The Gravity Project: A Social Determinants of Health (SDoH) Coding Collaborative

Session: 194, Wednesday, March 11, 2020

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Welcome

Thank you for joining the Gravity HIMSS2020 Education session!

Due to the large number of attendees, participants are muted upon entry. Please remain muted to avoid background noise.

• This call is being recorded; recording will be available on the Gravity Confluence page following the meeting.

You are encouraged to actively participate in the discussion using the Webex chat feature (bottom right of the Webex Meeting window).

Please send chats to “Everyone.”
Meet Our Speakers

Evelyn Gallego
Gravity Project
Program Manager

Lisa Nelson
Gravity Project
Technical Director
Conflict of Interest

Evelyn Gallego, MBA, MPH, CPHIMS
Has no real or apparent conflicts of interest to report.

Lisa Nelson, MBA, MS
Has no real or apparent conflicts of interest to report.
Agenda

- Gravity Team Intro
- Project Background (the WHY)
- Project Scope (the WHAT)
- Project Approach (the HOW)
- Project Accomplishments
- How to Engage!
Learning Objectives

• Present the value proposition for standardizing SDoH data to support documentation across clinical screening, diagnosis, planning, and treatment activities within an electronic health record (EHR)
• Discuss how SDoH data standardization is critical for interoperable electronic data exchange and aggregation across clinical, community-based, research, and population-health systems
• Discuss how broad industry stakeholders are participating in the development and testing of SDoH data sets as part of the HL7 Gravity Project
Gravity Project Team

- Laura Gottlieb, Director, SIREN
- Caroline Fichtenberg, Managing Director, SIREN
- Mark Savage, Director, Health Policy, CDHI
- Sarah DeSilvey, Domain Lead, University of Vermont/ Yale School of Nursing
- Evelyn Gallego, Program Manager, EMI Advisors
- Lynette Elliott, Project Manager, EMI Advisors
- Katiya Shell, PMO Manager, EMI Advisors
- Linda Hyde, Coding Systems Expert, EMI Advisors
- Lisa Nelson, Technical Lead, MaxMD
- Donna G. Pertel, Food Insecurity Co-Lead, Academy of Nutrition and Dietetics
- Becki Gradl, Food Insecurity Tech Lead, Academy of Nutrition and Dietetics
- Monique Van Berkum, FHIR Modeling Lead, AMA
- Corey Smith, FHIR IG Project Coordination, AMA
Background
Hooray! That ear is better... Anything else...?
Growing Interest in Addressing SDoH in Clinical Settings

Uses for Social Risk Data in Clinical Settings

- Medical Care
- Social Risk Interventions
- Population Health Management
- Risk Adjustment
- Community Health Improvement
- Research
If it isn’t documented, it never happened.
Why capture social risk data in a standardized and structured way?

1. To promote collection and use of the data.
2. To facilitate sharing of the data across organizations.
3. To facilitate payment for social risk data collection and intervention activities.
What Codes Exist to Capture Social Risk Data?
Z codes: Expanded social codes in ICD-10

- Lack of Adequate Food and Safe Drinking Water (Z59.4)
- Extreme Poverty (Z59.5)
- Low Income (Z59.6)
- Insufficient Social Insurance and Welfare Support (Z59.7)
ONC 2015 Edition Certification Criterion for Social, Psychological, and Behavioral Data

- Financial resource strain
- Educational attainment
- Stress
- Social isolation
- Intimate Partner Violence

SIREN Social Risk Codes Review

- IOM
- AHC
- PRAPARE
- Health Leads
- SEEK
- WE CARE

## SIREN Social Risk Codes Review

### 20 Social Risk Domains

- Access to healthcare
- Child Care
- Clothing
- Education
- Finances
- Food
- Housing
- Immigration/migration
- Incarceration
- Primary Language
- Race/ethnicity
- Residential address
- Safety
- Social connections/isolation
- Stress
- Transportation
- Utilities
- Veteran status
- General SDOH (not domain specific)

