Gravity Project
Consensus-driven Data Standards for the Social Determinants of Health

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Gravity Overview

A collaborative initiative with the goal to develop consensus-driven data standards to support the collection, use, and exchange of data to address the social determinants of health (SDOH).

An SDOH Lexicon

- **Health Equity:** Health equity is the state in which *everyone* has a fair and just opportunity to attain their highest level of health.

- **Social Determinants of Health (SDOH)**: "The conditions in which people are born, grow, live, work and age," which are "shaped by the distribution of money, power and resources.

Population & Structural-Level

SDOH can offer both positive and negative forces:

Positive Force | **Protective Factors** | **Social Risks** | **Negative Force**

Positive Forces
- **Protective Factors:** Characteristics or strengths of individuals, families, communities or societies that act to mitigate risks and promote positive well-being and healthy development.

Negative Forces
- **Social Risks:** Adverse social conditions associated with poor health.
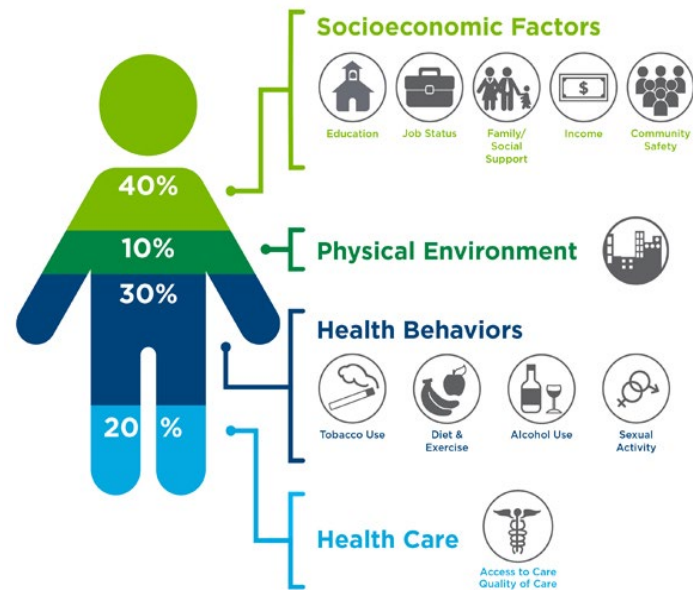- **Social Needs:** Patient-prioritized social risks.

Person-Level

https://www.cdc.gov/nchhstp/healthequity/index.html. Alderwick and Gottlieb (2019) Meanings and Misunderstandings: A Social Determinants of Health Lexicon for Health Care Systems
Center for the Study of Social Policy (2018) About Strengthening Families™ and the Protective Factors Framework

Why is addressing social needs important?

- Unmet social needs negatively impact **health outcomes:**
  - Social risks such as **food insecurity and homelessness** are associated with increased risk of chronic diseases.
    (e.g. hypertension, cancer, asthma, diabetes)

- Unmet social needs negatively impact **health care access:**
  - Social risks such as **transportation insecurity, housing instability, lack of health insurance** are associated with delayed or missed care.
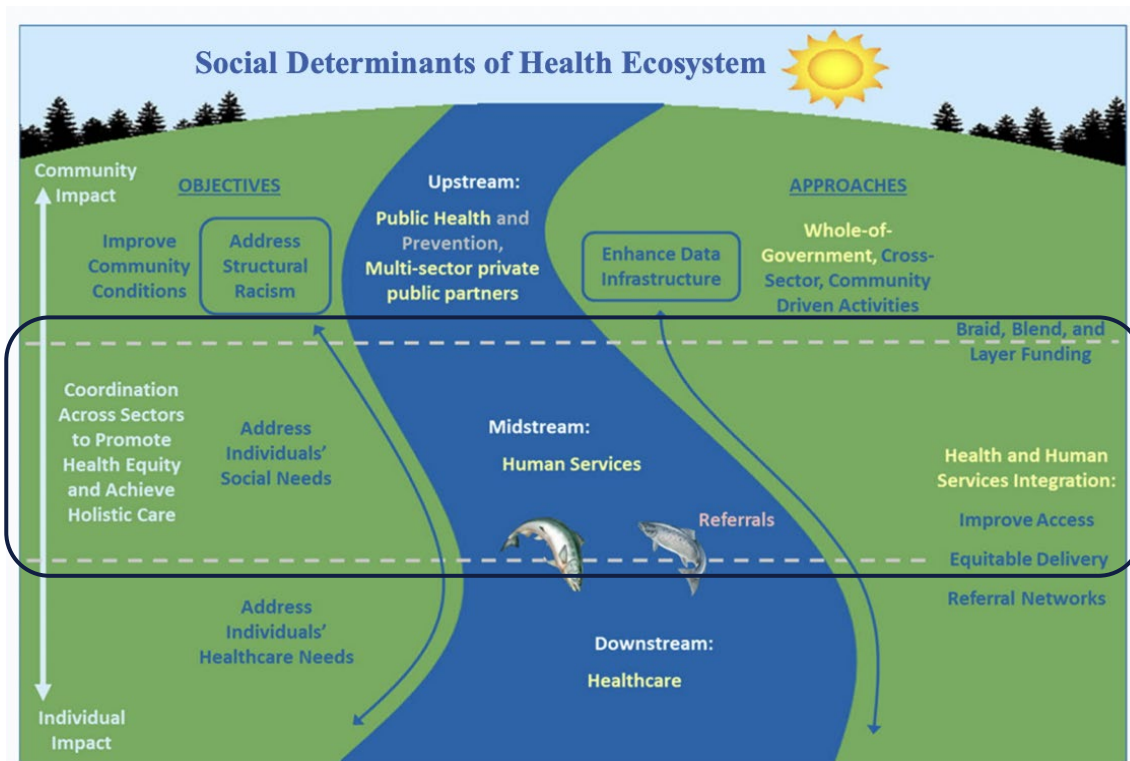

