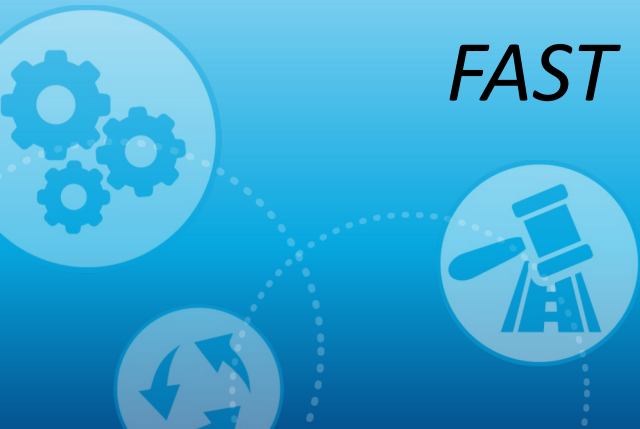




# *FAST Focus: Identity & Patient Matching*

FAST Focus Quarterly Webinar

August 2024





# HL7 Antitrust Statement



Professional Associations, such as HL7, which bring together competing entities are subject to strict scrutiny under applicable antitrust laws.

HL7 recognizes that the antitrust laws were enacted to promote fairness in competition and, as such, supports laws against monopoly and restraints of trade and their enforcement.

Each individual participating in HL7 meetings and conferences, regardless of venue, is responsible for knowing the contents of and adhering to the HL7 Antitrust Policy as stated in §05.01 of the Governance and Operations Manual (GOM).



# Agenda & Speakers

## Welcome

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## *FAST* Interoperable Digital Identity & Patient Matching (IG) Deep Dive

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## Lessons Learned Discussion with Implementers

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## Q&A

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## How You Can Engage/Call to Action

### Speakers:

- Mohammad Jafari, Senior Privacy Consultant
- Julie Maas, Founder & CEO, EMR Direct
- Aaron Nusstein, FHIR Analyst, Lantana Consulting Group
- Ranjan Saxena, Interoperability Architecture, Humana

### Implementer Panel:

- David Pyke, *FAST* Technical Director, Standards Architect, Audacious Inquiry, a PointClickCare Company
- Liz Buckle, Director of Product, CommonWell Health Alliance
- Tom Loomis, Enterprise Architecture, Interoperability, Evernorth
- Joseph Shook, Senior Software Architect, Surescripts LLC

### Facilitated by:

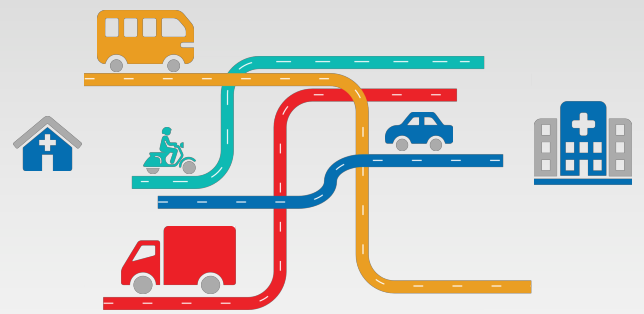
- Alix Goss, Senior Consultant, Point-of-Care Partners

# *FAST* Explained





# What is the Problem?



**TODAY - Exchange**

Exchange characterized by point-to-point interfaces  
Adoption trajectory is slow, expensive, and fragmented