### SIREN Social Risk Codes Review

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>133</td>
<td>Screening question panel codes</td>
</tr>
<tr>
<td>33</td>
<td>Screening procedure codes</td>
</tr>
<tr>
<td>686</td>
<td>Assessment/Diagnosis codes</td>
</tr>
<tr>
<td>243</td>
<td>Treatment/Intervention codes</td>
</tr>
<tr>
<td>1095</td>
<td>SDH Codes</td>
</tr>
</tbody>
</table>

Gravity Project Goals

- What concepts need to be documented?
- What codes reflecting these concepts are currently available?
- What codes are missing?
Project Scope
GOAL: **data-level interoperability** by enabling electronic documentation and exchange of SDOH data among all relevant users of data.
Gravity Project Deliverables

- Use Cases
- Common data elements and associated concept domains
- Coded data element capture and grouping recommendations (informed by existing standards)
- FHIR Implementation Guide(s)
- Reference Implementation(s)
HL7® FHIR® Accelerator Program

• Designed to assist implementers across the health care spectrum in the creation of FHIR Implementation Guides or other informative documents

• Gravity Project became an official Accelerator in August 2019:
  http://www.hl7.org/documentcenter/public_temp_3840821C-1C23-BA17-0C64E3ACBE05D630/pressreleases/HL7_PRESS_20190820.pdf

http://www.hl7.org/about/fhir-accelerator/
Interoperability Glide Path: Domain Data Sets & IGs
Accelerate standards development and uptake

SDoH Data Sets
- Food Insecurity
- Housing Instability & Quality
- Transportation Access
- TBD Domain

Develop and test coded value sets for use in FHIR
Refine, test, and ballot HL7® FHIR® SDoH Implementation Guide

Regulators
EHR Vendors
Payers & Providers
Patients
Clinicians
Registries/Researchers

http://www.hl7.org/about/fhir-accelerator/
Out of Scope

- Evaluation, testing, or harmonization of existing **social risk screening tools and instruments**
- Data elements representing clinical activities outside of: screening, assessment/diagnosis, goal setting, and treatment/intervention
- Data elements for non-SDOH domains
- Incentives and workflow issues related to implementation of identified SDOH data elements
Project Approach
Public Collaborative Process

Consensus-driven standards on social determinants of health

Announcements

- The Food Insecurity Data Set has been consensus approved by the Gravity community. Thank you all for your votes!
  - We are currently reviewing and addressing all submitted comments. Please respond to any emails you receive from us regarding your vote comments.
  - The votes, comments, and final dispositions will be posted here on Confluence in January 2020.
- Seasons Greetings! Thank you all for joining us on December 12 for the last meeting of 2019.
  - We are currently in the process of scheduling activities for 2020 Q1. We will post updates here on Confluence and send email updates to our registered community list.
  - If you would like to join the project as a registered member, click here.

Gravity in the News

- HL7 Announces Gravity as New FHIR Accelerator Project
- MobiHealthNews: Gravity Project Joins HL7 FHIR Accelerator
- Digital Health News: HL7 Adds SDoh Project into the FHIR Accelerator Program

Become a Gravity Project Sponsor

SIREN and EMI Advisors are currently seeking additional Gravity Project sponsors. This is an opportunity to be recognized as contributing to this project, which is receiving considerable attention. If your organization is interested in becoming a sponsor, please click on the button.
Stakeholder Groups = 900+ Participants!

Governance Structure: 2019 Advisory Steering Committee

https://confluence.hl7.org/pages/viewpage.action?pageId=46891907#TheGravityProject-GravityProjectSteeringCommittee
Project Approach

• Develop Use Cases
  • Personas
  • Patient Story
  • Use Cases

• Develop Data Sets & “proposed” Value Sets
  • Data Sets are groupings of concept data elements
  • A value set is the possible values or responses for a data element

• Identify Coding Gaps & Develop Recommendations

• Develop, test, and ballot HL7 FHIR Implementation Guide

Please see Gravity Glossary for definitions of these terms: https://confluence.hl7.org/display/PC/Gravity+Project+Glossary
Project Deliverables
Use Case Components

- **Personas (the WHO):** Fictional characters who represent a person expected to use a service or product. Also referred to as the human actors within a use case.

- **Patient Story (the WHAT):** Describe the Personas engaging with the service, technology, or setting over a period of time to accomplish a specific goal.

