The Gravity Project
Data Elements and
Data Element Submission
May 16, 2019
Welcome

Thank you for joining the Gravity Project Workgroup meeting!

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.”

We will review and try to address all comments submitted during the call. If you are experiencing technical difficulties, please contact lynette.elliott@emiadvisors.net.
Gravity Project Kick-Off Information

- Gravity Project kicked-off on May 2nd; meeting slides and recording available: https://confluence.hl7.org/pages/viewpage.action?pageId=46892727#TheGravityProjectMaterials-PastMeetingMaterials

- If you have not already done so, we invite you to officially join the project here: https://confluence.hl7.org/display/PC/Join+the+Gravity+Project

- For all other Gravity Project information, please visit: https://confluence.hl7.org/display/PC/The+Gravity+Project+Home
# Gravity Project Schedule and Activities

<table>
<thead>
<tr>
<th>Week</th>
<th>Call Date</th>
<th>Gravity WG Meeting Tasks</th>
<th>Homework due following Tuesday COB</th>
</tr>
</thead>
</table>
| 1    | 5/2       | **Project Kick-Off & Overview**<br>
*Introduce:* Project Background, Scope and Approach | Join the Collaborative<br>
*Review:* Collaborative Norms<br>
*Review:* Project Deliverables |
| 2    | 5/9       | *Introduce:* Concepts & Coding Systems                                                   | Join the Collaborative<br>
*Review:* Coding Concept Educational Videos |
| 3    | 5/16      | *Introduce:* Data Elements & Data Element Submission Template                           | Join the Collaborative<br>
*Review:* Data Element Submission Template<br>
*Submit:* Candidate Data Elements |
| 4    | 5/23      | **Use Case Kick-Off & UC Process Overview**<br>
*Introduce:* User Personas, User Stories, Assumptions, Use Case Template                | *Review:* User Personas; User Stories; Assumptions |
| 5    | 5/30      | **Pre/Post Conditions, Actors & Roles**<br>
*Review:* User Personas, User Stories, Assumptions                                       | *Review:* Pre/Post Conditions; Actors & Roles |
Goals for Today

- Provide background information about data element definitions
- Offer technical terms we will use within the Gravity Project while working together to clarify data element definitions
- Explain how we will gather and adjudicate information provided by the participants to generate well formed data elements that can be used in standards-based information exchange to code social risk information for sharing as part of the care planning and delivery cycle
Agenda

<table>
<thead>
<tr>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Element Content (the WHAT and WHY)</td>
<td>Lisa</td>
</tr>
<tr>
<td>Q&amp;A</td>
<td>All</td>
</tr>
<tr>
<td>The Data Element Submission Sheet (the HOW)</td>
<td>Lisa</td>
</tr>
<tr>
<td>Q&amp;A</td>
<td>All</td>
</tr>
<tr>
<td>Next Steps</td>
<td>Lynette</td>
</tr>
</tbody>
</table>

Please submit questions and comments using the Webex chat feature.
What is the highest grade or level of school you have completed or highest degree you have received?

Please participate in our poll to support an example we’ll be discussing later in today’s presentation.
A data element is a concept that has been defined specifically. When it is a coded concept, the definition uses a value set to describe the range of concepts relevant to the definition.

A value set contains a set of coded concepts that are a subset of codes from a Code System.

A code system is a set of concepts that are organized in a way that encompasses essential aspects of the concepts and assigned a code to represent that meaning.
**Data Element (DE) Definition:** Information that describes a piece or unit of data. The DE Definition is not the data, it is data about the data (metadata).