**FUTURE - Interoperability**

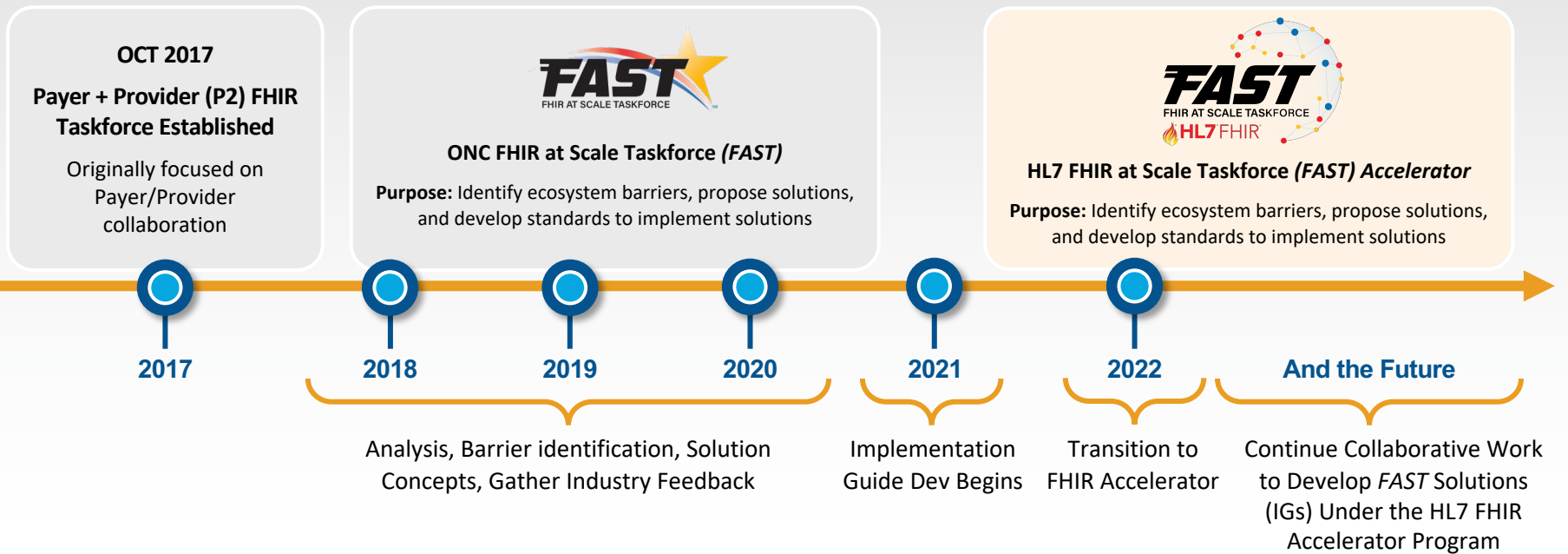
A common & consistent infrastructure approach to API implementation  
Consensus on implementation guides for key enablers, such as directory, security, patient matching, exchange and testing

**DESIRED RESULT:**  
A national interoperability approach that enables consistent data exchange via API. We have this for administrative transactions (X12, clearinghouses, WEDI) and pharmacy transactions (NCPDP, Surescripts). We do not have this for HL7-FHIR.

