IHE Work Item Proposal (Detailed)

# Proposed Work Item: PIXm support for ITI-8 on FHIR

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Domain: ITI

**Summary**

<Many people find it easier to write this section last. Use simple declarative sentences. Avoid going into background. If it's more than a dozen lines, it's not a summary.>

<Summarize in one or two lines the existing problem. E.g. "It is difficult to monitor radiation dose for individual patients and almost impossible to assemble and compare such statistics for a site or a population.">

There is not, today, an IHE FHIR profile to support the operation of a client registry (CR) or enterprise master patient index (EMPI) solution. The current PIXm profile is missing the FHIR equivalent of ITI-8. The FHIR standard has the needed capability. Extensions to the IHE PIXm profile are needed to support Connectathon testing of FHIR-based CR/EMPI solutions and the point of service (POS) solutions that make use of them.

<Demonstrate in a line or two that the key integration features are available in existing standards. E.g. "DICOM has an SR format for radiation dose events and a protocol for exchanging them.">

<Summarize in a few lines how the problem could be solved. E.g. "A Radiation Dose profile could require compliant radiating devices to produce such reports and could define transactions to actors that collect, analyze and present such information.">

The purpose of this work item is to update and extend the PIXm profile to support a FHIR-based Patient Identity Feed transaction. There is demand for such an IHE profile from organizations (e.g. the OpenHIE community) and jurisdictions (e.g. eHealth Ontario, Tanzania, Vietnam, Myanmar, the Philippines) that are leveraging FHIR-based IHE profiles and IHE Connectathons to operationalize large-scale (e.g. province-wide, nation-wide, etc.) interoperable digital health infrastructure. The profile development will be supported by members of the OpenHIE community.

<Summarize in a line or two market interest & available resources. E.g. "Euratom and ACR have published guidelines requiring/encouraging dose tracking. Individuals from SFR are willing to participate in Profile development.">

<Summarize in a line or two why IHE would be a good venue to solve the problem. E.g. "The main challenges are dealing with the chicken-and-egg problem and avoiding inconsistent implementations.">

# The Problem

<Summarize the integration problem. What doesn’t work, or what needs to work?>

Client Registry (CR) / Enterprise Master Patient Index (EMPI) projects, in both OECD and LMIC settings, are favouring FHIR as their underlying digital health standards framework. IHE profiles exist for FHIR-based patient identity exchange (PIXm) and for FHIR-based patient demographic query (PDQm) – but there is a gap regarding FHIR support for the key transactions covered by the IHE Patient Administration Management (PAM) profile. This work item would develop a FHIR-based PAM profile to address that gap.

<Describe the Value Statement: What is the underlying cost incurred by the problem and what is to be gained by solving it? If possible provide quantifiable costs, or data to demonstrate the scale of the problem.>

The key value that will accrue from closing this gap is that the current momentum behind HL7 FHIR can be harnessed to address the foundational challenges of patient identity management. This is an important benefit in all contexts, but is especially appreciated in low-resource settings where lowering the barriers to digital health adoption is a key factor in being able to go to scale with impactful solutions. FHIR is, quite simply, easier to use and less expensive to adopt than many of the legacy health informatics specifications.

# Use Cases

<Describe a short use case scenario from the user perspective. The use case should demonstrate the integration/workflow problem. Feel free to add a second use case scenario demonstrating how it “should” work. Try to indicate the people/systems, the tasks they are doing, the information they need, and where the information should come from.>

The key target use case for the FHIR-based exchange of person-centric demographic information would be informed by the Patient Identify Feed transaction (ITI-8) defined in PIX:

1. Patient Identity Management Use Case is covered by the Patient Identity Feed transaction, which supports the following notifications both in acute care and ambulatory environment:
* Creation of a new patient demographic record with patient identifier assigned, full identity, related actors (doctor, guarantor, next of kin), qualification of the reliability of the patient identity (e.g. unknown/default date of birth).
* Creation of a temporary identification and record for an unknown patient.
* Update patient demographic record.
* Merge two patient demographic records into one.

# Standards & Systems

<List existing systems that are/could be involved in the problem/solution.>

Participating systems: Point of Service (POS) digital health application; client registry (CR/EMPI) solution; shared health record (SHR) repository

<If known, list specific components of standards which might be relevant to the solution.>

Content specs: FHIR

Coding specs: TBD – generally, as defined in corresponding HL7 FHIR resources

Transport specs: FHIR (RESTful HTTP)

# Technical Approach

<This section can be very short. Feel free to include as much or as little detail as you like. The Technical Committee will flesh it out when doing the effort estimation.>

The approach will be to leverage the mature description of ITI-8 as the functional template and to map the transactions and transaction options described in ITI-8 to the FHIR equivalent transactions. A set of content options (e.g. maternal option) will be developed that aligns to the capabilities described in ITI-8.

<Outline how the standards could be used and refined to solve the problems in the Use Cases. The Technical Committee will be responsible for the full design and may choose to take a different approach, but a sample design is a good indication of feasibility.>

The existing FHIR specifications related to Person will be leveraged. The role of this work item is to augment the existing PIXm profile to support the “missing” transactions related to the **Patient Identify Feed** transaction.

**New actors**

PIXm Patient Identity Source

**Existing actors**

PIXm Patient Identifier Cross-reference Manager

**New transactions (standards used)**

<Describe possible new transactions (indicating what standards would likely be used for each. Transaction diagrams are very helpful here. Feel free to go into as much detail as seems useful.>



<Point out any key issues or design problems. This will be helpful for estimating the amount of work.>

There may be challenges (“impedance mismatch”) between the FHIR and the HL7v2.x content specs and regarding the mapping of MLLP transactions to RESTful PUT transactions. These are not considered to be especially risky to overcome as such patterns have already been adopted by ITI on other profiles.

**Impact on existing integration profiles**

<Indicate how existing profiles might need to be modified.>

It may be prudent to undertake this work item as a modification to PIXm, in which case that profile will need to be revisited and, potentially, republished in its entirety. It would also be prudent to avoid “breaking changes” in PIXm since this profile has been widely implemented.

**New integration profiles needed**

<Indicate how existing profiles might need to be modified.>

NA

**Breakdown of tasks that need to be accomplished**

<A list of tasks would be helpful for the technical committee who will have to estimate the effort required to design, review and implement the profile.>

* List use cases equivalent to the functional footprint of ITI-8, including its options
* Map existing HL7v2.x content specs to FHIR Person resource (normative version?)
* Describe behaviour of FHIR-based PUT transactions in an equivalent manner to the descriptions in ITI-8 (and with support for functionally equivalent options, including Merges)
* Test for breaking changes to existing PIXm features and functions (include version update?)

# Risks

<List technical or political risks that will need to be considered to successfully field the profile.>

This is a very low risk profile from a technical standpoint. Political risks will include blowback from the FHIR community that “this isn’t needed” – but it **is** needed so that there is a PIX-equivalent FHIR version in the IHE suite of profiles.

# Open Issues

# Effort Estimates

<The technical committee will use this area to record details of the effort estimation.>