What Goes Into Your Health?

Socioeconomic Factors
- Education
- Job Status
- Family/Social Support
- Income
- Community Safety

40%

Physical Environment

10%

30%

Health Behaviors
- Tobacco Use
- Diet & Exercise
- Alcohol Use
- Sexual Activity

20 %

Health Care
- Access to Care
- Quality of Care

Source: Institute for Clinical Systems Improvement, Going Beyond Clinical Walls: Solving Complex Problems (October 2014)

The Bridgespan Group

https://aspe.hhs.gov/reports/health-conditions-among-individuals-history-homelessness-; https://www.ers.usda.gov/webdocs/publications/84467/err-235.pdf ; https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/access-health-services#cit3; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4265215/

HHS Strategic Approach to Addressing SDOH to Advance Health Equity

Data standards (i.e. Gravity) to support health and human services integration

https://aspe.hhs.gov/sites/default/files/documents/aabf48cbd391be21e5186eeae728ccd7/SDOH-Action-Plan-At-a-Glance.pdf

2023 Project Sponsors and Partners
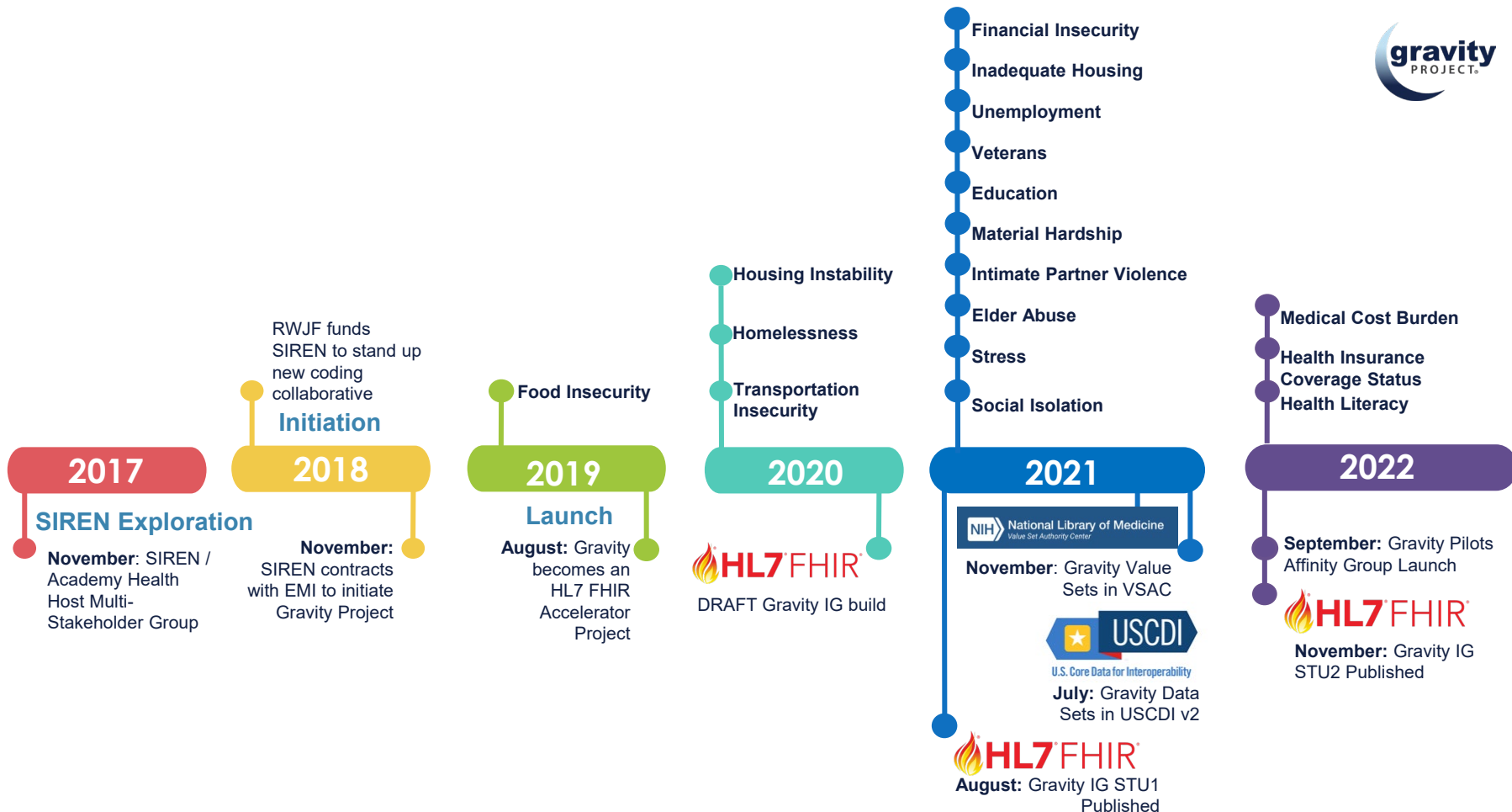

★ Founding Sponsors

Special thanks to the following for your in-kind contributions to Gravity Project: AMA, Civitas Networks for Health, and Saffron Labs.

Public Collaboration

Gravity convenes over **2,000+** participants from across the health and human services ecosystem to develop and test SDOH data standards.
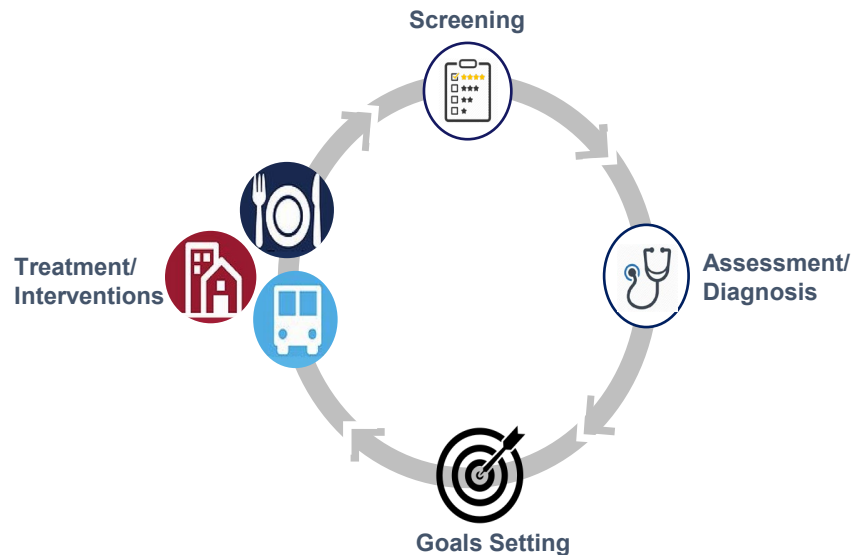

HIE Vendors

HIO Organizations

CIE Organizations

Standards Organizations

Clinical Provider Organizations

EHR Vendors

Healthcare Professionals

Community Based Service Providers