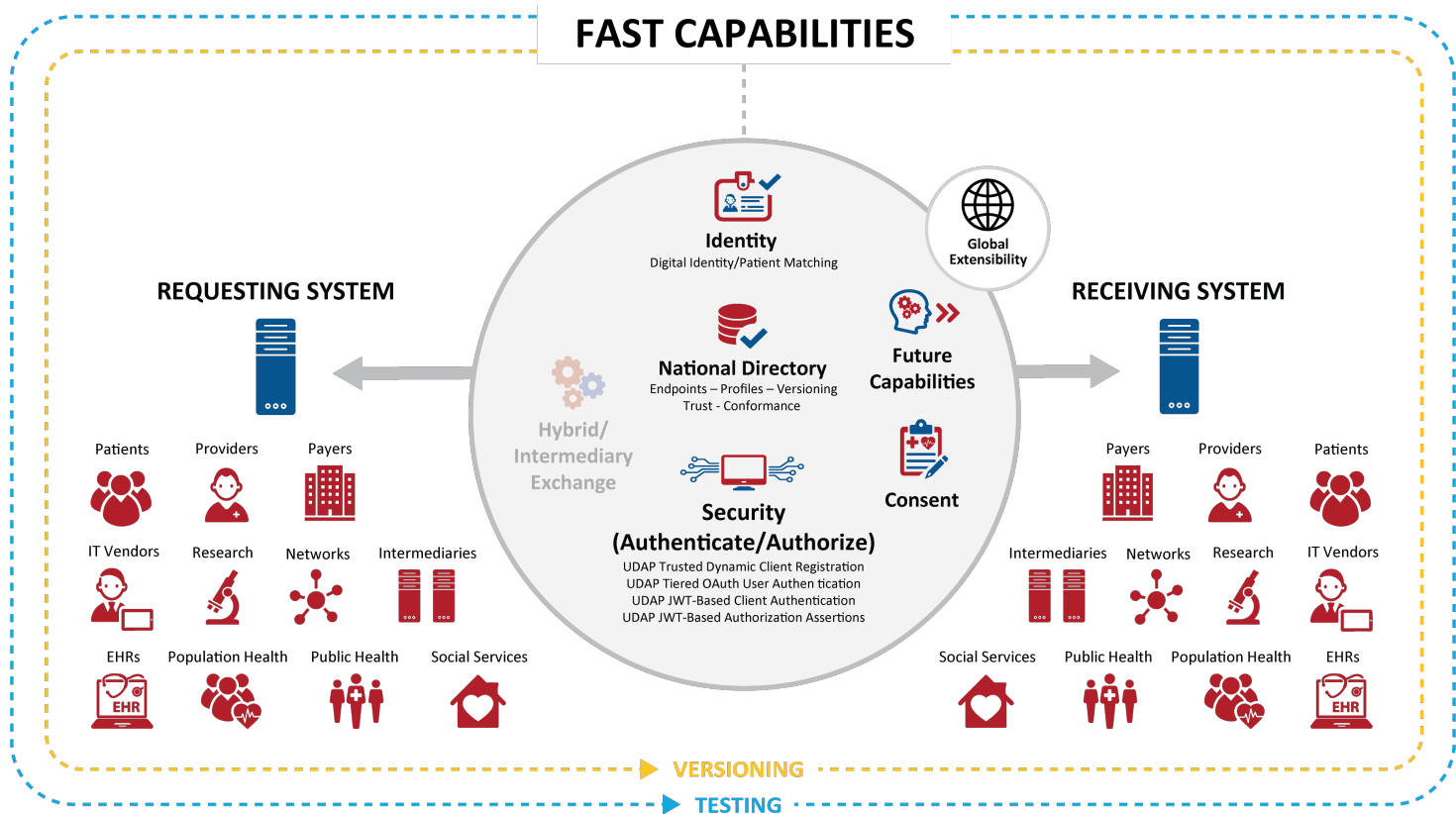


# What is FAST?

The *FHIR at Scale Taskforce (FAST)* is a representative community of motivated healthcare industry stakeholders and health information technology experts who have identified HL7® Fast Healthcare Interoperability Resources (FHIR®) scalability gaps and are actively working on solutions to address current barriers to enable scalable data exchange using FHIR APIs



# FAST Conceptual Architecture



# Interoperable Digital Identity & Patient Matching





# Overview - Interoperable Digital Identity & Patient Matching



## BARRIER

The industry currently employs a range of patient matching and identity management processes with inconsistencies and limited scalability as volume and the number of participants increase



## SOLUTION

Establish a set of patient matching and identity management patterns and best practices that the industry can adopt to reduce the variations that exist today, add confidence and quality, and provide a bridge to new approaches in the future



## IN SCOPE

Guidance on identity verification and patient matching (including profiling the patient \$match operation) to facilitate cross-organizational and cross-network interoperability



## OUT OF SCOPE

Patient as a probabilistic match requester or responder, contractual arrangements. Security and directory considerations are addressed by other FAST solutions.



## STATUS

STU1 published June 2023  
[STU2 Ballot](#) August 2024



## OPEN ITEMS

Continue testing at Connectathons; evaluate enhancements and timing for STU2



## CURRENT SOLUTION

[FAST Identity Implementation Guide STU 1](#) with [STU2](#) in September 2024 ballot



# Interoperable Digital Identity & Patient Matching IG Overview

- Specific Goals:
  - Develop Digital Identity standard for use in healthcare and (when authorized) beyond
  - Improve match confidence by using verified demographics and Digital Identity
    - Best practice identity management
  - Focus on common B2B and B2C use cases, being mindful of applicability beyond FHIR
  - Address health equity, patient privacy and safety, and other practical considerations
- STU2 profiles the FHIR patient \$match operation for use in cross-organizational person matching workflows
- Guidance applies to identity management and person matching in other transactions, even when \$idi-match is not specifically invoked or FHIR is not used, for more confident matching at scale



