FAST Technical Learning Community

Proposed Solutions: Identity
• The ONC FHIR At Scale Taskforce (FAST) (Hereinafter “Taskforce”) is committed to full compliance with existing federal and state antitrust laws.

• All members involved in the Taskforce effort, including its advisory groups, will comply with all applicable antitrust laws during the course of their activities. During Taskforce meetings and other associated activities, including all informal or social discussions, each member shall refrain from discussing or exchanging competitively sensitive information with any other member. Such information includes, but may not be limited to:
  – Price, premiums, or reimbursement charged or paid for products or services
  – Allocation of customers, enrollees, sales territories, sales of any products or contracts with providers
  – Any other competitively sensitive information that is proprietary to a member company

• If you have any specific questions or concerns, seek guidance from your own legal counsel.

• Members should not bring confidential information or intellectual property (hereinafter “Intellectual Property”) owned by their respective member companies into Taskforce meetings. To the extent such Intellectual Property is shared with the Taskforce that shall not be construed as a waiver of member company’s rights to, or ownership in, the Intellectual Property.
Agenda

- **FAST Technical Learning Community (TLC) Webinar Series**
- **What is FAST?**
- **Identity Barriers**
  - What problems are being addressed?
  - Why are they problems?
- **Proposed Identity Solutions**
  - Mediated Patient Matching
    - Proposed solution overview
    - Open solution questions & TLC feedback
  - Collaborative Patient Matching
    - Proposed solution overview
    - Open solution questions & TLC feedback
  - Distributed Identity Management
    - Proposed solution overview
    - Open solution questions & TLC feedback
Technical Learning Community (TLC) Webinar Series

<table>
<thead>
<tr>
<th>Identity</th>
<th>Today’s Presentation</th>
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| Directory, Versioning and Scale | Monday, November 25th  
12-2pm ET  
Register Now! |
| Testing and Certification | Thursday, December 12th  
12-2pm ET  
Register Now! |
| Security | Monday, December 16th  
12-2pm ET  
Register Now! |
| Exchange | Thursday, December 19th  
12-2pm ET  
Register Now! |
What is FAST?

The FHIR at Scale Taskforce (FAST), convened by the Office of the National Coordinator for Health IT (ONC), brings together a highly representative group of motivated healthcare industry stakeholders and health information technology experts.

The group is set to identify HL7® Fast Healthcare Interoperability Resources (FHIR®) scalability gaps and possible solutions, analysis that will address current barriers and will accelerate FHIR adoption at scale.
**FAST Organization & Community Engagement**

**EXECUTIVE STEERING COMMITTEE**
(public-private mix)

**COORDINATING COMMITTEE**
(public-private mix)

**SEVEN TIGER TEAMS**
- Ecosystem Use Cases
- Identity
- Security
- Directory, Versioning and Scale
- Exchange
- Certification and Testing
- Pilots

**TIGER TEAMS IDENTIFY:**
- Use Cases
- Technical/Regulatory Barriers
- Core Capabilities
- Gap Analysis

**FEEDBACK**

**UPDATES**
- Website
- Periodic webinars
- Newsletters
- TLC Meetings
- LinkedIn Group

**TECHNICAL LEARNING COMMUNITY (TLC)**

Information Sharing with TLC through:
Known Technical Barriers

1. Directory Services
2. Identity
3. Security
4. Testing, Conformance, & Certification
5. Versioning
6. Scaling

For more information view FAST 101 and Technical Barriers
Example FHIR Transaction Journey

**Patient visits Primary Care Physician (PCP)**

**PCP needs information from Payer**

**Payer receives PCP request**

1. **REQUESTING SYSTEM**
   - Formulates FHIR Request
   - Looks Up the FHIR Endpoint for Recipient
   - Transaction Information (e.g., Header) Appropriately Configured

2. **REQUESTING SYSTEM**
   - Directory
   - Requesting System Receives Data

3. **RECEIVING SYSTEM**
   - Performs Patient Matching and Sends Back Not Found If Unable To Do So
   - Receives Transaction, Validates Requestor, Validates Version

4. **RECEIVING SYSTEM**
   - Validates
   - Validates FHIR User’s Role

5. **RECEIVING SYSTEM**
   - Filters Out Data That Does Not Have Consent
   - Generates & Returns FHIR Response

6. **RECEIVING SYSTEM**
   - CHALLENGE: How can a requestor and receiver uniquely identify the patient/member?
   - SOLUTION: Identity matching approach

