ONC FAST: Ecosystem Infrastructure for Scalable FHIR Solutions Through Collaboration & Industry Engagement
• **FAST** and FHIR?
  – What is **FAST**?
  – **FAST** Organization

• **FAST** Goals and Approach
  – FHIR and the Health Care Ecosystem
  – Importance of the Ecosystem Infrastructure and the **FAST** model

• **FAST** Conceptual Architecture

• **FAST** Pilot Testing Considerations

• Learn More & Get Involved with **FAST**

• Panel Discussion
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.
• 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.
**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

**FEEDBACK**

**UPDATES**

**TECHNICAL LEARNING COMMUNITY (TLC)**

**SUBJECT MATTER EXPERTS (SME) Panels**

Information Sharing with TLC through:
- Website
- Periodic Webinars
- Newsletters
- TLC Meetings
- LinkedIn Group
Paving the Way Towards FHIR “At Scale”

HL7® FHIR® ACCELERATOR
- Payers/Providers
- Provider/Provider
- Consumers
- Social Determinants of Health
- Cancer Care and Research

OTHER FHIR INITIATIVES
- PACIO Project
- The Sequoia Project
- IHE

FUNCTIONAL USE CASES
- DA VINCI
- ARGONAUT PROJECT
- carin
- gravity PROJECT
- CodeX

CONTRACTUAL ENFORCEMENT
- Carequality

NETWORK/CORE SERVICES
- commonwell

SHARED
- Technical Challenges to FHIR SCALABILITY
- Patient & Provider Identity Management
- Directory Services
- Version Identification
- Scale
- Exchange Process/Metadata
- Testing, Conformance & Certification
- Security

CORE SERVICES
- INFRASTRUCTURE USE CASES

RAPID INDUSTRY ADOPTION OF FHIR-BASED SOLUTIONS

- Patient & Provider Identity Management
- Directory Services
- Version Identification
- Scale
- Exchange Process/Metadata
- Testing, Conformance & Certification
- Security
FAST Goals and Approach
Lack of Consistent Infrastructure Impacts Flow
Well-Planned Infrastructure Creates Efficiency
Example FHIR Transaction Journey

Patient visits Primary Care Physician (PCP)

PCP needs information from Payer

Payer receives PCP request

REQUESTING SYSTEM

1. Formulates FHIR Request
2. Looks Up the FHIR Endpoint for Recipient
3. Transaction Information (eg, Header) Appropriately Configured

RECEIVING SYSTEM

4. Receives Transaction, Validates Requestor, Validates Version
5a. Performs Patient Matching and Sends Back Not Found If Unable To Do So
5b. Authenticates FHIR User’s Role
6. Filters Out Data That Does Not Have Consent
7. Generates & Returns FHIR Response

DIRECTORY

CONFORMANCE & CERTIFICATION

SECURITY

PILOTS
FAST Solutions Development Process
**FAST Solution Process and Where Are We Now**

**FAST Solution Input**
- Tiger Teams
- TLC
- SME

**Ecosystem Use Cases**

**Technical Barriers**

**Proposed (V2) Infrastructure Solutions**

**Recommended (V3) Infrastructure Solutions**

**Ecosystem Use Case**
- Identity
- Directory, Version & Scale
- Exchange Process
- Testing & Certification
- Pilots

**Core Capabilities**

**FAST Solution Process**
- Standards
- Process
- Regulation

**Evaluation, Feedback, and Pilots**

**Operationalize Solutions**

**Tiger Teams**
- TLC
- SME
FAST Proposed Solutions (currently v2)

- **Directory, Version & Scale (3)**
- **Identity (4)**
- **Exchange Process (1)**
- **Testing & Certification (1)**
- **Security (4)**

- A US Wide Solution for FHIR Endpoint Discovery
- A US Wide Methodology for Supporting Multiple Production Versions of FHIR
- US Wide Scaling Requirements for FHIR RESTful Exchange Intermediaries
- Standards Based Approaches for Individual Identity Management
  - Mediated Patient Matching
  - Collaborative Patient Matching
  - Networked Identity Management
  - Distributed Identity Management
- An HL7 FHIR Standard Based Solution for Intermediary-to-Intermediary Exchange and Reliable Routing with Metadata
  - Reliable Routing with Metadata Across Intermediaries
- A Scalable FHIR Testing & Certification Platform
- US Wide Model(s) for Scalable Security Solutions
  - UDAP Trusted Dynamic Client Registration
  - UDAP Tiered OAuth for User Authentication
  - UDAP JWT-Based Client Authentication
  - UDAP JWT-Based Authorization Assertions
FAST Recommended Solutions and Path to Execution
• How do we make the results of FAST persistent?