# Underlying Standards

- Standards Used
  - [NIST Digital Identity Guidelines 800-63-3](#)
- This IG May Be Invoked by the Following Standards
  - [HL7 UDAP Security for Scalable Registration, Authentication, and Authorization](#) (FAST Security IG)
  - [SMART App Launch Framework](#)
  - [Open ID Connect](#) (OIDC)
  - Other transaction types, with or without OAuth 2.0 ([RFC 6749](#)) where person matching, digital identity, or identity verification is needed
    - Particularly transactions requiring demographics or identifiers, such as individual or population searches
    - [IHE - Cross-Community Patient Discovery \(XCPD\)](#)
    - HL7 Messages such as Admission, Discharge & Transfer Notifications
    - [DirectTrust Direct Standard](#) Referrals & Transitions of Care



# Overview - Interoperable Digital Identity & Patient Matching



## Identity Proofing/Digital Identity Assurance

Creating a digital representation reflecting a user's identity (*digital identity, account,...*)

- user provides proofs of identity (including physical presence)
- user receives *credentials*



## Overview - Interoperable Digital Identity & Patient Matching

### Identity Assurance Level (IAL) (NIST SP 800-63A )

- **IAL1: Self-asserted**
  - no link to real-world entity
- **IAL2: Validated by evidence**
  - remote or in-person
  - appropriately associated with a real-world identity
- **IAL3: Validated the link to a real-world entity in person**
  - requires biometrics collection



# Overview - Interoperable Digital Identity & Patient Matching: *Authentication*



**Authentication:** Establishing a link between a user and a digital identity.

- user provides credentials
- receives short-lived authentication token



# Overview - Interoperable Digital Identity & Patient Matching: *Authentication*

## Authentication Assurance Level (AAL) (NIST SP 800-63B)

- **AAL1: Single factor**

- must reauthenticate every 30 days

- **AAL2: Two factor**

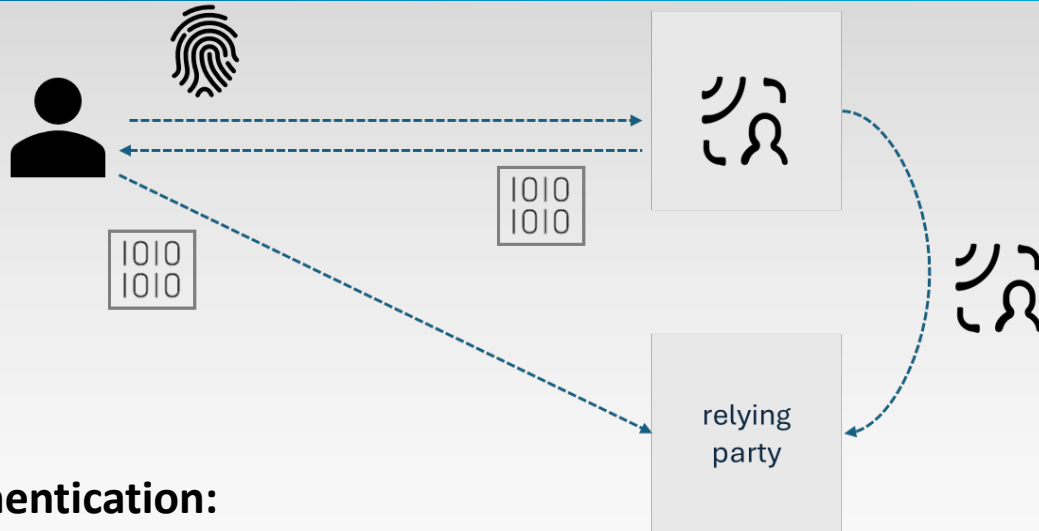
- must reauthenticate at least once every 12 hours or after 30 minutes of inactivity

- **AAL3: Multi-factor including a hardware device**

- e.g., a cryptographic hardware token activated by a password or a hardware token AND a password
- must reauthenticate at least once every 12 hours or after 15 minutes of inactivity



# Overview - Interoperable Digital Identity & Patient Matching: *Federated Authentication*



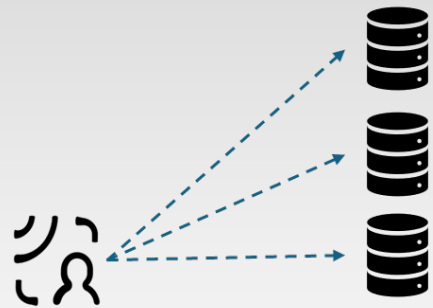
## **Federated Authentication:**

Establishing a link between a user and a digital identity maintained by a different service.