Encounter type – a codeable concept
Steward – CMS  
Update Frequency – Annual  
January 1st, updates Quarterly

HCPCS  
Healthcare Common Procedure System

CPT  
Current Procedural Terminology

LOINC®  
Logical Observation Identifiers and Codes

SNOMED CT  
Standard Nomenclature of Medicine, Clinical Terms

ICD-10-CM  
International Classification of Diseases, Clinical Modification, Version 10

Steward – American Medical Association  
Update Frequency - Annual effective  
January 1st
How Data Elements Facilitate Information Exchange

1. Data elements get defined in a code system used by interoperability standards
2. Value sets needed to represent the data element are published in an open accessible way
3. Data elements are used in specifications that inform how systems exchange information
4. Discretely coded information begins to flow between systems to facilitate care delivery and planning
<table>
<thead>
<tr>
<th>ID</th>
<th>Education Level</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edu-Level</td>
<td>Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)</td>
<td>September 10, 2012</td>
</tr>
</tbody>
</table>

```xml
<entry typeCode="DRIV">
  <observation classCode="OBS" moodCode="EVN">
    <!-- ** Representation of Level of Education ** -->
    <!-- ** Uses Social History Observation -->
    <templateId root="2.16.840.1.113883.10.20.22.4.38" extension="2015-08-01"/>
    <templateId root="2.16.840.1.113883.10.20.22.4.78"/>
    <id extension="123456789" root="2.16.840.1.113883.19"/>
    <code code="63504-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" display="Current educational attainment"/>
    <text><reference value="#Edu-Level"/></text>
    <statusCode code="completed"/>
    <!-- The effectiveTime reflects when this observation was observed to be true. -->
    <effectiveTime value="20120910"/>
    <!-- The value represents the patient's level of education attainment at this time. -->
    <value xsi:type="CD" code="LAI2461-2" display="Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)"
      codeSystem="2.16.840.1.113883.6.96"/>
    <author typeCode="AUT">
      <templateId root="2.16.840.1.113883.10.20.22.4.119"/>
      <time value="201209101145-0800"/>
      <assignedAuthor>
        <id extension="555555555" root="2.16.840.1.113883.4.6"/>
        <code code="207QA0505X" display="Adult Medicine"
          codeSystem="2.16.840.1.113883.6.101" codeSystemName="Healthcare Provider Taxonomy (HIPAA)"/>
      </assignedAuthor>
    </author>
  </observation>
</entry>
```
A DE is established by defining a set of attributes that describe the data element:

- **Name**: The name of the DE. A short version of the name or a code may be used in addition to the name.
- **Definition**: An explanation of the nature, scope, or meaning of the DE. (The question.)
- **Data Type**: Information describing what type of information the DE will hold, i.e. Integer, date, string, Boolean, real number, physical quantity.
- **Concept Domain**: The set of possible responses/representations. The range of concepts covered by the DE, often represented as a value set. A value set defines a set of coded concepts from an established code system (e.g. LOINC, SNOMED CT). (The possible answers.)
- **Query/Capture Instructions**: Additional details about the DE beyond the definition. This may include instructions about how to gather or query for the data element, or nuances to validating or processing the information.
- **Provenance**: Information describing the history or origin of a DE, as well as its scientific validity. This can include references to journal articles, vocabularies or data standards, review process, validation, owner or creator, or other information.

Source: https://www.nlm.nih.gov/cde/glossary.html#cde-definition
How is a data element represented?

Adapted from: https://www.sciencedirect.com/science/article/pii/S1532046412001827
Data Element vs. Data Structure

<tr ID="Edu-Level">
  <td>Education Level</td>
  <td>Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)</td>
</tr>

September 10, 2012

<entry typeCode="DRIV">
  <observation classCode="OBS" moodCode="EVN">
    <!-- ** Representation of Level of Education ** -->
    <!-- ** Uses Social History Observation -->
    <templateId root="2.16.840.1.113883.10.20.22.4.38" extension="2015-08-01"/>
    <templateId root="2.16.840.1.113883.10.20.22.4.78"/>
    <id extension="123456789" root="2.16.840.1.113883.19"/>
    <code code="63504-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" displayCode="Current educational attainment"/>
    <text><reference value="#Edu-Level"/></text>
    <statusCode code="completed"/>
  </observation>
  <!-- The effectiveTime reflects when this observation was observed to be true. -->
  <effectiveTime value="20120910"/>
  <!-- The value represents the patient's level of education attainment at this time. -->
  <value xsi:type="CD" code="LA12461-2" display="Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)"
    codeSystem="2.16.840.1.113883.6.96"/>
  <author typeCode="AUT">
    <templateId root="2.16.840.1.113883.10.20.22.4.119"/>
    <time value="201209101145-0800"/>
    <assignedAuthor>
      <id extension="555555555" root="2.16.840.1.113883.4.6"/>
      <code code="207QA0505X" display="Adult Medicine"
        codeSystem="2.16.840.1.113883.6.101"
        codeSystemName="Healthcare Provider Taxonomy (HIPAA)"/>
    </assignedAuthor>
  </author>
</entry>
Example of a Well Defined Data Element

