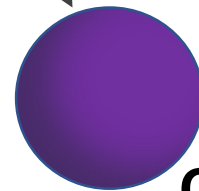
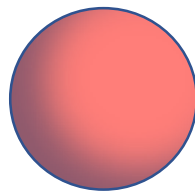
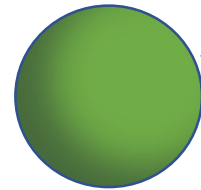
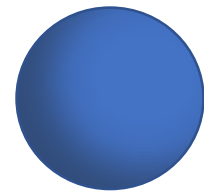
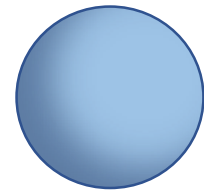
New tools for capture, aggregation, analytics, and use.

PRACTICE: (e.g.,

Adoption, implementation, and use of SDOH data at practice level.

FEDERAL GRANTS

QUALITY MEASURES



POLICY: (e.g., ONC USCDI, CMS Promoting Interoperability, State Medicaid Director Letters)



PAYMENT MODELS:
Value Based Healthcare

PROGRAMS: (e.g., Medicare Advantage, Medicaid Managed Care, Hospital QRRP, MIPS).

OTHER STANDARDS: HL7 FHIR Accelerators (DaVinci, Argonaut, CARIN)

How to Engage!

Join our Project!

- Join the Gravity Project: <https://confluence.hl7.org/display/GRAV/Join+the+Gravity+Project>
 - Public Collaborative Workgroup meets bi-weekly on **Thursdays' 4:00 to 5:30 pm ET**
 - SDOH FHIR IG Workgroup meets weekly on **Weds. 3:00 to 4:00 pm ET**
- Help us find new sponsors and partners
- Give us feedback on the Data Principles:
<https://confluence.hl7.org/display/GRAV/Gravity+Data+Principles>
- Submit SDOH domain data elements (especially for Interventions):
<https://confluence.hl7.org/display/GRAV/Data+Element+Submission>
- Help us with Gravity Education & Outreach
 - Use Social Media handles to share or tag us to relevant information
 -  @the gravityproj
 -  <https://www.linkedin.com/company/gravity-project>
 - Partner with us on development of blogs, manuscripts, dissemination materials

Questions?

Evelyn Gallego

evelyn.gallego@emiadvisors.net

Twitter: @egallego

LinkedIn: [linkedin.com/in/egallego/](https://www.linkedin.com/in/egallego/)

Sarah DeSilvey

sarah.desilvey@med.uvm.edu

Twitter: @sarcandes

LinkedIn: [linkedin.com/in/sarah-desilvey-fnp/](https://www.linkedin.com/in/sarah-desilvey-fnp/)

Bob Dieterle

rdieterle@enablecare.us

LinkedIn: <https://www.linkedin.com/in/bob-dieterle>

Additional questions? Contact:

gravityproject@emiadvisors.net



@thegravityproj



<https://www.linkedin.com/company/gravity-project>

<https://thegravityproject.net/>