- user provides credentials to the identity provider
- user receives short-lived authentication token from the identity provider
- user presents short-lived tokens to the relying party
- relying party retrieves identity attributes from the identity provider



# Overview - Interoperable Digital Identity & Patient Matching

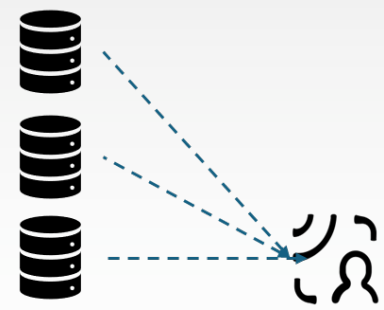


## Authentication-Based Discovery

Unique mapping from digital identity to business and record identifiers

## Probabilistic Matching

Probabilistic mapping from demographic attributes and business identifiers to the unique digital identity.

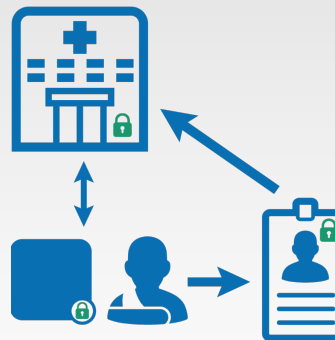
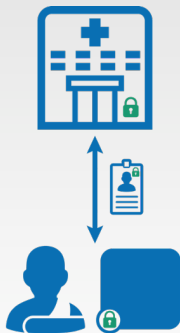




# Interoperable Digital Identity & Patient Matching

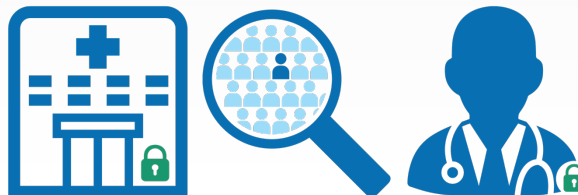
Consumer-facing (B2C) and payer/provider (B2B) workflows are focus areas

- Consumer Match
- Individual authentication & explicit authorization
- Access depends on individual identity



**B2C**

- Network use, generally by HIPAA Covered Entities
- Organization-level authentication
- Authorization depends on trust, organizational identity, may require consent



**B2B**



# Interoperable Digital Identity & Patient Matching

## Consumer-facing (B2C) and payer/provider (B2B) workflows are focus areas

Unique identifiers or other verified demographic data for matching are asserted by trusted applications or by Identity Providers who also authenticate users, all meeting best practice match input & minimum verification floors. Transactions below highlight the use of HL7 FAST UDAP Security, though the Identity IG also applies to SMART App Launch transactions or other non-FHIR transactions involving person matching or digital identity.

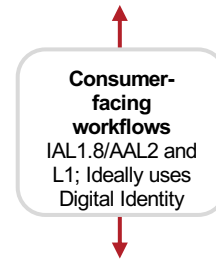
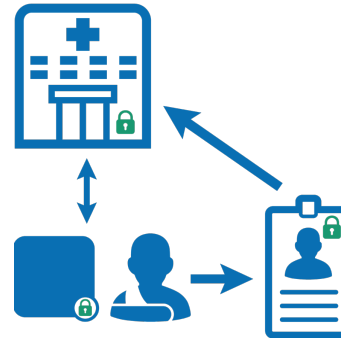
Systems use the guide's more specific Consumer Match guidance since only high confidence matches are acceptable.

**App-Mediated Business-to-Business with Patient User OR where data is returned to a non-HIPAA Covered Entity**



**Identity Management with OpenID Connect (or equivalent):**

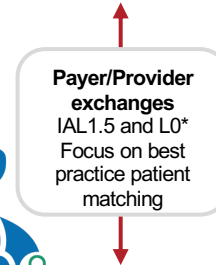
- Patient-Mediated Business-to-Consumer,
- Patient-Directed Business-to-Consumer



Probabilistic matching services use demographic data from application and unique identifiers when possible. App follows match input floor & minimum identity verification requirements on the subject of the match (higher identity assurance required for B2B users themselves).

