

- PCP initiates and documents the clinical and social need care planning activities in the EHR. The Care Coordinator reviews, manages, and monitors the action plan to address the social needs.
- Patient has the ability to verbally grant consent to selected Care Team Members to view the patient’s care plan.
- Patient and Care Team Members have the ability to define notifications and designate notification recipients.
- The Care Coordinator is the facilitator/steward who is responsible for reviewing and reconciling proposed modifications to the care plan.
- Patient’s followup appointment is scheduled during the patient’s lunch break.
- Necessary access and entry authorization protocols, for any of the systems or users described, are in place.
- Screening information can be accessed and retrieved in a structured and coded format.
- Patient encounter data will be used to generate a claim to the payer.
- EHR is capable of storing captured data and associating it with the specific patient and encounter as part of the permanent medical record.
- EHR is capable of transmitting care coordination documentation (e.g., referral note, consult note, care summary, care plan) either in the HL7® Clinical Document Architecture (CDA) or HL7® Fast Health Interoperability Resources (FHIR)® format.
- EHR has access to all Patient social risk related screening, diagnosis, goal setting, and intervention data.
- EHR is capable of incorporating SDOH data for both encounter and claims-based data exchange with a payer.
- Each of the entry modalities either tie back to a common, singular database, or if they are separate databases, the data elements are consistent across each and the integration is preferably automated and near real-time.
- Acknowledgment and error-handling messages will be handled by standard IT protocols and will not be addressed within the scope of this Use Case Package.

## 6.0 Use Cases

The Gravity use cases focus on the functionality and interoperability required to allow an end-user to document, retrieve, send, exchange, and aggregate coded<sup>22</sup> social risk data. These use cases are high-level descriptions of the most value-add interactions between the various actors identified within Patient Story 1.

The three use cases for Gravity are as follows:

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<sup>22</sup> Coded data refers to data concepts that use a value set to describe the range of concepts relevant to the definition. The concepts are organized in such a way that encompasses the essential aspects of the concepts and assigned a code to represent the meaning. The Gravity Project recognizes five nationally recognized code systems—LOINC, Standard Nomenclature of Medicine, Clinical Terms (SNOMED CT), International Classification of Diseases Version 10 (ICD-10), Current Procedural Terminology (CPT), and Healthcare Common Procedure System (HCPCS)—used to represent data across the four clinical activities of screening, diagnosis, goal setting, and interventions.

1. Document SDOH Data in Conjunction with the Patient Encounter;
2. Document and Track SDOH Related Interventions to Completion; and
3. Gather and Aggregate SDOH Data for Uses Beyond the Point of Care.

## 6.1 Document SDOH Data in Conjunction with a Patient Encounter

*This use case is relevant to how coded SDOH data are captured in a health care system and how data are shared with other systems. SDOH data are documented either as part of screening or assessment/ diagnosis activities and may be the reason for ordering care activities.*

### Transactions:

1. Solicited Communication Request
2. Solicited Communication Request Response

**Table 1: Use Case 1 Actors**

Human Actor	Business Actor	System Actor	Technical Role (Not specific to a System Actor)
Patient	n/a	Screening App	Request Recipient
Clinical Staff Member	PCP Practice	EHR	Requester

**Table 2: Use Case 1 Solicited Communication Request**

Use Case Element	Communication Request
<b>Assumptions</b>	<p>Practice determines appropriate questions to address patient consent to share SDOH information and offers options to gather patient preferences regarding whether the patient:</p> <ul style="list-style-type: none"> <li>• does not want to answer the survey;</li> <li>• would prefer to answer the survey on paper at the appointment;</li> <li>• would prefer to discuss these questions with a care coordinator at the appointment;</li> <li>• would prefer to discuss these questions with his or her provider at the appointment; and</li> <li>• needs assistance to translate or interpret the questions.</li> </ul> <p>Patient demographic data is up to date.</p>
<b>Preconditions</b>	<p>Requester system generates the SDOH Screening Questionnaire for patient. The questionnaire is automatically prepopulated with available patient demographic information, date, and medical record number (MRN).</p> <p>The system assigns a unique request ID number to identify the communication request for the associated patient.</p>

