Patient.id in FHIR Environments

Guidance to Share With Connectathon Participants

Disclaimers

- This is written in the context of Steve trying to provide guidance to Connectathon participants.
- Lynn and I will sometimes ask them to do things to expedite testing when we do not find clear guidance in IHE profiles or other relevant standards.
- As you review the following slides, think of the content as “Steve’s understanding.”
    - If you see something that is false or ambiguous, call me out
    - My only goal in this exercise is provide guidance to participants in a way that does not make them do things they would not do in production.
    - To quote myself, I do not want to make them stand on their head.

Patient Business Identifier in the Pre-FHIR World

Document Sharing Metadata Handbook

- https://www.ihe.net/uploadedFiles/Documents/ITI/IHE_ITI_Handbook_Metadata_Rev1-1_Pub_2018-08-20.pdf
- Mentions PatientID but provides no further guidance

Enabling Document Sharing Health Information Exchange Using IHE Profiles

- https://profiles.ihe.net/ITI/HIE-Whitepaper/index.html
- Describes patient identity issues
- See quoted text in slide 4
- Helps me understand difference between local identifiers and the identifier to be used in one affinity domain

HIE White Paper

The Document Sharing defined in this white paper is patient centric, meaning that a patient is associated with each document shared. When data related to an individual patient is exchanged among healthcare information systems it is critical to ensure that the participating systems are referring to the same patient. This requirement can be accomplished in several different ways.

One possible way would have each transaction carry enough demographic data to ensure that the partner is able to match the patient through demographic matching with locally held characteristics. The challenges of “enough” demographic data is a difficult problem. It includes issues around demographics changing over time (name changes) and other aspects of demographics matching rules. There is also concern around privacy when unnecessarily transporting patient demographics.

A Patient Identity is distinct from Patient Identifier, in that a Patient Identifier is a unique value within a domain; whereas the Patient Identity is made up of one or more Patient Identifier(s) and identifying information including what is classically understood as demographics and also identifiers issued by any recognized authority. These attributes of a Patient Identity could include name (family name, given name(s), etc.), phone, email, gender, birth date, address(s), marital status, photo, others to contact, preference for language, general practitioner(s), and links to other Patient Identities. The use of identifiers from other recognized authorities would include identifiers issued by healthcare organizations, but also by non-healthcare organizations such as government issued identifiers such as drivers license number, social security number, or passport number; or any identifier that a patient can be authenticated by such as a Voluntary Health Identifier (VHID) being a specific example of an identifier assigned outside of treatment or a Decentralized Identifier (DID) being an example of a general purpose identifier that can be authenticated.

IHE recommends that the identification of the patient be done through patient identifiers in a common or accepted patient identification domain. Thus, prior to the exchange of healthcare information the partners agree on a commonly known patient identifier to refer to the patient. This recommendation, however, is often non-trivial and the patient identity management profiles enable this aspect of Document Sharing. Some regions and nations have enabled the use of a unique patient identifier that is widely available but many places still need profiles which aid in patient identifier discovery.

Systems participating in Document Sharing frequently use locally assigned patient identifier domains. A patient identifier domain is defined as a single system or a set of interconnected systems that all share a common patient identification scheme (an identifier and an assignment process to a patient) and issuing authority for patient identifiers.

The following table introduces the IHE Profiles for Patient Identity Management in a Document Sharing Health Information Exchange.

The four IHE Profiles support various styles of distributed management of patient identities. The table identifies, for each profile, key "Architecture Capabilities" that distinguish each of the Profiles, to aid with picking the right solution for various settings and needs. The third column in the table describes some deployment considerations including systems design and policy.

TF Documentation

- IHE ITI TF 1:8 (PIX)
  - Tells me how to find patient identifier in domain B given that I know identifier in domain A
- IHE ITI TF 1:8 (PDQ)
  - Tells me how to query for a patient and find the right identifier in a particular domain
- There are IHE profiles that tell me how to find, send, receive clinical information given that I know the identifier in the right domain
  - ITI: XDS, XDR
  - Radiology: SWF.b and a host of others
  - PCC: QED and others

Takeaways (Pre-FHIR)

- A patient has an identifier in one or more identification domains
- My system has to know which is the proper domain to be used to communicate clinical data (read / write) with another system
- The owner of the patient identifier is the identification domain and not necessarily one system.
  - In an implementation environment, there might be multiple ways for my system to find the proper identifier for patient X. Consider Radiology SWF.b
  - The DSS/OF gets the patient identifier from an HL7 feed from the ADT system
  - The Acquisition Modality gets the patient identifier by sending a query to the DSS/OF
  - You might say the ADT system owns the identifier. The Acquisition Modality does not care because it gets the patient identifier from the DSS/OF (RIS) and does not talk to the ADT system.