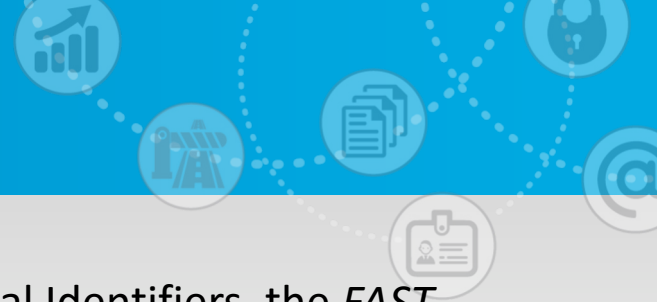
**Business-to-Business workflows where data is released to a Covered Entity**

- Coverage,
- TPO,
- etc.





## FAST Digital Identity



- To address matching errors by prioritizing the use of Digital Identifiers, the *FAST* Identity IG defines a new **HL7 Identifier** and specifies how this and other types of digital identifiers can be used to match on identities within health records, as well as their requirements
- HL7 Identifier is preferred to demographics alone for person matching due to the high confidence in the unique person associated with an HL7 Identifier
- This IG also prescribes identity assurance levels appropriate for individual and organizational credentials invoked in the *FAST* Security IG



# Patient-Directed B2C Using Digital Identity



**1** Prerequisite: **User has patient portal credentials issued by Responder** or credentials from another trusted Identity Provider



Requester App

User Authenticates with their Credentials and Authorization Code Flow with or without **UDAP Tiered OAuth** + authorizes data access



**2**



Authorization Request



**5**



Authorization Response

Responder



**4** Performs matching against their system; associates HL7 Identifier in records stored about User

Authenticates User or relies on third party Identity Provider, which returns user profile data to Responder. If User identity cannot be resolved, Responder may contact User or Identity Provider for out of band resolution.

**3**

Identity Provider/Credential Service Provider (local or trusted 3rd party)





# Frictionless Cross-Organization Matching Using Digital Identity



Requester App



Responder

1

Prerequisite: **Patient has HL7 Identifier and associated credentials** and previously shared their identifier with requester through an authenticated session

Requester Authenticates to Responder's System using Client Credentials and any required Consent



2



Authorization Request includes HL7 Identifier and other match input information about **Patient**

3

Performs matching against their system. Match confidence is improved by using Digital Identity.



4



Authorization Response





# Digital Identity



## DIGITAL IDENTIFIER OVERVIEW

### Identifier shall be capable of validation process

- For example, user authenticates themselves at AAL2 or greater using trusted identity provider OR trusted system confirms demographics in privacy-preserving way

### Identifier verification methods

- Matches with an identifier previously associated with medical record, individual photo/biometrics match

### Identifier shall be Globally Unique Identifier

- GUIDs / UUIDs cannot be reassigned to different persons (except in cases of name changes); identity assurance relies on documented verification procedure

### Identifier SHOULD be “FHIR-ready”

- Can be associated with an OpenID Connect credential with OAuth 2.0
- Assigners which manage patient health records SHALL associate a patient with their Identifier using **Patient.identifier** and this IG's Identifier.system
- Identifiers, as with SSNs, should be protected and used only for matching purposes