63504-5  What is the highest grade or level of school you have completed or the highest degree you have received [NHANES]

<table>
<thead>
<tr>
<th>NAME</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully-Specified Name:</td>
<td>What is the highest grade or level of school you have completed or the highest degree you have received</td>
</tr>
<tr>
<td>Long Common Name:</td>
<td>What is the highest grade or level of school you have completed or the highest degree you have received [NHANES]</td>
</tr>
<tr>
<td>Shortname:</td>
<td>Current educational attainment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BASIC ATTRIBUTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class/Type:</td>
</tr>
<tr>
<td>First Released in Version:</td>
</tr>
<tr>
<td>Last Updated in Version:</td>
</tr>
<tr>
<td>Status:</td>
</tr>
<tr>
<td>Change Reason:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NORMATIVE ANSWER LIST (LL1069-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEQ#</th>
<th>Answer</th>
<th>Code</th>
<th>Answer ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Never attended/kindergarten only</td>
<td>0</td>
<td>LA15606-9</td>
</tr>
<tr>
<td>2</td>
<td>1st grade</td>
<td>1</td>
<td>LA15607-7</td>
</tr>
<tr>
<td>3</td>
<td>2nd grade</td>
<td>2</td>
<td>LA15608-5</td>
</tr>
<tr>
<td>4</td>
<td>3rd grade</td>
<td>3</td>
<td>LA15609-3</td>
</tr>
<tr>
<td>5</td>
<td>4th grade</td>
<td>4</td>
<td>LA15610-1</td>
</tr>
<tr>
<td>6</td>
<td>5th grade</td>
<td>5</td>
<td>LA15611-9</td>
</tr>
<tr>
<td>7</td>
<td>6th grade</td>
<td>6</td>
<td>LA15612-7</td>
</tr>
<tr>
<td>8</td>
<td>7th grade</td>
<td>7</td>
<td>LA15613-5</td>
</tr>
<tr>
<td>9</td>
<td>8th grade</td>
<td>8</td>
<td>LA15614-3</td>
</tr>
<tr>
<td>10</td>
<td>9th grade</td>
<td>9</td>
<td>LA15615-0</td>
</tr>
<tr>
<td>11</td>
<td>10th grade</td>
<td>10</td>
<td>LA15616-8</td>
</tr>
</tbody>
</table>

https://s.details.loinc.org/LOINC/63504-5.html?sections=Comprehensive
Poll Results
What makes a common data element *common*?

**Common Data Element (CDE):** A data element that is reused in a variety of clinical and non-clinical domains. A data element that is common to multiple data sets across different systems.

- **Standardized format** using ISO/IEC 11179
- A single *accepted* definition
- Applied consistently everywhere the DE is used

Why are CDEs important?