Now We Move Into the FHIR World

Nuggets in PDQm

PDQm TF 1:38.4.1

> Each of these specific use cases is generalized into two general use cases. The first is one where a system must obtain patient demographics to populate a user interface via a known demographic field (such as bracelet ID) or search parameters provided by a user. The second is as a prerequisite step whereby an application must obtain an identifier from another patient ID domain in order to complete another workflow.

PDQm TF 2:3.78.4.1

Tells me how to send a query that follows the patterns established by PDQ.

PDQm TF 2:3.78.4.1.2.1

Differentiates between resource identifier (_id) and business identifiers (identifier) as query search parameters

PDQm TF 2:3.78.4.1.2.4

- Tells me how to request specific patient identifier domains
- Only provides examples: &identifier=urn:oid:1.2.3|,urn:oid:4.5.6|
- No way for me to request a Patient Resource ID that would be owned by someone else

PDQm TF 3:3.78.4.3

Tells me that my client can request a specific Patient Resource from a PDQ Supplier:

> GET [base]/Patient/[resourceId]

The zero or more Patient Resources returned in any query will have a resource identifier (FHIR requirement).

Nuggets in PIXm

PIXm TF 1:41

> This profile does not assume Patient Identifier Cross-reference Manager has the ability to act as a full-fledged HL7 FHIR server, other than for the profiled transaction.

PIXm TF 2:3.83.4.1.2

Tells me how to format a PIXm request:

> GET [base]/Patient/$ihe-pix

Query includes Patient Identifier (not Patient resource identifier)

PIXm TF 2:3.83.4.1.2.2

- Tells me how to request specific identifier domains in the request
- Tells me I can request a *targetSystem* of the format: http://fhir.mydomain.com
  - This is a hint that I can get the resource ID of a Patient Resource that might live somewhere else.
  - Does not guarantee that the supplier has the information
  - Is at least a start

PDQm and PIXm Thoughts

PDQm:

- I can search for patients through PDQ* queries
- I can choose a matching patient record that will have a resource id
- I know that resource id will allow me to retrieve that patient from this supplier
    - I do not know anything else

PIXm:

- As with PIX*, allows translation of business identifiers
- Does mention the novel feature of translating to resource identifiers
    - At least, that is my take

Back To Original Problem

I want to write a FHIR client application that will push/pull/… FHIR clinical resources (Observation, …..)

If my target is an environment that has a centralized system that owns/services all of the resources (Patient, Observation, ….), I can make a lot of simplifying assumptions and work in that environment. My angel investors will be happy.

If my target is an environment where the resources are distributed (say Radiology Diagnostic Reports live in a Radiology only system), then the assumptions are not so easy to make. My angel investors will not understand why this is so hard.

Further Thoughts

Before FHIR,

- The “Patient” might be owned by an MPI
- Some systems are downstream from the MPI. They do not care who owns the Patient. They just know that someone (not MPI) is going to give them the right business identifier.
- There is no concept of where a patient record lives.
    - There is the understanding that you want to keep the patient (demographics, …) record synchronized across systems.
    - If I have the business identifier for a patient record, I know the domain and the MPI implementation moves somewhere else, I do not care in the short term. I have the identifier I need; I can use it and everyone would/should know which patient I mean

Further Thoughts (2)

With FHIR,

- QEDm (today) tells me I need to qualify my search for clinical data using:
  - patient (reference)
- MHD tells me there are multiple search criteria. These are two that are available:
  - patient reference (same as QEDm)
  - Patient.identifier

So, MHD gives me the ability to not care about the patient resource id. I can work in the world of business identifiers if necessary. That means:

- I can discover the patient
- In the MHD context, I do not have to care about the patient resource id.

Remind Me, What Is the Problem?

Connectathon participant wants to make a QEDm query to find clinical data (not a patient resource).

That means (today) you have to know the resource id of the Patient Resource (because of the QEDm search transaction).

Solutions:

- Assume the QEDm supplier also is the home of the Patient resource
- Make sure a PIXm manager exists that knows how to supply the proper resource id
- Tell them to figure it out themselves

What Could IHE ITI Do?

- Per Charles, HL7 FHIR has not addressed how to handle the issue of distributed systems. IHE does not solve it.
- Same conditions, but IHE writes a white paper that says:
  - Here are the assumptions in the consolidated environment.
  - Here are unresolved issues in the distributed environment
- Write a white paper that says:
  - Here are the assumptions in the consolidated environment.
  - QEDm and other profiles need to be amended to support queries that include patient.identifier so we do not need to assume a patient resource id. That might open another can of worms
- There are likely other short term options that would educate Steve
  - Who would then follow guidance at IHE Connectathons rather than inventing