- **Use Case(s):** Descriptions of the interactions between the personas and the systems they use.
Persona 1: Rebecca Smith

About Rebecca
- 32 years old
- Clinical Health Concern: asthma
- Social Risk Factors: housing instability; food insecurity; transportation access
- 3 children (Lily 18 months, James 3 years old, Anna 6 years old).
- Lives in San Francisco, CA
  - Admin assistant at a local community college
  - Recently separated from her husband; no child support from husband
  - Lives in a small apartment in the city but the rent is high; can barely pay for rent, utilities, and food
  - Does not own a car and relies on public transportation; average commute between home, daycare, and work is 2 hours on bus per day

Rebecca’s Typical Routine & Interactions
- Rises at 6 to get the children up and fed
- Drops children at daycare at 7:30 in order to get the many buses to work and be there by 9am
- Picks up children at 6:30pm, walks home, feeds them dinner, bathes them, and puts them to bed by 8:30 pm

Challenges & Goals
- Saves money by buying low cost foods such as mac and cheese and pizza; cannot afford fresh fruits and veggies
- Arrives home so tired at the end of the day
- Concerned about controlling her asthma and recent weight gain
- Gets caught with shut off letters from the utility company but she needs electricity for her nebulizer
- Goals are to feed herself and family well, better manage her asthma, and to settle into a better house

What Rebecca wants from the health system
- Treatment plan that addresses her asthma and life situation
- Contact information for social worker or case manager
- List of affordable and accessible food options
- Referral to case management to access SNAP and WIC benefits

Gravity 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
Use Case Elements

- **Actors and Roles.** Actors may be a person, entity, or system. An Actor describes the role within a specific transaction in a series of steps in a use case. Roles indicate the relationship between the sender and receiver of the data exchange through a specific transaction.
- **Assumptions.** Items expected to be true or to be in place such as a policy, process, or procedure for the execution of a specific transaction.
- **Pre-conditions.** Refer to the initial state of the system before an action or transaction occurs. These describe what must be in place from a systems perspective to support interoperable data sharing for a specific transaction.
- **Trigger.** An event or system condition that causes a workflow to be initiated.
- **Post-conditions.** Describe the state of the system that will result after the execution of the transaction.
- **Transactions.** The data exchange between two systems.
- **Message Content or Payload.** The content or substance of what is exchanged within a specific transaction.
Use Case 1:
Document SDOH During Clinical Encounter
Use Case 2: Document and Track SDOH Interventions to Completion

Referral Note
Or
Order for
an SDOH
focused
intervention

Provider Organization or Services Organization

Order Filler

Portal, Mobile App, EHR or other Case Management or Digital Comm. System

Support Services Personnel or Case Manager

Primary Care Practice

Order Placer

Initiator

EHR

Clinical Staff Member

Consultation Note or Progress Notes or Medication Dispense Notification

(#3) ServiceRequest Referral Task

Direction of Data Flow

(#4) Referral Task Update

Direction of Data Flow

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

#HIMSS20
Use Case 3: Gather SDOH Information for Secondary Uses

https://confluence.hl7.org/display/GRAV/Gravity+Use+Case+Package
Food Insecurity Domain: Establishing A Common Definition

**Common definition July 18, 2019** “An economic and social condition of limited or uncertain access to adequate food for an active, healthy life” (United States Department of Agriculture, 2017)

**Working definition Nov, 2019**: “Uncertain, limited, or unstable access to food that is: adequate in quantity and nutritional quality; culturally acceptable; safe and acquired in socially acceptable ways”.

![Diagram showing the spectrum of food security from high to very low security](https://confluence.hl7.org/display/GRAV/Food+Insecurity+Domain)

*Gregory & Coleman-Jensen, 2017*
Data Element Submission & Adjudication Process

Process/Data Collection over time

Contributors recommend potential data elements

Submitted Form

Adjudicator harvests new ideas from the Current Submitted Form, making them Candidates and promotes new data elements to Master List.

Adjudication Form

Adjudicate

Promote

Adjudicator promotes adjudicated data elements from a Current Adjudicated Form. Merges/Removes data elements

Vote

Community approves recommended data elements.

Committed Participants

Community votes to affirm or reject data elements on Master List to move them to the Consensus List.