- Provides consistency in way data is collected and represented
- Stakeholders agree to conform to using the definition
- Facilitates semantic interoperability between disparate EHR and health IT systems
- Facilities data processing and aggregation across systems
- Enables re-use of data captured during care delivery for quality, research and public health purposes
How Common Data Elements Facilitate Information Exchange

1. Data elements get defined in a code system used by interoperability standards

2. Value sets needed to represent the data element are published in an open accessible way

3. Data elements are used in specifications that inform how systems exchange information

4. Discretely coded information begins to flow between systems to facilitate care delivery and planning
Questions?

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

Please send all chats to Everyone.
Gravity Project Roadmap (Phase 1)

**Task 1: Collaborative Launch**
- Project Charter Introduction and Coding Concept Orientation

**Task 2: Use Case Development & Functional Requirements**
- Use Case Development & Consensus (HL7 Cross-Paradigm Storyboard)

**Task 3: Data Set Identification By Domain**
- Food Insecurity Data Set Identification
- Housing Instability & Quality Data Set Identification
- Transportation Access Data Set Identification

**Task 4: Coding Recommendations**
- Terminology & Code Harmonization Report Development

**Task 5: HL7 FHIR Integration**
- HL7 FHIR SDH Implementation Guide Development

Kick-Off May 2, 2019
Data Element Submission Process

1. Download template: 
   https://confluence.hl7.org/display/PC/Data+Element+Submission

2. Populate with data concepts you currently use or plan to use

3. Email completed template to gravityproject@emiadvisors.net

4. Gravity Project team triages the input, assesses the information against needed code systems, documents available/potential codes and identifies gaps

5. Gravity Project team reviews results with Workgroup and addresses adjudication questions with Workgroup

6. Workgroup confirms/approves the reviewed information.

7. Gravity Project team consolidates workgroup findings and incorporates in final deliverable: coding recommendations report.

THIS IS ONGOING HOMEWORK FOR THE GRAVITY PROJECT. IT WILL HELP US FACILITATE THE DOMAIN WORKGROUP SESSIONS.
How do we fit all this together?

A structured form and a step-by-step process that focuses first on concepts and attaining agreement.
Questions?

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

Please send all chats to Everyone.
Next Steps

- Join the Gravity Project either as a Committed Member or Other Interested Party
  https://confluence.hl7.org/display/PC/Join+the+Gravity+Project

- Download and begin to populate the Data Element Submission Template
  https://confluence.hl7.org/display/PC/Data+Element+Submission

- Continue to review and comment on existing project deliverables
  https://confluence.hl7.org/display/PC/The+Gravity+Project+Home
Confluence Wiki
https://confluence.hl7.org/display/PC/The+Gravity+Project+Home

Overview
The Social Interventions Research and Evaluation Network (SIREN), with funding from the Robert Wood Johnson Foundation and in partnership with EMI Advisors, LLC, is pleased to invite you to join the Gravity Project. Driven by the growing interest in capturing social risk and protective factor data in health care settings, the Gravity Project brings industry leaders together to identify and harmonize social risk and protective factor data for interoperable electronic health information exchange.

The Gravity Project will complete a project infrastructure phase from April to December 2019 to accomplish the following goals for the social domains of toxicology, housing stability and quality, and transportation access:

- Develop use cases to support documentation for screening, diagnosis, treatment/intervention, and planning activities within EHR and related systems.
- Identify common data elements and their associated value sets to support the use cases.
- Develop a consensus list of recommendations on how best to capture and group these data elements for interoperable electronic exchange and aggregation.
- Write development of an HL7 Fast Healthcare Interoperability Resources (FHIR) implementation guide based on the harmonized use cases and associated data sets that will be finalized in the next phase of work.

Project objectives will be accomplished through weekly one-hour virtual meetings and collaborative project product development through the HL7 project Confluence page.

Materials for Review Prior to Workgroup Meeting
Any working documents or materials that should be reviewed prior to the next workgroup meeting will be posted here. Click on any of the links below to download the documents or access the wiki pages. Comments are due by the Tuesday prior to the meeting date listed above. Please submit brief comments using the button below. If you have extensive comments or wish to share documentation, please email gravityproject@emiacadvisors.net.

- Coding System Overview videos
- Gravity Project Charter
- Gravity Project Charter Glossary
- Relevant Standards and Initiatives in Social Determinants of Health

Please click here to submit comments on materials

siren UCSF

EMI ADVISORS
Thank you for participating in this national consensus-building process.

Additional questions? Contact: gravityproject@emiadvisors.net