• Creating standards (examples)
  – Updating FHIR core specification
  – Creating FHIR Implementation Guide(s)
  – Updating specific artifacts and tools (e.g. FHIR version management/conversion)

• Supporting testing and piloting (e.g. making certain the solutions are implementable)

• Supporting regulatory process (e.g. developing scope/drafts)

• Establish persistent process
  – Testing & Certification
  – Endpoint Directory(ies)
  – Trust Frameworks
Assessment Process

Recommended Infrastructure Solutions

Evaluation, Feedback, and Pilots

Identify relevant, existing standards and work with standards bodies to include FAST recommendations

Potential Owner(s)
HL7, NIST, ONC, etc.
Assessment Process

1. Testing and certification support
2. Declaration of support for relevant attributes in directory metadata
3. Declaration of testing and certification in directory metadata

Potential Owner(s)
HL7, NIST, ONC, etc.
Assessment Process

Recommended Infrastructure Solutions

Evaluation, Feedback, and Pilots

Potentially add to next version of ONC regulations, published guidelines, etc.

Potential Owner(s)
NIST, ONC, CMS, etc.
Assessment Process

Recommended Infrastructure Solutions

Evaluation, Feedback, and Pilots

Da Vinci pilot, early use cases from SMEs. Addition of a testing/cert process based on certification team that is added to the solution recommendations

Potential Owner(s)
HL7, NIST, ONC, etc.
FAST Conceptual Architecture
FAST Pilot Testing Considerations
**Example CDS/FHIR Transaction Journey – Prior Authorization Support Pilot (Da Vinci)**

1) Coverage Requirements Discovery
   - CDS hook interaction provides coverage requirements discovery

2) Documentation Template & Rules
   - Provides medical necessity documentation

3) Prior auth FHIR bundle
   - Provides basis for auth decision

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**REQUESTING SYSTEM**

1. PCP initiates clinical referral or inpatient request
2. PCP needs prior auth requirements information from Payer
3. Payer receives PCP requests
   - 1) Coverage Requirements Discovery
   - 2) Prior Auth Rules/Templates
   - 3) Prior auth decision

**RECEIVING SYSTEM**

1. Formulates CDS/FHIR Request
2. Looks Up the CDS/FHIR Endpoint for Recipient
3. Receives Transaction, Validates Requestor, Validates Version
4. Performs Patient Matching and Sends Back Not Found If Unable To Do So
5. Authenticates FHIR User’s Role
6. Filters Out Data That Does Not Have Consent
7. Generates & Returns CDS/FHIR Response

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**DIRECTORY**

- Requesting System Receives Data

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**EXCHANGE**

- Transaction Information (e.g., Header)
- Appropriately Configured

**IDENTITY**

- Appropriately Configured
- Recipient
- Versioning

**VERSIONING**

- Exchanges
- Validates

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**CONFORMANCE & CERTIFICATION**

**SECURITY**

**PILOTS**
**FAST Prior Authorization Support Pilot (Da Vinci)**

**Da Vinci Prior Authorization Components**

- **Coverage Requirements Discovery**
- **Documentation Templates and Coverage Rules**
- **CDS Hooks**
- **CQL/Questionnaire**
- **X12 278**
- **X12 275 if required**

**FAST Solutions Tested**

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**EHR/PROVIDER BACK OFFICE SYSTEMS**

**PAYER**

**Transformation Layer (Optional)**
Example CDS/FHIR Transaction Journey – PDex (Da Vinci Payer Data Exchange)

**REQUESTING SYSTEM**
1. PCP forms CDS/FHIR Request
2. Looks up CDS/FHIR Endpoint for Recipient
3. Transaction Information (e.g., Header) Appropriately Configured