Adjudicated Master List: [https://confluence.hl7.org/display/GRAY/Food+Insecurity+Domain](https://confluence.hl7.org/display/GRAY/Food+Insecurity+Domain)
Submitting Organizations: Food Insecurity Data Sets

https://confluence.hl7.org/display/GRAV/Food+Insecurity+Domain
## Data Element Submissions: Total 423 Data Elements

Total Submissions Received = 19

<table>
<thead>
<tr>
<th>Screening Tool/ Questions</th>
<th>Diagnosis</th>
<th>Goal</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>203 (56 Tools)</td>
<td>60</td>
<td>13</td>
<td>147</td>
</tr>
</tbody>
</table>

Submissions Reviewed = 19

<table>
<thead>
<tr>
<th>Disposition</th>
<th>Disposition</th>
<th>Disposition</th>
<th>Interventions</th>
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</thead>
<tbody>
<tr>
<td>Add – 16 Tools/102 Questions</td>
<td>Add – 4</td>
<td>Add - 1</td>
<td>Add - 23</td>
</tr>
<tr>
<td>Do Not Add – 18 Tools/82 Questions</td>
<td>Do Not Add – 11</td>
<td>Do Not Add - 3</td>
<td>Do Not Add – 21</td>
</tr>
<tr>
<td>Park - 2 Tools/ 4 Questions</td>
<td>Park - 2</td>
<td></td>
<td>Park - 2</td>
</tr>
</tbody>
</table>

Total Submissions Returned* = 19

* Adjudication completed and file returned to submitter with dispositions
Food Insecurity Coding Gap Analysis

- Total 224 data elements identified; only 25 of these have applicable codes to represent them electronically!

- These gaps have been identified in an internal Gap Analysis Report and are currently being prioritized for future work in a Gap Priority Statement.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Total # of Concepts</th>
<th># Current Codes</th>
<th># Requiring Codes</th>
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</thead>
<tbody>
<tr>
<td>Screening</td>
<td>24 Screeners 77 Questions</td>
<td>2 Screeners 6 Questions</td>
<td>22 Screeners 71 Questions</td>
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<tr>
<td>Diagnosis</td>
<td>8</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Goals</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Interventions</td>
<td>109</td>
<td>12</td>
<td>97</td>
</tr>
</tbody>
</table>
**Food Insecurity Data Concepts**

**Question:** Within the past 12 months we worried whether our food would run out before we got money to buy more [U.S. FSS]?

**Answer:** Often true, Sometimes true, Never true, Don’t Know/Refused

**Clinical Finding:**
- Food Insecurity
  - (Mild Food Insecurity, Moderate Food Insecurity, Severe Food Insecurity)
  - Present or Absent

**Goal Setting**
- Food Security
- Reduction in Food Insecurity

**Diagnosis**
- Food Insecurity
- Lack of adequate food and safe drinking water

**Intervention**
- Counseling about nutrition (procedure)
- Meals on wheels provision
- Education (procedure)
- Evaluation of eligibility for home delivered

**Screening**
- Food insecurity screened and intervened

[https://confluence.hl7.org/display/GRAV/Food+Insecurity+Domain](https://confluence.hl7.org/display/GRAV/Food+Insecurity+Domain)
Intervention Structure: 8 Types

- **Referral to** (_____)- (Insert role) a type of order wherein clinicians/providers request services and/or assessment from other professionals and/or programs

- **Provision of** (_____)(direct supports/aid) For the purposes of our project provision covers any concrete support that is able to be given to the patient directly at the point of service

- (_____) **Counseling** – Psychosocial procedure that involves mental/behavioral strategies such as 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, change behaviors, assist coping

- **Assessment** of (_____)- Assessment includes both the process of provider clinical observation and interpretation and the utilization of assessment tools. In both activities the aim is to arrive at outcomes that define the status of the patient in order to guide further care.

- **Evaluation** of eligibility for (_____)- Chosen to mark the activities prior to determination of eligibility. (Crucial for federal food assistance programs)

- **Assistance** with (_____)- Non-clinical aid with the tasks of care: applications, setting up appointments, etc.

