Identity Tiger Team
Matching Patterns Overview

April, 2019
Executive Summary

• [Needs Drafting/placeholder text follows:] The Identity Tiger Team is assembling common patterns currently used in the field for patient matching/identity resolution as well as candidates for new best practices. This work will reference tools available in the field or gaps needing to be addressed, to best guide a higher level of automation for patient matching at scale.

• This collection of patterns is a work in progress that captures current knowledge, to be further informed through SME interviews our team will be conducting in coming months.

• Each pattern snapshot consists of 3 slides: Introduction, Workflow specifics, and Actor’s Actions + Gaps; current slide topic is designated in blue at the far right.

• Team members are encouraged to submit additional patterns to add to the list and any suggestions for improvement to the pattern template/content.

Problem Statement

• The **client** has demographic information about a **patient** that it can provide to the **resource** as part of a match request which ultimately returns one or more (bulk data or additional ID resolution needed) patient IDs to the client

• In this case, it is not known whether a resource will have data about a patient or not, or whether the resource will be able to produce a single patient match or more than one match per match request

Client Submits:
- name, birthDate, address, Identifier (Insurance ID, SSN, or Last 4) (Required)
- additional Identifier, ContactPoint such as email, Home or Mobile # (Optional)

Resource Processes & Returns:
- Patient(s) Found
- ID Resolution Metadata + Patient IDs*

Client Processes & Submits:
- FHIR Request in context of Patient ID(s) (plural when bulk data)

Resource Processes & Returns:
- FHIR Resources or other message

**Actors’ Actions:**

- Client submits match request using required attributes and any available optional attributes
- Resource either returns no results OR returns a list of one or more patients along with attributes the client can use to perform identity resolution (1)*
- If a match is determined, client submits FHIR request with patient context and resource returns results (2)
- In future slides we’ll refer to these steps as (1) **identity resolution step** and (2) **data request step**

**Gaps Identified:**

- *Are multiple patient IDs provided by a resource as the result of a match request OR only the chosen patient ID after client identifies a “matching” patient based on attribute information alone? (In other words, who will perform resolution & shall we further specify the contents of that action?)
- Should the query identify the reason for the match request, e.g. part of a certain use case? Or would the credential of the ecosystem participant be sufficient to determine that the matching request is authorized?
1.a. “Common” Case: Identity Match using Patient ContactPoint

Client Submits:
- name, birthDate, postalCode, Identifier, and ContactPoint such as phone number, email, or Direct Address (Required)
- Identifiers such as Insurance ID, SSN or Last4, and ContactPoints such as such as email, Home or Mobile # (Optional)

Resource Processes & Returns:
- Patient(s) Found
- ID Resolution Metadata + Patient IDs*

Client Processes & Submits:
- FHIR Request in context of Patient ID(s) (plural when bulk data)

Resource Processes & Returns:
- FHIR Resources or other message

This is one sub-example of the “Common” case
1.a. “Common” Case: Identity Match using Patient ContactPoint

**Actors’ Actions:**
- Client submits match request using required attributes and any available optional attributes, then performs identity resolution step then data request step

**Gaps Identified:**
- PRECONDITION: both parties pre-register the patient’s ContactPoint, e.g. phone, email, Direct Address
- Is it a concern if the patient has multiple ContactPoints of the type being matched or the ContactPoint changes over time?

Client Submits:
- name, birthDate, sex, address, phone + verification (Required)
- Rest of Match Request (Optional Attributes: additional Identifier such as Insurance ID, ContactPoint such as such as email, Home or Mobile #)

Resource Processes & Returns:
- Patient(s) Found
- ID Resolution Metadata + Patient IDs*

Client Processes & Submits:
- FHIR Request in context of Patient ID(s) (plural when bulk data)

Resource Processes & Returns:
- FHIR Resources or other message


**Actors’ Actions:**
- Client submits match request using required attributes and any available optional attributes
- If more than one match exists, resource either returns 0 results OR returns a list of patients along with attributes the client can use to perform identity resolution*
- If a match is determined, client submits FHIR request with patient context
- Resource returns results

**Gaps Identified:**
- PRECONDITION: both parties pre-register all the priority patient metadata elements
- PRECONDITION: verification of the information with credit bureau type records; correct as needed; some best practices to develop (OR: random quality checks to verify data/verify when address data not supported on provided ID). Timestamp address verification/indicate that it was performed?
- PRECONDITION: Additionally require SSN OR DL# OR Mother’s Maiden Name + Birth City + Birth Order (pediatrics)
- Challenges (per GAO): Transgender persons whose photo ID gender doesn’t match actual, & East-Asian persons who reverse first and last name; need best practices
2. “Lookup” Case: Identity Match using ID on Client’s System

Problem Statement

• Provider to Payer/Provider to Provider communication when both parties use common identifiers

• This is a special scenario in which a resource holder can match to a patient with 100% accuracy based on the client’s identifier because a precondition assumes the resource holder has associated another entity's identifier with their own local identifier
2. “Lookup” Case: Identity Match using ID on Client’s System

Client Submits:
- Client’s Patient Identifier with URI or other context** (Required)
- Rest of FHIR Request

Resource Processes:
- Patient(s) Found (plural when bulk data)
- Results Available

Resource Returns to Client:
- FHIR Resources or other message
2. “Lookup” Case: Identity Match using ID on Client’s System

**Actors’ Actions:**
- Client sends their patient identifier along with the FHIR request in a single pass
- Resource looks up the patient and goes right to data request step

**Gaps Identified**
- **PRECONDITION:** Assumes pre-registration of patient so that resource has already matched client’s patient identifier to their local identifier(s) as a unique patient
- A URI for each participating organization’s identifier should be developed, or other means of providing context that can indicate what organization’s identifier is being provided
- Additional metadata such as name, DOB, or Last4 will be needed from time to time to resolve members within a family who share the same insurance ID (other outlier cases?).
  - If no patient attributes are provided, does the resource return all matching records, which may be an entire family→what is the impact?
- Patient has been a cash payer to date→pre-registration would not be possible
3. “Lookup” Case: Identity Match using Other Unique Patient Identifier

**Problem Statement**

- Provider to Payer/Provider to Provider communication when both parties recognize one or more types of unique patient identifiers
- This is a special scenario in which a resource holder can match to a patient with 100% accuracy based on a unique patient identifier
3. “Lookup” Case: Identity Match using Other Unique Patient Identifier

Client Submits:
- Unique Patient Identifier (Required)
- Rest of FHIR Request

Resource Processes:
- Patient(s) Found (plural when bulk data)
- Results Available

Resource Returns to Client:
- FHIR Resources or other message
3. “Lookup” Case: Identity Match using Other Unique Patient Identifier

**Actors’ Actions:**
- Client sends unique patient identifier along with the FHIR request in a single pass
- Resource looks up the patient and then goes right to data request step

**Gaps Identified**
- **PRECONDITION:** Assumes pre-registration of patient’s unique identifier at both organizations
- A URI for each identity service or another method to make identifiers unique across identity providers should be established, along with identity proofing requirements, if any
Parking Lot/Notes from a previous meeting...

- Option A: Real-time patient matching, fallout, scale, headless
- Option B: Payer and Provider have (access to) same digital ids