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Patient and Consumer Advocates

Community Based IT Vendors

Government (State and Federal)

Payers

Public Health Agencies

Researchers

2017

SIREN Exploration

November: SIREN / Academy Health Host Multi-Stakeholder Group

2018

Initiation

RWJF funds SIREN to stand up new coding collaborative

November: SIREN contracts with EMI to initiate Gravity Project

2019

Launch

Food Insecurity

August: Gravity becomes an HL7 FHIR Accelerator Project

2020

Housing Instability

Homelessness

Transportation Insecurity

HL7 FHIR

DRAFT Gravity IG build

2021

Financial Insecurity

Inadequate Housing

Unemployment

Veterans

Education

Material Hardship

Intimate Partner Violence

Elder Abuse

Stress

Social Isolation

NIH National Library of Medicine Value Set Authority Center

November: Gravity Value Sets in VSAC

USCDI U.S. Core Data for Interoperability

July: Gravity Data Sets in USCDI v2

HL7 FHIR

August: Gravity IG STU1 Published

2022

Medical Cost Burden

Health Insurance Coverage Status Health Literacy

September: Gravity Pilots Affinity Group Launch

HL7 FHIR

November: Gravity IG STU2 Published

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The Importance of SDOH Data Standards

SDOH Data Standards:
- Establish a **shared understanding of critical concepts** across the ecosystem **in the name of health equity.**
- Allow for **data visibility**, a critical aspect of **data justice.**
- Create **common methods for exchanging information** within communities to allow for **analysis and upstream, structural interventions**.