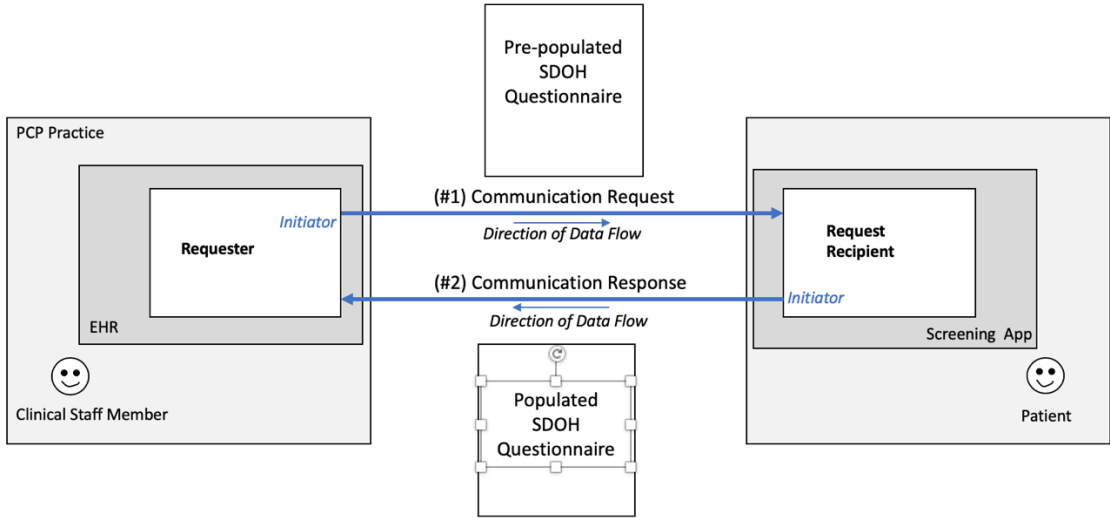
Use Case Element	Communication Request
<b>Transaction #1</b>	<b>Communication Request</b> Requester system (EHR) sends SDOH Screening Questionnaire to Request Recipient (e.g., Mobile App, PHR, Patient Portal, Kiosk).
<b>Message Content (Payload)</b>	Prepopulated SDOH Screening Questionnaire (with coded questions and answer fields where available).
<b>Post Condition</b>	Prepopulated SDOH Screening Questionnaire has been provided to the Request Recipient system along with information needed to process the Communication Request Response.
<b>Alternate Flow (Paper Form)</b>	Operator at the Requester System generates the SDOH Screening Questionnaire for Patient. The questionnaire is prepopulated with some available patient demographic information, date, medical record number (MRN), and a unique request ID number is assigned. The Operator prints the prepopulated SDOH Screening questionnaire and gives it to the Patient.

**Table 3: Use Case 1 Solicited Communication Request Response**

Use Case Element	Communication Request Response
<b>Assumptions</b>	System that receives the Communication Request (Request Recipient) includes a user interface that allows the user to complete and return the form to the system indicated as the “Communication recipient” in the Communication Request.
<b>Preconditions</b>	A Communication Request was received. It contains the prepopulated questionnaire to be completed by the Patient. The system automatically prompts the Patient (user) to complete and return the SDOH questionnaire.
<b>Transaction #2</b>	<b>Communication Response</b> Request Recipient (Mobile App, PHR, Patient Portal, Kiosk) facilitates gathering SDOH questionnaire information from Patient and sends the completed questionnaire back to Requester system (EHR) based on the original Communication request received.
<b>Message Content (Payload)</b>	Populated digital SDOH questionnaire with Patient’s answers (includes the patient identifier and the unique request ID and any other patient demographic information supplied by the Patient).
<b>Post Conditions</b>	The Request Recipient receives the response payload (completed questionnaire). The Request Recipient reviews and then confirms the correct chart for attaching the document to the patient’s record.

Use Case Element	Communication Request Response
<b>Alternate Flow</b>	The Clinical Staff Member provides the patient a paper questionnaire to complete privately. The questionnaire is labeled at the point of care with a unique request ID number, medical record number (MRN), and key demographic information. This information is used later by the Clinical Staff Member to securely match the completed questionnaire to the patient in the EHR and select the correct document type. Alternatively, questionnaire responses can be entered into discrete data fields directly by the patient through tablet or kiosk or by clinical staff after completion.