**DIRECTORY**
- Requesting System Receives Data

**EXCHANGE**
- Exchanges Information

**VERSIONING**
- Validates Requestor, Validates Version

**RECEIVING SYSTEM**
4. Receives Transaction, Performs Patient Matching and Sends Back Not Found If Unable To Do So
5. Authenticates FHIR User’s Role
6. Filters Out Data That Does Not Have Consent
7. Generates & Returns CDS/FHIR Response

**EHR PDex Interactions**
1. [START] PCP’s EHR requests CDS Card from payer
2. CDS Card is processed & PDex bundle is made available to EHR for visualization and integration [END]

**PCP Initiates**
- Clinical referral or inpatient request

**PCP Needs Prior Auth**
- Requirements information from Payer

**Payer Receives**
- PCP requests
- PDex Interactions
  1. Payer receives CDS request and creates CDS card
  2. CDS Card is returned in real time & PDex bundle is available

**PCP Views**
- Patient information

**Example CDS/FHIR Transaction Journey – PDex (Da Vinci Payer Data Exchange)**
FAST Pilots Support with Da Vinci PDex (Payer Data Exchange)

PDex (Payer Data Exchange)

- Userld
- Patientld
- Encounterld
- Appointments
- (Subscriberld)
- JWT for EMR API Access

Use Subscriberld if provided to search
- Or Get Patient from Pre-fetch or get CapabilityStatement from EMR to get FHIR version and get Patient record from EMR and perform Demographic-based search

- Provide Access Token with US Core Scopes
- Provide URL Link to Smart App
- Provide FHIR Entrypoint
- Make CapabilityStatement available
- Human Readable result of Member Query
- No data found
- Unable to match individual
- N records returned

FAST Solutions Tested

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### Example CDS/FHIR Transaction Journey – CDex (Da Vinci Clinical Data Exchange)

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<td><strong>2) Cdex response bundle is returned asynchronously</strong></td>
<td><strong>2) CDex response received and process [END]</strong></td>
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**EHR CDex Interactions**

1) PCP’s EHR receives Cdex request and creates response

2) Cdex response bundle is returned asynchronously

**PCP views Patient information**

**CONFORMANCE & CERTIFICATION**

| SECURITY | PILOTS |

**PROJECT MANAGEMENT**

30
FAST Pilots Support with Da Vinci *CDex (Clinical Data Exchange)* (Da Vinci)

**CDex (Clinical Data Exchange)**

**FAST Solutions Tested**

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![Diagram of Pull (Get) process](image)
Getting Involved
FAST Initiative Output & Products

**FAST ARTIFACTS**

- FAST Initiative Use Cases, Version 1
- FAST Regulatory and Policy Barriers, Version 1
- FAST Technical Barriers, Version 1
- FAST Solutions (Version 2)

**FAST COMMUNITY ENGAGEMENT**

- SME Sessions
- FAST Workshop
- Technical Learning Community

Stay Engaged!
JOIN THE LINKEDIN GROUP
400+ members & growing!

All content is available on the FAST Project Page or https://tinyurl.com/ONC-FAST
Published Content and FAST Artifacts

All content is available on the https://tinyurl.com/ONC-FAST
FAST In View & Stay Connected

FAST In View:

- **FAST Workshop**, September 14th, 2020
- **AHIMA 20**, October 14-16, 2020
  - ONC FHIR at Scale Taskforce: Paving an Infrastructure Path to Scalable FHIR Adoption for Better Data Exchange
    
    FAST Speakers: Stephen Konya, ONC; Patrick Murta, Humana; Alix Goss, Imprado; Carmen Smiley, ONC; Lee Barrett, EHNAC
  
  - Publish V3 of FAST Recommended Solutions
  - Publish FAST Action Plan and Solutions Path Forward
  - Continue Industry Engagement

WANT TO GET INVOLVED??

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

- Visit [Project Page](#)
- **SIGN UP!!**
- JOIN THE LINKEDIN GROUP (400+ members & growing!)
Questions?
Thank You – Today's Presenters

Stephen Konya
ONC – FAST Lead

Patrick Murta
FAST Chief Architect

Paul Oates
FAST Chief Architect

For more information on the FAST Initiative, visit the FAST Project Page

Have any further questions/suggestions?

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