⭐ **Gravity is AGNOSTIC to the systems and tools used to collect, exchange, aggregate, and analyze social care data.**

Gravity Project Core Use Cases

1. Documenting social care data at patient/client encounters.

2. Tracking social care interventions to completion.

3. Gathering and aggregating social care data for uses beyond the point of care.

(for purposes of population health, quality reporting, risk stratification, research, and policies to foster health equity)

Person-Level Activities

Population & Structural-Level Activities

Gravity 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
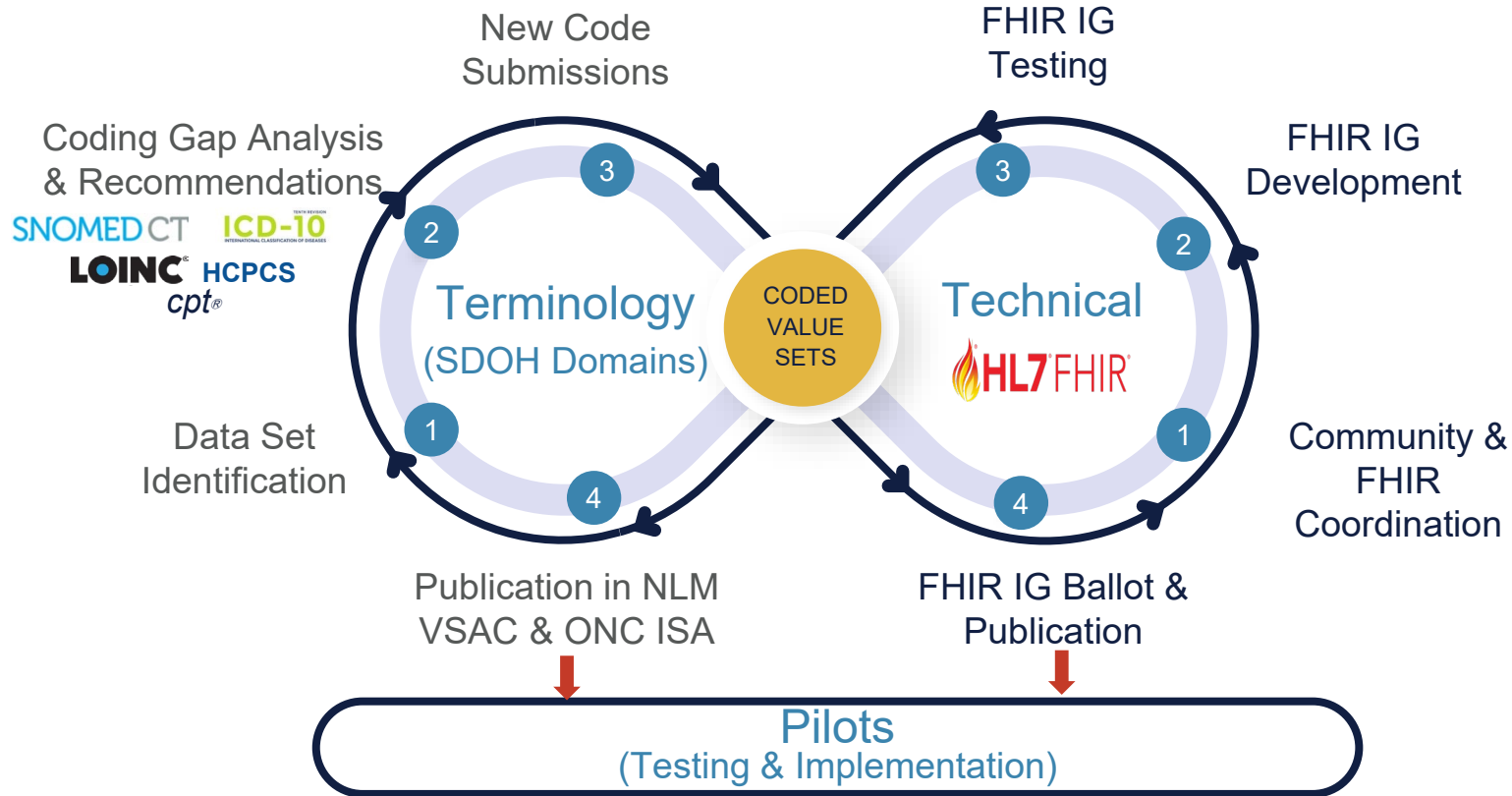- Preventing, Reducing, and Remediating Harm

Gravity Data Use Principles are Accessible on the Gravity Project Confluence page.