- **Coordination** of (_____)- organizing activities and sharing information
Setting the Stage for SDoH FHIR IG Development

**Persona Development**

**Patient Story Creation**

### Use Cases:
1. Gather SDOH info in Clinical Encounter
2. Track SDOH Interventions to Completion
3. Aggregate SDOH info

### Master List:
- Screening
- Assessment/Diagnosis
- Goal
- Interventions (Planned, Requested, Completed)
HL7 FHIR IG Development

- 3 Workstreams
  - Community Engagement/Education/Marketing
  - Connectathon Testing
  - FHIR IG Development/Balloting/Governance
Accelerating Adoption: Reuse + Innovation

• Reuse:
  • US Core: Patient, Practitioner, PractitionerRole, Organization, Coverage, Goal, Procedure, CarePlan
  • Structured Data Capture (SDC): Questionnaire, QuestionnaireResponse
  • C-CDA on FHIR: H&P, Progress Note, Discharge Summary, CCD, Referral Note, Consultation Note
  • Da Vinci: CDex (Clinical Data Exchange)
  • Bidirectional Service Request (BSeR): ServiceRequest
  • (eCR) or FHIR Bulk Data

• New FHIR R4 Profiles for SDOH Content:
  • Task, Questionnaire, QuestionnaireResponse, Consent
  • Food Insecurity Assessment Observation, Condition, Goal, Procedure, ServiceRequest, CarePlan, Task, List
Implementation Guide Home Page

Contents:
- Description
- Acknowledgements
- Introduction
  - IG Purpose
  - Note to Reviewers and Balloters
  - How to Read This Guide
  - How to Use This Guide: Practical Guidance for Implementers
- Background
  - Gravity Project Overview
  - Gravity Project Challenge Statement
  - Scope
  - Out of Scope
  - Conceptual Framework
    - Data Modeling Framework
    - Role of the FHIR CarePlan Resource
- SDOH Content
  - Core Clinical Content
  - SDOH Food Insecurity Content
  - Other Content
- Personas and Patient Stories
- Use Cases
  - Use Case Actors
  - Data Sharing Transactions
- Profiles Used in this IG
  - SDOH Profiles Defined in this IG
  - Profiles Reused from US Core
  - Profiles Reused from SDC
  - Profiles Reused from CIEx
  - Profiles Reused from BSeR
- Security and Consent
- Conformance Guidance
  - Conformance Verbs
  - Must Support
  - Missing Data
  - U.S. Core Data for Interoperability and 2015 Edition Common
    - Conformance to US Core Profiles
- Appendix A: FHIR Artifact Naming Conventions
- Appendix B: Placeholder Code Systems, Codes, and Value Sets
- Appendix C: Local Identifier Systems

https://trifolia-fhir-dev.lantanagroup.com/igs/lantana_prod_hapi_r4/SDOH-CC/

https://confluence.hl7.org/display/GRAV/Gravity+SDOH+FHIR+IG
FHIR IG Next Steps

- May 16, 2020: FHIR Connectathon, San Antonio, TX
- Sept. 16, 2020: FHIR Connectathon, Baltimore, MD

https://confluence.hl7.org/display/GRAV/Connectathon+Participation+Sign-Up
How to Engage
Join our Project!

• Join the Gravity Project:
  https://confluence.hl7.org/display/GRAV/Join+the+Gravity+Project

• Sign up for the upcoming FHIR Connectathons:
  https://confluence.hl7.org/display/GRAV/Gravity+SDOH+FHIR+IG

• Submit **housing instability** and **transportation access** data elements:
  https://confluence.hl7.org/display/GRAV/Data+Element+Submission
Join the National Call to Action

Recommendations from Nov. 2019 “Roundtable on Leveraging Data on the SDOH”

1. Improve and Align Open Source Assessment Tools
2. **Adopt Standards and Definitions (as defined and published by the Gravity Project!)**
3. Develop a Governance Body
4. Improve Financial Alignment for Providers and Community Based Organizations (CBOs)
5. Empower and Strengthen CBO Data-Gathering Capacity.
6. Develop Hyper-Local Snapshots of Communities.
7. Create State-Level SDOH Strategy Toolkits

http://reports.opendataenterprise.org/Leveraging-Data-on-SDOH-Summary-Report-FINAL.pdf
Questions

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