Figure 1: Use Case 1 Document SDOH Data in Conjunction with a Patient Encounter



### 6.2 Document and Track SDOH Related Interventions to Completion

*This use case is relevant for documenting actions planned or completed in response to data collected about social risks and social needs in electronic health information systems. Actions can include counseling, education, consults, referrals, case management, care planning, and modifications to treatment.*

**Transactions:**

1. Service Request
2. Request Completion

To illustrate this use case, the role of Order Placer is filled by a Clinical Staff Member (see Table 4 below). The Order Placer can be filled by other human actors to include the Patient and their proxy. In this case, the Patient can use a mobile app, PHR, or patient portal to place the order and interact with the Order Filler.

**Table 4: Use Case 2 Actors**

Human Actor	Business Actor	System Actor	Technical Role
Clinical Staff Member	PCP Practice	EHR	Order Placer
Support Services Personnel or Case Manager	Provider Organization or Services Organization	Portal or mobile app, another EHR, or other case management system	Order Filler
Quality Specialist/ Health Plan Care Manager	Payer Organization	Health plan management system	Order Filler

**Table 5: Use Case 2 Solicited Service Request**

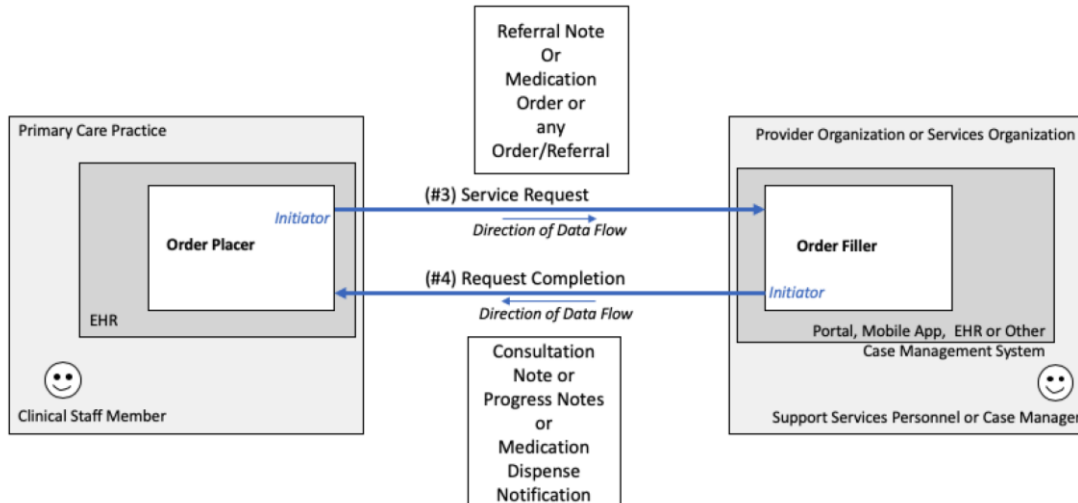
Use Case Element	Service Request
<b>Assumptions:</b>	<p>Clinical Staff Member consults the Patient on order options and works with the Patient to understand preferences (e.g., preferred suppliers, out of pocket costs) before placing the order.</p> <p>Order Placer system automatically assigns a unique ID to the service request.</p> <p>Order Filler is able to receive and process the order/request from the Order Placer.</p>
<b>Preconditions:</b>	<p>Clinical system (EHR) has documented assessment information, health concerns, goals, and planned interventions or performed referrals.</p> <p>Clinical system takes on role as Order Placer system and assigns and includes a unique Service Request ID in the order.</p>
<b>Transaction #3:</b>	<p><b>Service Request</b></p> <p>Order information (referral, planned intervention, ordered activity) is sent from the Order Placer (EHR) to the Order Filler (system used by the person/organization to complete the request such as a Case Management system, pharmacy system, community referral system, or mobile app).</p> <p>Order Filler system responds to indicate receipt of the request transaction.</p>
<b>Message Content:</b>	Relevant information needed for the Order Filler to start the ordered activity.
<b>Post Conditions:</b>	<p>Order Placer system has a receipt of the order/request from the Order Filler.</p> <p>Order Filler has acknowledged receipt of the request and supplied an ID associated with the order in its system.</p>