Gravity Workstreams

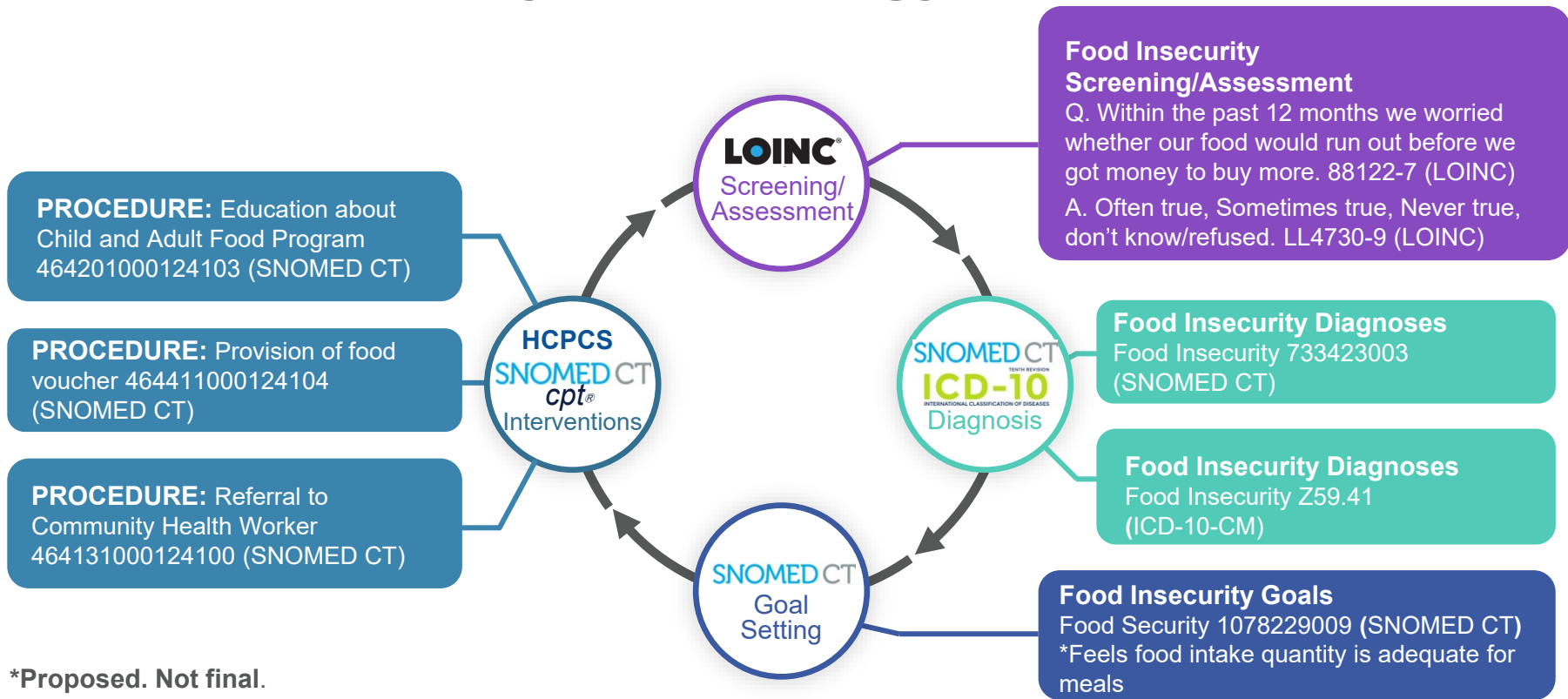# 3 Workstreams: Terminology, Technical, Pilots

New Code Submissions

FHIR IG Testing

Coding Gap Analysis & Recommendations

FHIR IG Development

Terminology (SDOH Domains)

CODED VALUE SETS

Technical

Data Set Identification

Community & FHIR Coordination

Publication in NLM VSAC & ONC ISA

FHIR IG Ballot & Publication

Pilots (Testing & Implementation)

Terminology Workstream — Scope

- **Develop data standards** to represent and exchange patient level social risk data documented across four clinical activities:
  - Screening,
  - Assessment/diagnosis,
  - Goal setting, and
  - Intervention/treatment

- **Test and validate** standardized social risk 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.

Domains grounded by those listed in the NASEM "Capturing Social and Behavioral Domains in Electronic Health Records" 2014

SDOH Domains

FOOD INSECURITY
TRANSPORTATION INSECURITY
HOUSING INSTABILITY
HOMELESSNESS
INADEQUATE HOUSING
EDUCATION
ELDER ABUSE
FINANCIAL INSECURITY
INTIMATE PARTNER VIOLENCE (IPV)
MATERIAL HARDSHIP
SOCIAL CONNECTEDNESS
UNEMPLOYMENT
STRESS
Health Literacy
VETERANS
Health Insurance Coverage Status
Medical Cost Burden

Food Insecurity Terminology Build

Food Insecurity Screening/Assessment
Q. Within the past 12 months we worried whether our food would run out before we got money to buy more. 88122-7 (LOINC)
A. Often true, Sometimes true, Never true, don't know/refused. LL4730-9 (LOINC)

LOINC Screening/Assessment

Food Insecurity Diagnoses
Food Insecurity 733423003 (SNOMED CT)

SNOMED CT ICD-10 Diagnosis

Food Insecurity Diagnoses
Food Insecurity Z59.41 (ICD-10-CM)

Food Insecurity Goals
Food Security 1078229009 (SNOMED CT)
*Feels food intake quantity is adequate for meals

SNOMED CT Goal Setting

HCPCS SNOMED CT cpt® Interventions

PROCEDURE: Education about Child and Adult Food Program 464201000124103 (SNOMED CT)

PROCEDURE: Provision of food voucher 464411000124104 (SNOMED CT)

PROCEDURE: Referral to Community Health Worker 464131000124100 (SNOMED CT)

*Proposed. Not final.