**For more information view FAST 101**
What type of organization do you represent?
Presenters – FAST Identity Tiger Team Leads & Members

Meena Jambulingam  
_Distinguished Engineer_  
Optum

Nicole Antonson  
_CEO_  
Change Healthcare

Julie Maas  
_EMR Direct_
<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
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<tbody>
<tr>
<td>Meena Jambulingam <em>(Lead)</em></td>
<td>Optum</td>
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<tr>
<td>Carmen Smiley <em>(Co-Lead)</em></td>
<td>ONC</td>
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<tr>
<td>Andrew Gregorowicz</td>
<td>The MITRE Corporation</td>
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<td>Julie Maas</td>
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<td>Change Healthcare</td>
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<td>Adam Culbertson</td>
<td>SMART</td>
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<tr>
<td>Rita Torkzadeh</td>
<td>Independent SME</td>
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<tr>
<td>Norman Adams</td>
<td>Surescripts</td>
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<td>Diana Ciricean</td>
<td>ONC</td>
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# Identity Tiger Team Approach

<table>
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<tr>
<th>Industry Initiatives and Research</th>
<th>Considered best practices and approaches from:</th>
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<tr>
<td></td>
<td>• The Sequoia Project</td>
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<tr>
<td></td>
<td>• ONC Patient Matching efforts</td>
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<td>• U.S. Gov’t Accountability Office</td>
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<td>• CommonWell</td>
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<td>• CARIN Alliance</td>
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<th>Community feedback</th>
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<td>• Interviewed SMEs</td>
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<td>• Requesting feedback from FAST TLC through Webinars and LinkedIn Group</td>
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<th>FAST Internal Reviews</th>
<th>Leveraging expertise on the taskforce</th>
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<td>• Feedback from FAST Coordinating Committee</td>
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<td>• Reviews with FAST Chief Architects and other Tiger Teams</td>
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### FAST Identity Barriers to FHIR Scalability

#### Identity Barriers

<table>
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<tr>
<th>Identity Barriers</th>
<th>IMPLICATIONS</th>
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<tr>
<td><strong>Use of Different Identifiers</strong></td>
<td>How do we know who the patient is? The payer? The physician?</td>
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<td><strong>Minimum Data Set</strong></td>
<td>How do we know the minimum patient data to use in matching?</td>
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<tr>
<td><strong>Privacy</strong></td>
<td>What patient data should be returned in responses, including error messages?</td>
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<tr>
<td><strong>Custom Identity Matching Processes</strong></td>
<td>Can we rely on the consistency of identity-matching services across organizations?</td>
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<tr>
<td><strong>Cross-Walks Are Not Scalable</strong></td>
<td>How do we map patient identity real-time?</td>
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<tr>
<td><strong>Liability</strong></td>
<td>How do we address the misidentification risk?</td>
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- Identifiers such as medical record numbers and insurance IDs are not meaningful beyond the boundaries of a specific organization. They are of limited value in identity matching across organizations.
- Reliably identifying Patients across organizations may require a minimum necessary set of data to be included in the transaction. This set of data may not always be available for all use cases.
- Privacy considerations must be applied in developing recommendations on data to be sent in responses, including error messages.
- Most organizations utilize custom-built identity matching processes and any proposed solutions from FAST will need to accommodate this diversity.
- Small groups of organizations may exchange Patient and Provider rosters, thereby building a common and perhaps shared crosswalk for identifiers. However, this solution is not scalable at the national level and real-time identification may be impacted by data latencies in maintaining the crosswalks. Liability in the event of overlaps, overlays, duplicate records, and incorrect matches could require legislative consideration beyond technical recommendations.
Proposed Identity Solutions

IDENTITY

Reliable Patient Identity Management

SOLUTIONS

Mediated Patient Matching
(Nicole Antonson)

Collaborative Patient Matching
(Julie Maas)

Distributed Identity Management
(Meena Jambulingam)
Proposed Solution 1: Mediated Patient Matching
Proposed Solution 1: Mediated Patient Matching – Overview

**Solution Summary**
Near real time patient matching to support downstream transactions. Requestor and Responder Actors pairs can be represented by provider/provider, provider/payer, and payer/payer pairings.