Use Case Element	Service Request
<b>Alternate Flow 1:</b>	<p>Order Filler rejects order/request. Order Placer sends service request to new Order Filler.</p> <p>Order Placer role is conducted by the Patient or their proxy.</p> <p>User of the Order Filler system acknowledges receipt of order/request manually either by fax, phone, or email.</p>
<b>Alternate Flow 2:</b>	<p>Order Filler transfers service request to new order filler (without sending back to Order Placer).</p> <p>New Order Filler system responds to request from Order Placer.</p>

**Table 6: Use Case 2 Solicited Service Request Response**

Use Case Element	Service Request Response
<b>Assumptions:</b>	<p>ID of the service request (provided by the Requester System) is maintained by the Order Placer and Order Filler system. The Order Placer also retains the Order ID assigned by the Order Filler system.</p> <p>Order Filler system returns both of these IDs with the Request Completion that indicates the ordered activity has been completed.</p>
<b>Preconditions:</b>	<p>Order Placer system generates and manages request IDs used to track initiated requests and order IDs used to track initiated orders.</p> <p>Order Filler system generates and manages activity IDs and maintains the relationship between tasks and requests/orders based on these IDs.</p>
<b>Transaction #4:</b>	<p><b>Request Completion</b></p> <p>Information about the completed activity is communicated back to the initiating party/system (Order Placer).</p>
<b>Message Content:</b>	<p>Information about the initial request that was completed and information about the activity that was performed to complete the request (completed interventions). Includes the ID of the original service request and the ID of the ordered activity in the system where completion of the activity is documented.</p>
<b>Post Conditions:</b>	<p>Order Placer uses the ID of the original request to associate incoming information to previously generated requests/orders.</p> <p>Order Placer uses the returned completed activity information to update ordered activities to be completed activities within the system.</p>
<b>Alternate Flow (HumanTask#1):</b>	<p>User of Order Filler system contacts the organization placing the order to report that the ordered activity had been completed.</p>
<b>Alternate Flow (HumanTask#2):</b>	<p>User of Order Placer system validates the return request information and marks the ordered activities as completed in the system.</p>

Figure 2: Use Case 2 Document and Track SDOH Related Interventions to Completion



### 6.3 Gather and Aggregate SDOH Data for Uses Beyond Point of Care

*This use case describes how patient-level social risk information documented and shared in the above use cases can be aggregated and analyzed to support clinical, system, and community activities, including but not limited to panel and population health management, risk adjustment, value-based payment, and community health improvement.*

#### 6.3.1 Clinical and Payer Scenarios to Support Use Case 3

**Population health management:** On a monthly basis, the Clinical Manager<sup>23</sup> at the Primary Care Practice reviews EHR data that includes social needs and related referrals. Based on the data, the Clinical Manager sees that one social risk factor (*food insecurity*) is the most frequently reported social risk factor in their patient population. The Clinical Manager notes that the goal of food security is rarely met when the only intervention completed is a referral to a local food pantry.

The Clinical Manager explores how to ensure social risk (food insecure) patients are consistently being referred to appropriate services and how to track whether those referrals are effective.

**Quality reporting:** The PCP Office is located in a state that recently began requiring providers to identify social risk factors among Medicaid patients on a quarterly basis and to refer patients with risks to appropriate resources.

The Clinical Manager uses the EHR to generate quarterly reports that list the total number of patients screened and the total number of screened patients who were referred to services. The reports are

<sup>23</sup> The role of the Clinical Manager can also be executed by the Health Plan Care Manager working with the Primary Care Office. In this case, the Health Plan Care Manager would be authorized to collect SDOH data for the Health Plan members receiving care within the Primary Care Office.

electronically submitted to the Payer (State Medicaid Agency or Managed Care Organization) on a quarterly basis.

**Risk Adjustment and Risk Stratification:** The Clinical Manager uses the EHR to generate annual reports that list the total number of patients screened and the outcomes of identified interventions for screened patients. The report includes demographic information and information about the patients' health concerns. The Clinical Manager sends the report to the Payer.