Gravity Project Value Sets

- Gravity Project stewards over 150 NLM VSAC value sets.
  - Social risk domain level sets for each activity (screening, diagnosis, goal setting, intervention)
  - All SDOH level value sets in line with USCDI

- Domain-level sets can be found in VSAC with Gravity Project as the Steward, or on our Confluence page under "Gravity Terminology Value Sets" https://confluence.hl7.org/display/GRAV/Gravity+Terminology+Value+Sets.

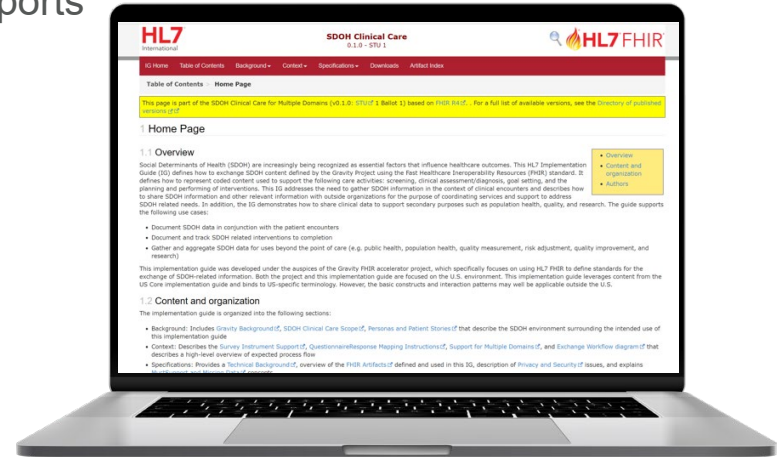| Domain	SDOH Activities	Links to Value Sets in VSAC	Downloadable Assessment Instruments Spreadsheets
FOOD INSECURITY	Assessment Instruments Question Codes (LOINC)	Work in progress	Food Insecurity Assessment Instruments Codes V1
	Assessment Instruments Answer Codes (LOINC)	Work in progress	
	Diagnoses (SNOMED CT, ICD-10)	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1247.17/expansion/latest	
	Goals (SNOMED CT)	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1247.16/expansion/latest	
	Procedures (SNOMED CT, CPT, HCPCS)	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1247.7/expansion/latest	
	Service Request (SNOMED CT, CPT, HCPCS)	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1247.11/expansion/latest	
HOUSING INSTABILITY	Assessment Instruments Codes (LOINC)	Work in progress	Housing Instability Assessment Instruments Codes V1
	Assessment Instruments Answer Codes (LOINC)	Work in progress	
	Diagnoses (SNOMED CT, ICD-10)	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1247.24/expansion/latest	
	Goals (SNOMED CT)	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1247.161/expansion/latest	
	Procedures (SNOMED CT, CPT)	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1247.44/expansion/latest	
	Service Request (SNOMED CT, CPT)	https://vsac.nlm.nih.gov/valueset/2.16.840.1.113762.1.4.1247.45/expansion/latest	

Technical Workstream — Scope

HL7 SDOH Clinical Care FHIR Implementation Guide (IG)

1. This is a framework Implementation Guide (IG) and supports multiple SDOH domains.

1. IG support the following clinical activities:
   - Assessments
   - Health Concerns / Problems
   - Goals
   - Interventions including referrals
   - Consent
   - Aggregation for exchange/reporting
   - Exchange with patient/client applications
   - Draft specifications for race/ethnicity exchange

3. **Standard for Trial Use 2 (STU2) published November 2022!**

Click to access Gravity SDOH Implementation Guide (STU2)

Technical Workstream Accomplishments

Gravity SDOH Clinical Care FHIR Implementation Guide (IG) Standard for Trial Use v2 (STU2) publication in November 2022.

- Gravity Track at January 2023 HL7 Connectathon
- Successful integration of MITRE team into Technical Workstream/IG development
- Completed January 2023 ballot review of US Core 6 IG

