Positive Reportable Condition Follow-Up (e.g., STI)

Use Case Overview

In this use case, a public health practitioner coordinates investigation after a positive reportable condition report. For example, a public health agency initiates an investigation after receiving a syphilis result and there is need to coordinate that investigation with other public health partners.

The information needed includes demographic and contact information, social determinants of health information, provider information, pregnancy status, medication prescribed/administered, and treatment information in some cases.

The process begins when the public health entity receives notice of a reportable disease through one of the following means:

- Electronic case reporting (eCR) system
- Electronic lab reporting (ELR) system
- Web portal
- Non-electronic report form

Data Known at the Time of the Query

**Note:** See the *Obtain Demographic and Contact Information* use case summary for more information on demographics received by the public health agency and steps it may take to obtain more from the patient’s EHR record.

When the public health agency receives a reportable disease report or lab report, information such as the following (from the HL7 eICR and eLR standards) may be available:

- Reportable condition (case report)
- Reportable lab (lab report)
- Patient visit information (e.g., admission type, admit / discharge dates)
- Sending facility (e.g., laboratory CLIA identifier)
- Healthcare organization (case report)
- Ordering facility name, address, phone number
- Ordering provider (NPI, name, address)
- Order information (e.g., filler order number, placer order number)
- Related clinical information (case report)

References:

Data Needed
The minimum necessary data includes:

- demographic information
- provider who ordered the test
- race / ethnicity
- USCDI v3 defined social determinants of health
- phone numbers
- pregnancy status
- next of kin information (for ‘partner’ treatment)
- Insurance status (private, uninsured, etc.)
- medication prescribed / administered
- lab test results [discuss: specific labs needed in different scenarios]
- conditions
- treatment information (in some cases) [discuss: what would this include?]

Rough Query Flow
In the proposed workflow, the public health investigator:

- receives notice of a reportable disease electronically or through other means such as a web portal or manual report
- determines the location of the individual’s electronic medical records based on the healthcare institution information identified in that notice and locates the patient’s record within that source system
  - See the A&O Demographic and Contact Information use case
- uses the unique patient ID within the source system when retrieving additional clinical, treatment and provider information from the patient’s records using FHIR queries

Synthetic Data Needed to Support Testing
Patient 1 (adult patient)

- Name, Date of Birth, Gender, Address, Phone Number, MRN, Race, Ethnicity

RelatedPerson 1 (patient’s partner partner)

- Name, Address, Phone Number

Coverage 1

- Active Status, PayerPayer Type, Subscriber, Subscriber ID, Beneficiary

Observation 1 (SDOH: Employment status)

- Observation.code = 67875-5

Observation 2 (SDOH: Housing status)

- Observation.code = 71802-3

DiagnosticReport 1 (syphilis panel)
- Reagin Ab and Treponema pallidum IgG and IgM and total panel – Serum
- DiagnosticReport.code=LOINC|98212-4

Observation 3-n
- component Observations referenced by the panel above in DiagnosticReport.result.reference

Condition 1-n
- **Appropriate conditions to match the use case (TBD)**

MedicationRequest 1-n
- Patient’s active medications

MedicationAdministration 1
- Medication administered (Inpatient).
- Ambulatory medication dispenses or administrations aren’t typically available in FHIR resources)

**FHIR Query Details**

The investigator may need to use different FHIR search strategies depending on the need. The table below outlines possible approaches for retrieving the information elements needed to support this use case.