The Payer uses the report to stratify outcomes for members and to examine the impacts of social risks on outcomes for use in future risk adjustment.

### 6.3.2 Use Case 3 Patterns and Transactions

Several use case patterns exist to support the use case 3 activities described above. For the purpose of this use case document, the following three patterns were identified to describe the transactions for sending aggregate SDOH data from one system to another.

#### Use Case Patterns:

- **3A: Unsolicited Communication by Smart Sender.** This pattern describes transactions where the information source system has the capability to aggregate SDOH data and send the aggregated data to another system. Refer to Tables 7 and 8 and Figure 3 below.
- **3B: Unsolicited Communication by Smart Receiver.** This pattern describes transactions where the recipient of the SDOH data performs the data aggregation. Refer to Tables 9 and 10 and Figure 4 below.
- **3C: Unsolicited Communication managed by Middle System.** This pattern describes transactions where a "middleware" system performs the data aggregation activity and sends the aggregated data to another system. Examples of middle systems include clearinghouses, health information system providers (HISP), health information exchanges (HIE), or community information exchanges (CIE). Refer to Tables 11 and 12 and Figure 5 below.

#### Transactions:

1. Send Aggregate SDOH Data
2. Send Individual SDOH Data

To illustrate this use case, the role of information source/ data aggregator is filled by a Quality Manager (see Table 7, 9, and 11). The information source/ data aggregator can be filled by other human actors to include the patient or their proxy. In this case, the patient can use a mobile app, PHR, or patient portal to gather, aggregate, and send data to the Information Recipient.



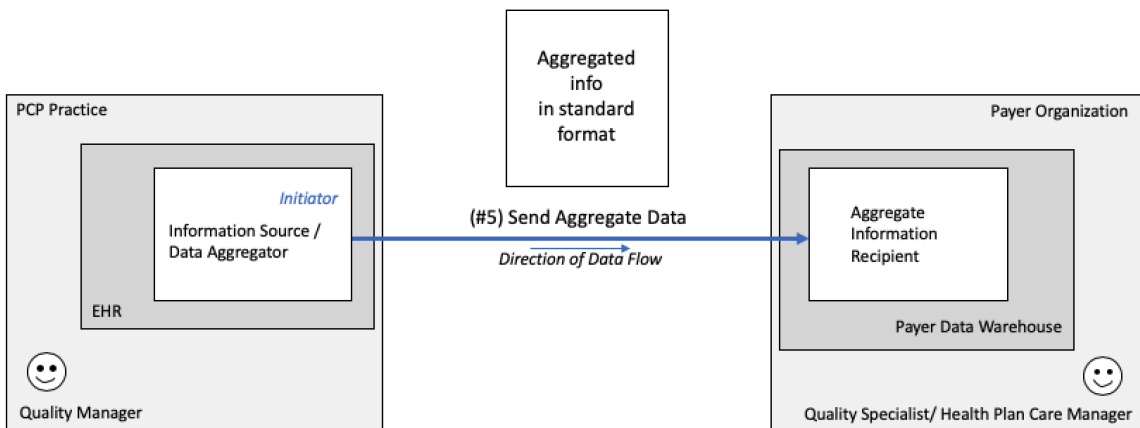
**Table 7: Use Case 3A Actors**

Human Actor	Business Actor	System Actor	Technical Role
Quality Manager	PCP Practice	EHR	Information Source / Data Aggregator
Quality Specialist/ Health Plan Care Manager	Payer Organization	Payer Data Warehouse	Aggregated Data Information Recipient

**Table 8: Use Case 3A Unsolicited Communication - Information Source / Data Aggregator**

Use Case Element	Unsolicited Communication - Information Source / Data Aggregator
<b>Assumptions:</b>	Information Source has the capability to aggregate SDOH encounter data and share aggregated data with other systems.  Information Recipient is able to process and use aggregated SDOH data.
<b>Preconditions:</b>	Quality Manager identifies the data tool (e.g., instruments/scales, case report forms) and related data elements for aggregation and defines aggregation process.
<b>Transaction #5:</b>	<b>Send Aggregate SDOH Data</b> Information source/data aggregator (EHR or source clinical info system is acting as a Data Aggregator) pushes aggregated data to an Information Recipient.
<b>Message Content:</b>	Aggregated coded data identified for a particular purpose (quality measure, stratification, risk adjustment).
<b>Post Conditions:</b>	Information Recipient accepts and acts on aggregated data.