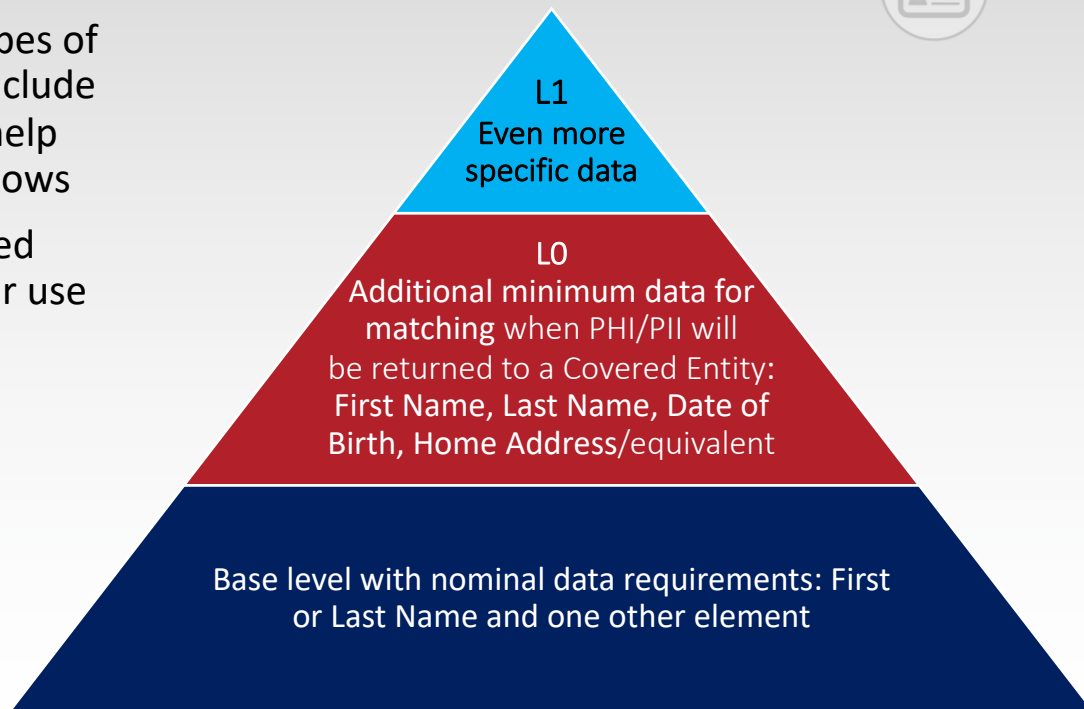
## WORKFLOW OVERVIEW

- 1 Patient completes an [IAL 1.8](#) or greater identity verification process at check-in
- 2 The Identity Provider binds the Digital Identifier to an OpenID Connect credential with AAL2 authentication assurance.
- 3 The patient authenticates to their insurance company's system using this credential, after which the insurance company uses the Digital Identifier in a match request to the healthcare organization
- 4 Because this strong identity assurance credential has been used to authenticate the individual to both systems the healthcare organization can confidently share the correct patient data with the requesting party



# FAST Patient Matching

- The FAST Identity IG developed 3 types of Patient Resource profiles that can include varying amounts of information to help standardize patient matching workflows
- Demographics are verified at required identity assurance level prior to their use in matching
- An output score is used to clearly communicate strength of a match



# Patient Matching Workflow

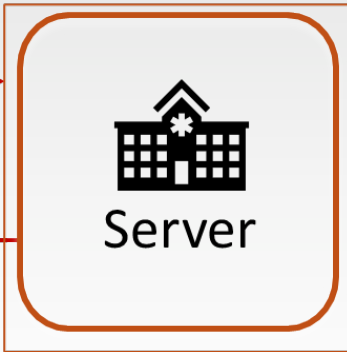


Request

Match request with IDI-Patient profile sent to Server

Response

Server responds to match request with matched Patient resource



Server runs weighting adjudication based on asserted IDI-Patient Profile

MPI runs matching algorithm against Patient in match request

# Interoperable Digital Identity & Patient Matching Status

- STU2 updates include the following & other updates for comment during ballot:
  - Clarifying most common use cases and adding workflow diagrams
    - Consumer Match
  - Merging identity assurance requirements with match input requirements for matching-focused FHIR person profiles
  - Organizational identity: increasing verified details, to improve transparency and trust
  - New guidance incorporating Mobile Driver's Licenses and Intelligent Systems such as generative AI
  - Additional feedback from implementers is welcome
- CMS FHIR Connectathon wrapped up with testing done using the updated RI and test scripts
- The team will review overlap between *FAST* Identity IG and Da Vinci HRex member match profile. *If you are well versed in HRex, please reach out to us to collaborate on this!*

## REQUESTS



- Feedback on how Da Vinci HRex relates to this IG
- Join workgroup discussions to provide input into **STU2** - 1st and 3rd Thursdays at 2pm ET ([HL7 Conference Call Center](#))
- **Ballot sign up:** July 15th-Aug 15th/September ballot opens: Aug 16<sup>th</sup> *provide your input!*
- Test at the [HL7 Connectathon](#), September 21-22