**Assumptions**
- Contractual agreements in place between Requestor and Responder Actors.
- The Requestor Actor has prior knowledge of or the ability to discover the Patient Match service. Has basic patient demographic information for the operation.
- The Responder Actor either has Patient Match capabilities in-house or has outsourced it to a partner organization.

**In Scope**
- Patient Identity Matching using a FHIR Match operation
- Determining next steps based on context and response
- Extend solution pattern to cover provider and payer identity matching (future)

**Out of Scope**
- Security capabilities such as Authentication and Authorization
- Service discovery
- Patient Access use case

**Complexity Rating**
*Medium*: Builds on existing technology solutions, but requires significant process changes and integration requirements
Proposed Solution 1: Mediated Patient Matching – Process Flow

1. Requestor Actor
   - Data Provenance (CC3)
   - Role/Context Identification (CC11)
   - Patient $match Operation

2. Mediated Patient Match
   - Authenticate/Authorize (CC2)
   - Reliable Patient Identity Management (CC6)
   - Synchronous Transaction Support (CC14)

3. Optional FHIR query

4. Responder Actor
   - Data Provenance (CC3)
   - Role/Context Identification (CC11)
   - Optional FHIR response

5. FHIR Transaction
   - Authenticate/Authorize (CC2)
   - Reliable Patient Identity Management (CC6)
   - Synchronous Transaction Support (CC14)
Proposed Solution 1: Mediated Patient Matching – Status

Proposed Solution Status: In Progress

1. Initial recommendations on Required and Optional Patient demographic attributes for matching
   – First, Last, DOB, Gender, Full Street Address (normalized e.g. per usps.gov), & Middle Initial or name (if available)
   – Plus at least one additional verifiable attribute: e.g., phone number, email address

2. Additional optimal but optional attributes
   – Insurance member ID + Insurer, etc.

3. Recommendations when to restrict results to “Only Certain Matches”
   – Patient care delivery, coverage determination, and billing at at minimum
   – Requestor Actor has sufficient Patient information (e.g., mutually known Business Identifier) to proceed with the FHIR queries necessary for the transaction in the case of ‘certain matches’.

4. Create a learning network responder
   – Unknown patients added
   – Prepares responder to answer requests for person in the future
Proposed Solution 1: Mediated Patient Matching – Open Items

- Consensus on KPIs for evaluating proprietary matching solutions
- Error rubric for FHIR match operations
- Best practices for retrying FHIR match operations
- Adaptation of solution to Provider and Payer Identities
Proposed Solution 2: Collaborative Patient Matching
Proposed Solution 2: Collaborative Patient Matching – Overview

Solution Summary
Patient Identifier is assigned as part of one organization’s onboarding process
Health information exchange participants use a mutually agreed upon list of Identifiers to cross-walk, OR patients can present Identifier themselves
Result: less searching, more reliable/near certain matching

Assumptions
Patient interacts with both payer and provider; leverage both to increase match confidence, possibly skipping match step

In Scope
• Identity for use in FHIR transactions

Out of Scope
• Security capabilities such as Authentication and Authorization
• Service and endpoint discovery
• Provider & Payer identity (later)

Complexity Rating
Medium: Builds on existing technology solutions, but requires significant process changes and integration requirements
Proposed Solution 2: Collaborative Patient Matching – Process Flow

**Requestor Actor**
- Prerequisite: Patient presents Identifier during registration, check-in, or other sharing

**Collaborative Patient Matching**
- FHIR Request with Patient Identifier

**Responder Actor**
- Prerequisite: Patient Identifier issued during onboarding process

**Data Provenance (CC3)**

**Role/Context Identification (CC11)**

**Authenticate/Authorize (CC2)**

**Reliable Patient Identity Management (CC6)**

**Synchronous Transaction Support (CC14)**
Proposed Solution Status: In Progress

• Requirements for Patient Identifiers to be used in this solution
  – Validated
    • Identity proofing process at a minimum establishes that a unique individual is represented by each Identifier
  – Unique for all time within the assigner’s system
    • Identifier can’t be reassigned to a different individual
  – FHIR-ready
    • Assigner recognizes this identity for patients in its system as a Patient.identifier resource element and responds to queries that use this Identifier as a search parameter

• Additional Patient attributes to include along with the Identifier when querying
  – First, Last, DOB
  – Requestor’s Identifier
    • For later queries in the other direction
Proposed Solution 2: Collaborative Patient Matching – Open Items