**Figure 3: Use Case 3A Gather and Aggregate SDOH Data for Uses Beyond Point of Care**



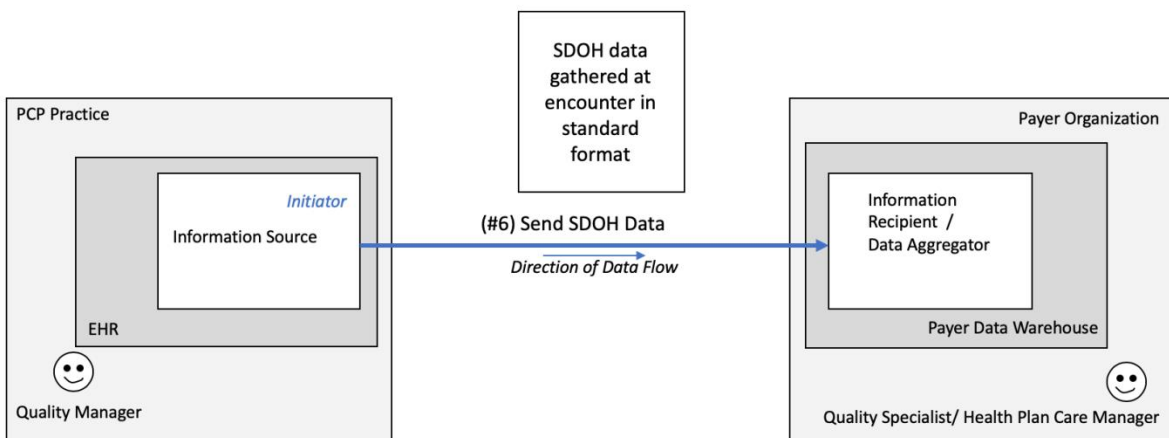
**Table 9: Use Case 3B Actors**

Human Actor	Business Actor	System Actor	Technical Role
Quality Manager	PCP Practice	EHR	Information Source
Quality Specialist/ Health Plan Care Manager	Payer Organization	Payer Data Warehouse	Information Recipient / Data Aggregator

**Table 10: Use Case 3B Unsolicited Communication - Information Recipient / Data Aggregator**

Use Case Element	Unsolicited Communication - Information Recipient / Data Aggregator
<b>Assumptions:</b>	Information Source only needs to be able to generate the collected SDOH information.  Information Recipient has the capability to receive, aggregate, and use submitted SDOH data.
<b>Preconditions:</b>	Quality Specialist identifies the data tool (e.g., instruments/scales, case report forms) and data elements for submission (e.g., Total Medicaid encounters including SDOH data for specific period).
<b>Transaction #6:</b>	<b>Send Individual SDOH Data</b> Information Source pushes encounter data to Information Recipient system.
<b>Message Content:</b>	Individual SDOH data documented within a clinical encounter for specific period.
<b>Post Conditions:</b>	Information Recipient accepts encounter data and conducts aggregation based on specific variables for data processing.