Priorities: **Widespread Adoption and Use of SDOH Clinical Care IG**

- STU2 update to SDOH CC IG with focus on making implementation easier and more accessible to all stakeholders.
- Providing technical support to Gravity Pilot Affinity Group to gain a practical understanding about what is working and not working with the IG in the real-world.
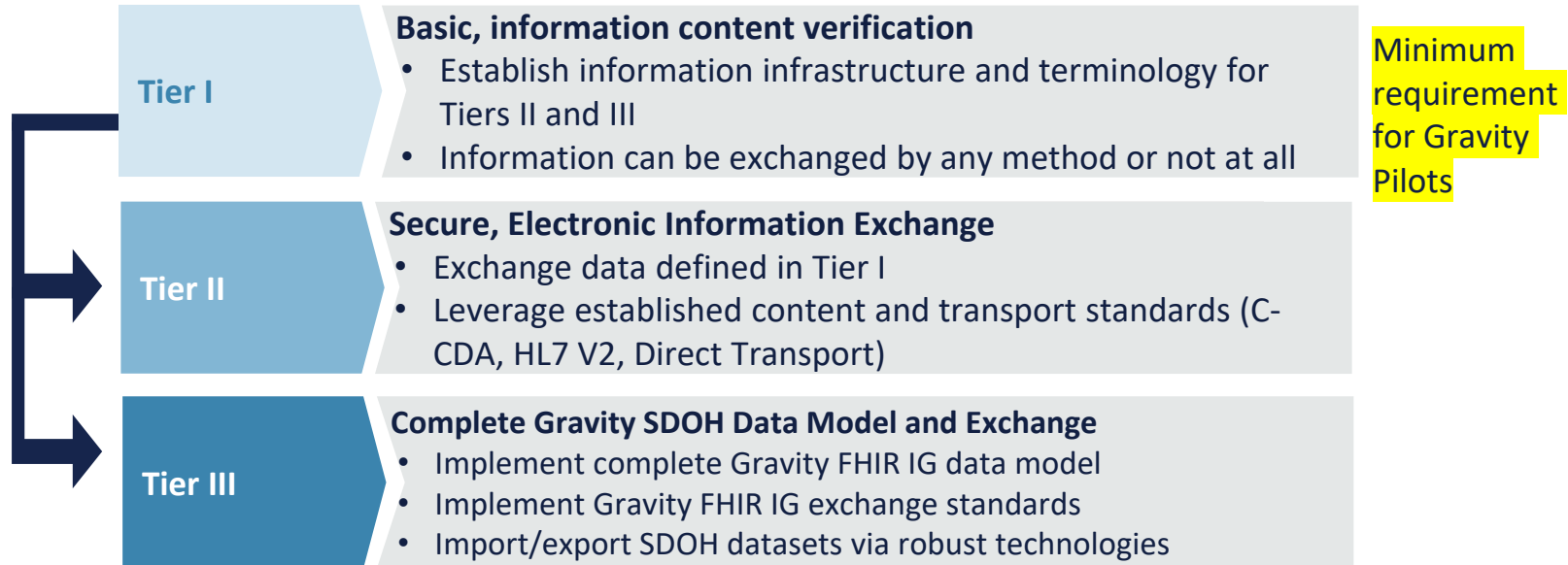
Pilot Workstream — Scope

- The goal of the Pilot Workstream is to drive implementation of Gravity Project terminology and technical standards and evaluate these standards for continuous improvement.

    - Gravity Pilots Affinity Group:
      A peer-to-peer learning forum for entities participating in the real-world testing of Gravity standards.
    - Supported Pilots: Intentional relationships offering technical assistance to pilot teams and direct feedback on Gravity deliverables.

Three-Tiered Piloting Approach

Incremental approach for testing Gravity terminology and technical standards. Entities may participate at any Tier.

Tier I

Basic, information content verification
- Establish information infrastructure and terminology for Tiers II and III
- Information can be exchanged by any method or not at all

Minimum requirement for Gravity Pilots

Tier II

Secure, Electronic Information Exchange
- Exchange data defined in Tier I
- Leverage established content and transport standards (C-CDA, HL7 V2, Direct Transport)

Tier III

Complete Gravity SDOH Data Model and Exchange
- Implement complete Gravity FHIR IG data model
- Implement Gravity FHIR IG exchange standards
- Import/export SDOH datasets via robust technologies

Phase 1 Supported Pilots

Pilot Team	TIER	Pilot Use Case	Funding Source
The University of Texas at Austin	III	Track social care interventions to completion.	ONC Leap in HIT
OCHIN	III	Track social care interventions to completion.	ONC/HL7 Cooperative Agreement
Alliance Chicago	III	Test a FHIR-enabled exchange of SDOH data, using FHIR Observation profiles.	ONC/HL7 Cooperative Agreement
DC CoRIE	II	Make Community Resource Inventory to enable Z-code-based search for community resource referral.	DC Department of Health Care Finance (DHCF)
FHIR-FLI Team (MayJuun and Open City Labs)	II	Social care referrals leveraging diverse standards (Gravity, Human Services Data Specification (HSDS), 211 LA).	ACL Social Care Referrals Challenge
ThriveHub (SC Thrive and Protech Solutions)	II	Social care referrals leveraging diverse standards (Gravity, HSDS, 211 LA).	ACL Social Care Referrals Challenge
Missouri Aging Services Data Collaborative	II	Develop an interoperability hub to facilitate information sharing between organizations, systems, and platforms.	ACL Social Referrals Challenge Final Winners
United Way for Southeastern Michigan	II	Develop a CIE data hub for bi-directional information exchange and exchange of social referral data for enrollment into state benefits.	ACL Social Referrals Challenge (Phase 2 Awardee)