# Lessons Learned Implementation Discussion and Audience Q&A



# Engaging with *FAST*





# Simple Ways to Join *FAST's* Work



<b><i>FAST</i>: Security for Scalable Registration, Authentication, and Authorization</b>	<b><i>FAST</i>: Directory</b>	<b><i>FAST</i>: Interoperable Digital Identity &amp; Patient Matching</b>	<b><i>FAST</i>: Consent</b>
<p>HL7 Project Page  <u><a href="#">Security for Scalable Registration, Authentication, and Authorization</a></u></p>	<p>HL7 Project Page  <u><a href="#">Directory</a></u></p>	<p>HL7 Project Page  <u><a href="#">Interoperable Digital Identity &amp; Patient Matching</a></u></p>	<p>HL7 Project Page  <u><a href="#">Consent</a></u></p>
<p>Public Meetings the 2<sup>nd</sup> and 4<sup>th</sup> Tuesdays Each Month at 2PM ET <u><a href="https://hl7-org.zoom.us/j/99770852614?pwd=Sk1QUDBiY0huSDNxYVQ4YW5KNkpidz09">https://hl7-org.zoom.us/j/99770852614?pwd=Sk1QUDBiY0huSDNxYVQ4YW5KNkpidz09</a></u></p>	<p>Public Meetings: Biweekly meetings on Mondays at 3pm ET as of April 29<sup>th</sup></p>	<p>Public Meetings the 1<sup>st</sup> and 3<sup>rd</sup> Thursdays Each Month at 2PM ET <u><a href="https://hl7-org.zoom.us/j/99145025586?pwd=bE010FVHZkVta051SIRibjZMTFRQT09">https://hl7-org.zoom.us/j/99145025586?pwd=bE010FVHZkVta051SIRibjZMTFRQT09</a></u></p>	<p>Public Meetings:          Launched April 5<sup>th</sup> and calls to be held 2<sup>nd</sup> and 4<sup>th</sup> Fridays at 2 pm ET</p>
<p>Chat.fhir Stream  <u><a href="https://chat.fhir.org/#narrow/stream/294749-FHIR-at.20Scale.20Taskforce.2028FAST.29.3A.20Security">https://chat.fhir.org/#narrow/stream/294749-FHIR-at.20Scale.20Taskforce.2028FAST.29.3A.20Security</a></u></p>	<p>Chat.fhir Stream  <u><a href="https://chat.fhir.org/#narrow/stream/283066-united-states.2Fnational.20directory">https://chat.fhir.org/#narrow/stream/283066-united-states.2Fnational.20directory</a></u></p>	<p>Chat.fhir Stream  <u><a href="https://chat.fhir.org/#narrow/stream/294750-FHIR-at.20Scale.20Taskforce.2028FAST.29.3A.20Identity">https://chat.fhir.org/#narrow/stream/294750-FHIR-at.20Scale.20Taskforce.2028FAST.29.3A.20Identity</a></u></p>	<p>Chat.fhir Stream  <u><a href="https://chat.fhir.org/#narrow/stream/426241-FHIR-at-Scale-.28FAST.29.3A-Consent-Management">https://chat.fhir.org/#narrow/stream/426241-FHIR-at-Scale-.28FAST.29.3A-Consent-Management</a></u></p>

Implementer Support Office Hours are on the first Tuesday each month from 1 – 2 pm ET  
[Join the Implementer Support Hours Conference Call](#)



## New Resources

### Implementer Office Hours

- First Tuesday every month, 1-2pm ET
  - implementers questions
  - connect with other implementers
  - test against FAST RIs
  - hands on support between Connectathons
- Conference call details:  
<https://www.hl7.org/concalls/CallDetails.cfm?concall=71857>

### Implementer Fact Sheets

- [\*FAST Fact Sheet: Implementing the Interoperable Digital Identity & Patient Matching Implementation Guide\*](#)
- [\*FAST Fact Sheet: Implementing the Security for Scalable Registration, Authentication, and Authorization Implementation Guide\*](#)
- You can locate them in Confluence: [FAST Implementer Support](#)



## FAST Artifacts and Resources



Want to learn more about becoming a member of the HL7 *FAST* FHIR Accelerator?

Want to work with us to implement and test *FAST* IGs?

Contact [fast@hl7.org](mailto:fast@hl7.org)

**CONTINUE THE CONVERSATION!**



*Join the FAST Community to stay up to date – receive updates about FAST presentations & events, provide additional input and follow our progress.*

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# Thank You

For more information on the *FAST* Initiative,  
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Have any further questions/suggestions?  
Please contact [fast@hl7.org](mailto:fast@hl7.org)