- Establish minimum identity proofing and validation practices
- Define namespaces and identifiers for Assigners (how to express & use in HL7 FHIR)
- Security considerations and data protections for the Identifier
  - Capable of digital signatures? Authentication via PIN etc.?
- Other general best practices & building blocks for use of collaborative matching
  - Support for FHIR Match operation by health systems, to validate medical record numbers and by payers to validate insurance identifiers
- Establish a validity time frame?
  - Periodic re-authentication of Identifier either in person or through other means?
- Roster sharing practices/minimum metadata when matching
- Additional properties of the Identifier
Proposed Solution 3: Distributed Identity Management
Proposed Solution 3: Distributed Patient Matching – Overview

Solution Summary
Patient matching through a network of trusted identity matching services. Requestor and Responder Actors pairs can be represented by patient/network services, provider/network services, payer/network services.

Assumptions
• Contractual agreements in place between identity matching service providers participating in the network.
• All identity matching service providers in the network support Patient FHIR Match operations.
• The Requestor Actor has prior knowledge of or the ability to discover the network’s Patient Match services.

In Scope
• Patient Identity Matching using a FHIR Match operation
• Support for local and global identifiers in the FHIR Match operation
• Extend solution pattern to cover provider and payer identity matching (future)

Out of Scope
• Security capabilities such as Authentication and Authorization
• Service discovery

Complexity Rating
High: Requires contractual agreements among multiple Parties and significant integrations to propagate Patient demographic updates throughout the network.
Proposed Solution 3: Distributed Identity Management – Process Flow

- **Data Provenance (CC3)**
- **Role/Context Identification (CC11)**

1. **FHIR Request with Distributed Patient Identifier**
2. **Acknowledge successful update**
3. **Networked service providers**
4. **Results of Match (onlyCertainMatches = true)**
5. **Update contact information**
6. **FHIR Request with Local Patient Identifier**
7. **Results of Match (onlyCertainMatches = false)**

- **In Scope Out of Scope**
- **Synchronous Transaction Support (CC14)**
- **Authenticate/Authorize (CC2)**
- **Reliable Patient Identity Management (CC6)**
- **Role/Context Identification (CC11)**
- **Data Provenance (CC3) Role/Context Identification (CC11)**

Patient using trusted networked services
Proposed Solution Status: New

• This is an emerging solution in Identity Management in Healthcare and beyond
• Vendor solutions and open source technology platforms exist in this space and require further exploration
• Many of the considerations from the other two solutions can be reused, such as KPIs for FHIR Patient Match operations, recommendations for restricting results to “Only Certain Matches”, etc.

Open Items

• Deep dives on industry approach to distributed identity management
• Security and Privacy considerations for storing and handling PII/PHI in the solution
Polling Questions

Please provide feedback on all three solutions through the polls and Q&A
Next TLC Webinar

Directory, Versioning and Scale

Monday, November 25th
12-2pm ET

Register Now!

Presenters
• **Alexandra Goss**, Vice President and Senior Consultant, Imprado
• **Robert Dieterle**, CEO, Enablecare

Proposed Solutions to be Presented
• **Directory**: A national solution for FHIR Endpoint Discovery
• **Versioning**: Supporting multiple production versions of FHIR
• **Scale**: Requirements for FHIR RESTful exchange intermediaries
All content is available on the FAST Project Page
### FAST Focus and how to get involved

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<td>Directory Services</td>
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<td>Pilots</td>
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**WANT TO GET INVOLVED??**

Join the Technical Learning Community to get updates and provide input on the technical and regulatory barriers, use cases, and proposed solutions as they are developed.

**SIGN UP!!**

&

JOIN THE LINKEDIN GROUP
Additional Feedback?
Thank You – Today's Presenters

Meena Jambulingam  
*Distinguished Engineer*  
Optum

Nicole Antonson  
*VP, Product Management*  
Change Healthcare

Julie Maas  
*CEO*  
EMR Direct

*Connect with us on [LinkedIn](https://www.linkedin.com) to stay informed*

For more information on the *FAST* Initiative, visit the *FAST* [Project Page](https://www.fastproject.org) or [https://tinyurl.com/ONC-FAST](https://tinyurl.com/ONC-FAST)

Have any further questions/suggestions?

Please contact Stephen Konya at [Stephen.Konya@hhs.gov](mailto:Stephen.Konya@hhs.gov)

& Diana Ciricean at [Diana.Ciricean@hhs.gov](mailto:Diana.Ciricean@hhs.gov)