**Figure 4: Use Case 3B Gather and Aggregate SDOH Data for Uses Beyond Point of Care**



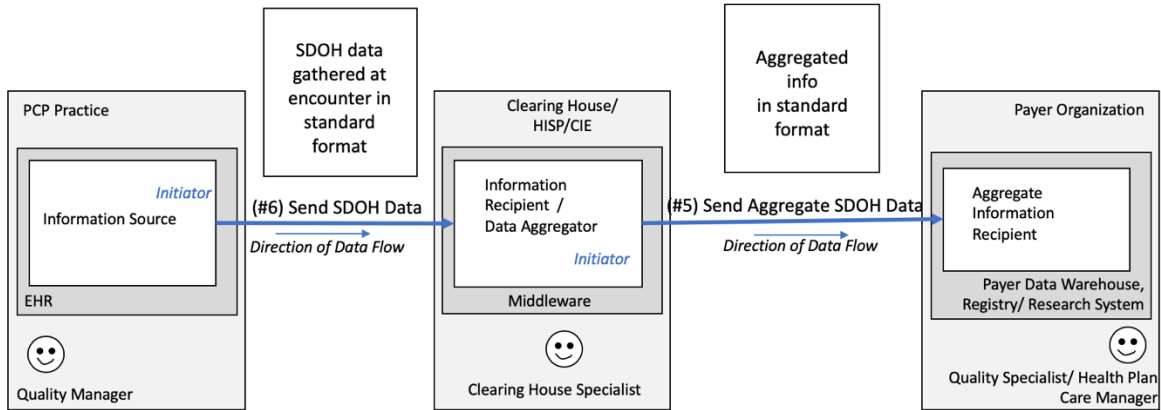
**Table 11: Use Case 3C Actors**

Human Actor	Business Actor	System/Technical Actor	Technical Role
Quality Manager	PCP Practice	EHR – Data Collector	Information Source
Clearing House Specialist	Clearing House	Clearing House or Health Information System Provider (HISP)	Information Recipient / Data Aggregator
Quality Specialist/ Health Plan Care Manager	Payer Organization	Payer Data Warehouse, Registry/Research System	Aggregate Information Recipient

**Table 12: Use Case 3C Unsolicited Communication - Data Aggregator “Middleware System”**

Use Case Element	Unsolicited Communication - Data Aggregator “Middleware System”
<b>Assumptions:</b>	<p>Information Source only needs to be able to generate the collected SDOH information.</p> <p>Information Recipient is able to process and use aggregated SDOH data. Information Recipient identifies data variables for data aggregation and data processing.</p> <p>Middleware System can receive and process SDOH data and share aggregated data with other systems.</p>
<b>Preconditions:</b>	Quality Manager identifies data tool (e.g., instruments/scales, case report forms) and data elements for submission.
<b>Transaction #6:</b>	<b>Send Individual SDOH Data</b> Information Source pushes individual SDOH encounter data to an Information Recipient / Data Aggregator Middleware System.
<b>Message Content:</b>	Individual SDOH data documented within a clinical encounter for specific period.
<b>Post Conditions:</b>	Information Recipient / Data Aggregator Middleware System accepts encounter data and conducts aggregation based on specific variables for data processing.
<b>Transaction #5:</b>	<b>Send Aggregate SDOH Data</b> Data Aggregator Middleware System pushes aggregated data to an Information Recipient.
<b>Message Content:</b>	Aggregated coded data for a particular purpose (quality measure, stratification, risk adjustment).
<b>Post Conditions:</b>	Information Recipient accepts and acts on aggregated data.
<b>Notes:</b>	This is the same transaction as used in the Information Source / Data Aggregator Use Case above (Transaction #5).

Figure 5: Use Case 3C Gather and Aggregate SDOH Data for Uses Beyond Point of Care



## 7.0 Message Content Considerations

The following table summarizes the message content required in support of the six transactions highlighted in the three use cases. Nationally recognized interoperability standards available to represent this message content are listed in Appendix B. Available Document and FHIR Resource Standards for Message Content.

Table 13: Use Case Message Content Considerations

Use Case #	Transaction	Message Content
1	1. Solicited Communication Request	Prepopulated SDOH Screening Questionnaire (with coded questions and answer fields where available) with available patient demographic information, date, medical record number (MRN).
1	2. Solicited Communication Response	Populated digital SDOH questionnaire with Patient’s answers (includes the patient identifier (MRN) and the unique request ID and any other patient demographic information supplied by the Patient).
2	3. Service Request	Relevant information needed for the Order Filler to start the ordered activity.
2	4. Request Completion	Information about the initial request that was completed and information about the activity that was performed to complete the request (completed interventions). Includes the ID of the original service request and the ID of the ordered activity in the system where completion of the activity is documented.
3	5. Send Aggregate SDOH Data	Aggregated coded data identified for a particular purpose (quality measure, stratification, risk adjustment).
3	6. Send Individual SDOH Data	Individual SDOH data documented within a clinical encounter for specific period.