- **To be discussed / modified**

<table>
<thead>
<tr>
<th>Information needed</th>
<th>FHIR resource .element</th>
<th>FHIR search or other method</th>
</tr>
</thead>
</table>
| Patient demographic information | Patient               | Patient/$match operation or Patient search   
|                             |                        | See the Demographic and Contact Information use case                                         |
| Phone numbers               | Patient               | “”                                          
|                             |                        | Patient.telecom (system=’phone’)                                                           |
| Race / ethnicity            | Patient               | “”                                          
|                             |                        | Patient.extension = us-core-race  
<p>|                             |                        | Patient.extension = us-core-ethnicity                                                      |</p>
<table>
<thead>
<tr>
<th>Information needed</th>
<th>FHIR resource .element</th>
<th>FHIR search or other method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider who ordered the test</td>
<td>Practitioner</td>
<td>• 1&lt;sup&gt;st&lt;/sup&gt;: Locate the lab panel (FHIR DiagnosticReport) of interest. See #3 in US Core DiagnosticReport required searches. E.g., GET [base]/DiagnosticReport?patient=123 &amp;code=<a href="http://loinc.org">http://loinc.org</a></td>
</tr>
<tr>
<td>E.g., for syphilis [confirm or correct these panels]:</td>
<td>Practitioner referenced in</td>
<td>• 2&lt;sup&gt;nd&lt;/sup&gt;: Retrieve the associated ServiceRequest referenced in the returned</td>
</tr>
<tr>
<td>• Rapid plasma reagin (RPR) (LOINC LP70657-9)</td>
<td>the .requester element of</td>
<td>DiagnosticReport.basedOn element</td>
</tr>
<tr>
<td>• Reagin Ab and Treponema pallidum IgG and IgM and</td>
<td>the ServiceRequest referenced</td>
<td>• 3&lt;sup&gt;rd&lt;/sup&gt;: Retrieve the associated Practitioner referenced in ServiceRequest.requester</td>
</tr>
<tr>
<td>total panel – Serum (LOINC 98212-4)</td>
<td>in DiagnosticReport.basedOn</td>
<td></td>
</tr>
<tr>
<td><strong>USCDI v3 defined social determinants of health</strong></td>
<td>Observation where .category =</td>
<td>Retrieve all patient Observations with a .category of ‘survey’. Browse results to locate those relating to SDOH e.g.,</td>
</tr>
<tr>
<td></td>
<td><a href="http://hl7.org/fhir/us/core/CodeSystem/us-core-category">http://hl7.org/fhir/us/core/CodeSystem/us-core-category</a></td>
<td><strong>Discuss: SDOH population and LOINCs used in EHRs today.</strong></td>
</tr>
<tr>
<td></td>
<td>code: sdoh</td>
<td>• Is / when will the US Core Observation.category ‘SDOH’ Screening Assessment Observation Category value be in general use? Note that US Core 6 doesn’t describe searching on this value</td>
</tr>
<tr>
<td></td>
<td><em>US Core 5.0.0 and above</em></td>
<td>• Are there other methods in use for tagging and searching observations related to SDOH?</td>
</tr>
<tr>
<td></td>
<td>E.g., A couple LOINCs related to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SDOH...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Employment status – current (LOINC 67875-5)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Housing status (LOINC#71802-3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LOINC 82810-3 &quot;Pregnancy status&quot;</td>
<td></td>
</tr>
<tr>
<td>Medication prescribed / administered</td>
<td>MedicationRequest</td>
<td>GET [base]/MedicationRequest?patient=123</td>
</tr>
<tr>
<td></td>
<td>MedicationAdministration</td>
<td>GET [base]/MedicationAdministration?patient=123</td>
</tr>
<tr>
<td>Treatment information</td>
<td>Discuss: What sort of treatment information is needed?</td>
<td></td>
</tr>
</tbody>
</table>
Alternative approach: FHIR Patient-everything operation

The Patient-everything operation returns all information related to a patient. If more specific FHIR searches or reads do not return information needed by the investigator, it may be worthwhile to run the patient-everything operation and browse through the full set of patient records to see if the desired information is available either as discrete data in resources such as Condition or Observation, or as text in DocumentReference resources that capture clinical notes.

Request. The request is a REST GET with the URL:

- [base]/Patient/[id]/$everything
- For example: https://www.example.org/fhir/Patient/12345/$everything

Request options. The following additional parameters could be used to reduce the size or scope of the response. The date-related parameters start, end, and _since might be especially useful to narrow requested information to a time period related to the situation.

- start. All records relating to care provided from the specified start date
- end. All records relating to care provided up to the specified end date
- _since. Resources updated after this datetime will be included in the response
- _type. One or more comma-delimited FHIR resource types to include in the return resources.
- _count. Used for paging of the results

Response: The response is a FHIR searchset Bundle which contains the patient resource along with any other resources that the server has that are related to the patient and are available to the submitter. The server also returns all resources needed to support the records—for example, linked practitioners, medications, locations, organizations etc.