Obtain Demographic and Contact Information

Use Case Overview

Today, determining how to contact individuals and gathering necessary patient information can be time-consuming and costly. And obtaining the information is time sensitive in certain cases such as anthrax, COVID, or measles.

In this use case, a public health practitioner retrieves demographic, contact and identifying information for an individual so that they can contact them and obtain additional medical information when investigating a reported event.

The investigator accesses the EHR of the individual’s provider and locates their record. This provides:

- a full set of patient demographic and contact information
- a unique patient identifier needed to retrieve additional clinical information from the EHR.

Scenario

A public health practitioner receives an electronic lab report with limited demographic information. They need to locate the individual’s address or phone number so that they can contact them for follow-up. And they also need to gather clinical information related to the case, such as the individual’s conditions, medications or lab results.

The process begins when the public health entity receives notice of an event through one of the following means, and then queries a healthcare institution’s system to retrieve additional patient demographic or contact information:

- Electronic lab report (ELR) using HL7 V2 message
- Electronic case report (eCR) in a CDA document (HL7 eICR CDA standard)
- Non-electronic report
- Report entered in a web portal
- Data from the state Vital Records office on infants born in the state

Urgency varies by the situation. In an emergency (e.g., report of measles or anthrax) contact within a couple of hours is necessary. A longer timeframe is acceptable in other situations.

In some situations, it may be necessary to obtain contact information for a group of individuals at once. [discuss when this is necessary, how it affects needs or steps]

Data Known at the Time of the Query

When the public health agency receives an electronic lab report using HL7 V2 ELR messaging or an electronic case report using the HL7 eICR format, the following demographic information may be available:

- Patient identifier (ordering facility’s MRN)
- Patient name (family, given, suffix)
- Mother’s maiden name (not common)
- Date of birth (typically)
- Administrative sex (typically)
- Gender identity (will get in the future) (Sex at birth / clinical sex)
- Race, Ethnic group
- Patient address (street, city, state, zip/postal code, county/parish code)
- Home or work phone number (not always differentiated)
• E-mail (future, starting to get)
• Guardian or next of kin information (not common)
• Employer / employment information
• Disability (ECR)

In addition, the following non-demographic info may have been received by the public health agency:
• 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:
• HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, Release 2 (US Realm).

Data Needed
Depending on the age of the patient and other circumstances, the information needed may include:

• Individual’s...
  o Full name
  o Full mailing address
  o Telephone number
  o Additional demographics (e.g., to enable querying other data sources)
• Related person’s...
  o Name, mailing address, telephone number
• Provider’s contact information (phone number) (if can’t obtain info from the EHR)
• Sexual orientation
• Gender identity

Note: While the electronic lab report standard and other notification methods that initiate this use case support these needed elements, a laboratory may be unable to provide them—if their view of patient information is limited to only the fields needed to perform the test.

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

• receives notice of an event through a reportable laboratory result or other means
• begins case investigation activities (outreach may need to wait until additional contact info is obtained)
• pursues gathering information from the patient’s EHR records, first determining the location of records based on the provider identified in the notice
locates the patient’s record within that source system using the FHIR patient-match operation or by searching for the patient record in the source system based on known information such as the individual’s medical record number, name or date of birth

if the investigator can’t positively match the patient in the EHR based on available demographic information, they may alternatively try to navigate to the patient based on lab order information [Discuss: E.g., locate candidate lab observations using the date and LOINC code and follow the referenced subject to the patient record? Do we think this might be needed in some situations, and would it be viable? Do EHRs support searches like this... that exclude the patient ID?]

retrieves the patient’s demographic and contact information from the source system
  o possibly also retrieves information for a related person or provider that can be used to contact the individual

**Synthetic Data Needed to Support Testing**

Patient 1 (adult patient)

- Name:
- Date of Birth:
- Gender:
- Address:
- Phone Number:
- MRN:

Patient 2 (locate patient using clinical information) [discuss: is this possible/useful/reasonable?]

- Patient
  - Name, DOB, Gender, Address, Phone Number, MRN
- Lab Observation
  - LOINC code
  - Date performed

**FHIR Query Details**

Depending on the capabilities of the healthcare institution’s EHR, a patient may be able to be located using either:

- a FHIR patient matching operation ([patient-match](#))
- or by performing a FHIR search using patient demographics such as name and date of birth

**Patient match**

The FHIR [patient-match](#) operation accepts a FHIR Patient resource containing the submitter’s available information about the individual (the known name, DOB, address elements, etc.). This information doesn’t need to be complete, and doesn’t need to be enough to constitute a valid FHIR Patient resource.

In the match request, the submitter may also set the following search parameters that indicate preferences to the responding EHR:

- onlyCertainMatches (true/false). When this flag is set to true, it requests that the EHR not return any patients in the response if it locates multiple possible matches to the submitted patient information. When false, the server may return multiple results with each result graded according to its certainty.
• **count.** The maximum number of records to return. If no value is provided, the server decides how many matches to return.

The match result returns a FHIR Bundle containing a set of Patient resources that represent possible matches:

• It may optionally also contain an OperationOutcome with further information about the search results (such as warnings or information messages).
• If the operation was unsuccessful, then an OperationOutcome may be returned along with a BadRequest status Code (e.g. security issue, or insufficient properties in the submitted Patient resource)

Example in the US Core 6.1.0 IG: [http://build.fhir.org/patient-operation-match.html#examples](http://build.fhir.org/patient-operation-match.html#examples)

**FHIR search**

US Core (including 3.1.1 to current) requires that EHRs support the following demographic-based patient searches:

• Patient ID (e.g., MRN)
  o GET [base]/Patient?identifier={system|}[code]
  o Example: GET [base]/Patient?identifier=http://hospital.smarthealthit.org|1032702

• Name (matching any of the string fields in the HumanName, including family, given, prefix, suffix, and/or text)
  o GET [base]/Patient?name=[string]
  o Example: GET [base]/Patient?name=Shaw

• DOB and name
  o GET [base]/Patient?birthdate=[date]&name=[string]
  o Example: GET [base]/Patient?birthdate=2007-03-20

• Gender and name
  o GET [base]/Patient?gender={system|}[code]&name=[string]
  o Example: GET [base]/Patient?name=Shaw&gender=female

US Core states that EHRs should support additional searches:

• DOB and family name
  o GET [base]/Patient?birthdate=[date]&family=[string]
  o Example: GET [base]/Patient?family=Shaw&birthdate=2007-03-20

• Gender and family name
  o GET [base]/Patient?family=[string]&gender={system|}[code]
  o Example: GET [base]/Patient?family=Shaw&gender=female