Phase 2 Supported Pilots

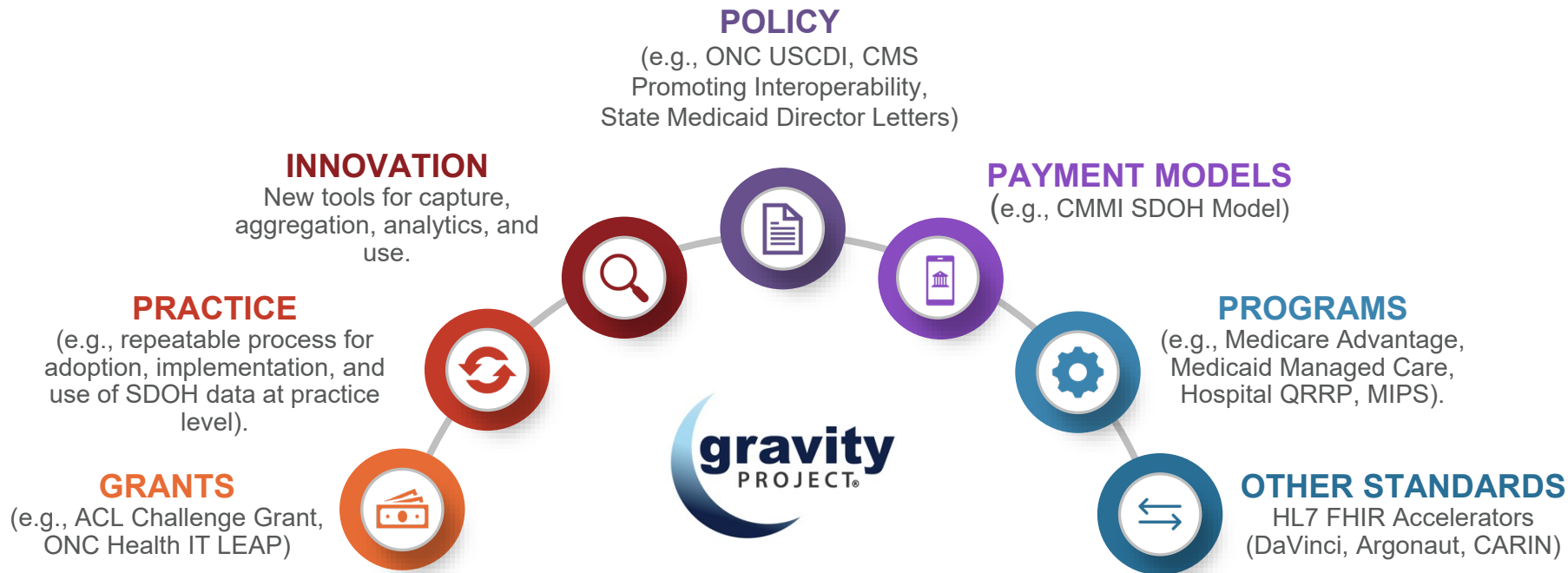| Focus: Tier 2 Public Health/ Health Equity Pilots Funded by Robert Wood Johnson in partnership with CIVITAS Networks for Health		
Pilot Lead / Setting	**TIER**	**Pilot Use Case**
Bronx RHIO / New York State	II	Statewide standardized social risk screening and exchange
MyHealth Access Network / Oklahoma State	II	Statewide standardized social risk screening and exchange
University of Colorado Hospital / Denver Metro Area	II	Emergency Department social risk screening/ diagnosis, with community exchange and intervention
Pima County Department of Public Health & Southwest Tribe / Pima County Arizona	II	Public Health to Tribal Entity data exchange within the State communicable disease surveillance system

Gravity Pilot Sites

This is a sample (not all-inclusive list) of organizations that have participated in the Gravity Pilots Affinity Group.
We are grateful to all organizations adopting the work of Gravity to advance SDOH standards

Success Factors
Integration of Data Standards Into…

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

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

PAYMENT MODELS
(e.g., CMMI SDOH Model)

PRACTICE
(e.g., repeatable process for adoption, implementation, and use of SDOH data at practice level).

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

GRANTS
(e.g., ACL Challenge Grant, ONC Health IT LEAP)

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

How to Engage

Gravity convenes participants from across the health and human services ecosystem via the following virtual meetings:

1. Terminology Workstream: **Bi-weekly** Public Collaborative meetings **2nd and 4th Thursday 4 to 5:30 pm ET** (Starting May 11th)
2. Technical Workstream: **Bi-weekly** Implementation Guide/Connectathon Work Group meetings **Wednesdays from 3 to 4:00 pm ET**
3. Pilots Workstream: **Monthly** Pilots Affinity Group meetings - **Last Thursday each month 2:30 to 4:00 pm ET**

View the HL7 calendar for meeting details: https://www.hl7.org/concalls/

Become a Member as a Gravity Project sponsor!
https://thegravityproject.net/sponsors/

Learn more!

Visit us at:

Gravity Website:
https://thegravityproject.net/

Gravity Confluence Page:
https://confluence.hl7.org/display/GRAV/The+Gravity+Project

Help us with Gravity Education & Outreach

Use Social Media handles to share or tag us to relevant information:

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