

## Track Report Out

Please add your track report out to this document by answering each of these questions:

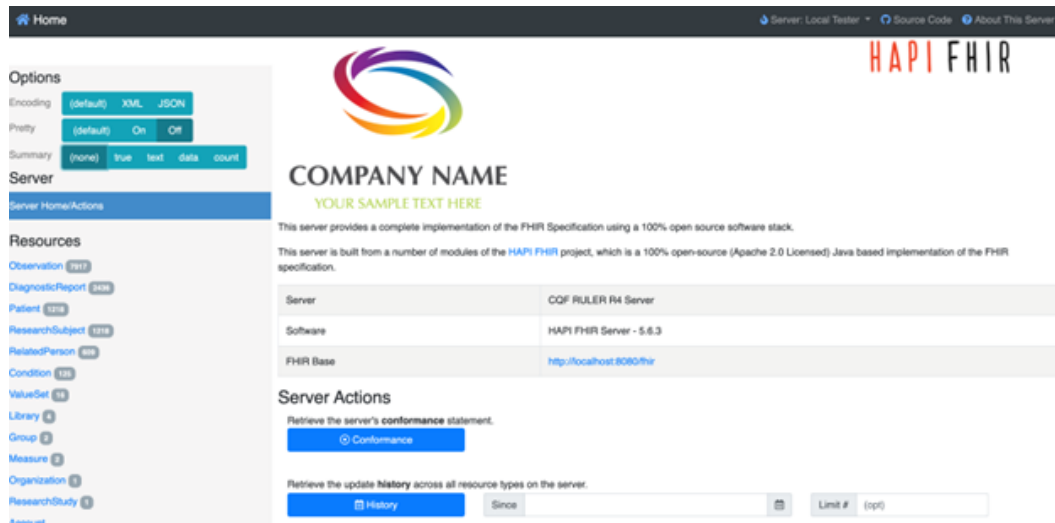
- What was the track trying to achieve?
- List of participants (with logos if you have time and energy)
- Notable achievements
- Screenshots and/or links to further information
- Discovered issues / questions (if there are any)
- Now what?

# Longitudinal Maternal & Infant Health Information for Research

- What was the track trying to achieve?
  - Gain information on the feasibility of evaluating if a data source has FHIR data related to PIH and Pregnancy related death.
  - Understand the challenges to obtaining FHIR data from data sources related to the PIH and pregnancy cohort measures and develop proposed solutions.
- List of participants:
  - Arvind Jagannathan - Lantana Consulting Group
  - Meen Chul Kim - Children's Hospital of Philadelphia
  - Michael Holck - ICF
  - Gay Dolin - Namaste Informatics
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1675         <text value="procedure"></text>
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```

- Screenshots and/or links to further information  
Image of the CQF Ruler server installation used by ImmPort to evaluate their data against the PIHCohort and PAMDeaths measures resulting in 78 patients meeting the IP



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Image of LINK evaluating PIHCohort with 15 patients meeting the IP (15 patients expected)

Type	PIH Cohort
Period	TODO
Status/Version	Reviewing - 0.3
Submission Date	

Group 1

Initial Population

View Line-Level Data Save Discard Submit Download ▾

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```

Image of LINK evaluating PAMDeaths with 15 patients meeting the IP (15 patients expected)

<b>Generate</b>		<b>Review</b>			
Type	PAMDeaths Cohort				
Period	TODO				
Status/Version	Reviewing - 0.2				
Submission Date					
Group 1					
Initial Population					
<input type="text" value="15"/>					
<b>View Line-Level Data</b>		<b>Save</b>	<b>Discard</b>	<b>Submit</b>	<b>Download</b> ▾

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Image of LINK evaluating PIHCohort with patients taken from the ImmPort database with 78 patients meeting the IP

The screenshot shows the LINK software interface. At the top, there are two buttons: "Generate" and "Review". Below this is a form with the following fields:

- Type: PIH Cohort
- Period: TODO
- Status/Version: Reviewing - 0.7
- Submission Date: (empty)

Below the form, there is a section for "Group 1" and "Initial Population". The "Initial Population" field contains the number "78". At the bottom of the interface, there are five buttons: "View Line-Level Data", "Save", "Discard", "Submit", and "Download".

- Discovered issues / questions
  - Measures need to be tweaked some to potentially constrain timing better
- Now what?
  - Double check on how the measures should be constrained in relation to the Measurement Period
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- Note that we will probably need to account for data from other databases not fully matching what we expect to see in the measure. This will probably result in needing ConceptMaps or other types of conversions to compensate.

## Bidirectional Services e-Referrals (BSeR)

### What was the track trying to achieve?

- Test the BSeR IG
- Write/test code/payloads
- Give feedback on specification
- Work on Gravity/360x/BSeR Task/ServiceRequest harmonization

### List of participants (with logos if you have time and energy)

- Wei Ding - Medical University of SC
  - Myung Choi - Georgia Tech Research Institute
  - Gay Dolin - Namaste Informatics
  - Sarah Gaunt - Lantana Consulting Group
  - Heather Hodge - YMCA of the USA
  - Mamta Gakhar- YMCA of the USA
  - John Loonsk - APHL / Johns Hopkins University
  - John Jennings - Peraton
  - Jay Kim - Peraton
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```

- Michael Riley - GTRI
- Humayun Khan, CVS Health

## Notable achievements/screenshots

### YUSA/Peraton

BSeR version 1 integration referral initiated using postman utility to send bundle (example provided by GTRI) to YUSA middleware for REDCap mapping and processing:

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```

connectathon / Process Bundle version 1
PUT http://localhost:11001/bser/referral/Bundle/2073
Params Authorization Headers (11) Body Pre-request Script Tests Settings
none form-data x-www-form-urlencoded raw binary GraphQL JSON
{
  "resourceType": "Bundle",
  "id": "638764",
  "meta": {
    "versionId": "1",
    "lastUpdated": "2022-09-17T20:31:41.942+00:00",
    "source": "#c7b089dc-e616-4a",
    "profile": [ "http://hl7.org/fhir/us/bser/StructureDefinition/BSeR-ReferralMessageBundle" ]
  },
  "type": "message",
  "entry": [ {
    "fullUrl": "MessageHeader/aba6f35b-f40f-4340-8de4-59914224941f",
    "resource": {
      "resourceType": "MessageHeader",
      "id": "aba6f35b-f40f-4340-8de4-59914224941f",
      "meta": {
        "profile": [ "http://hl7.org/fhir/us/bser/StructureDefinition/BSeR-ReferralMessageHeader" ]
      },
      "eventCoding": {
        "system": "http://terminology.hl7.org/CodeSystem/v2-0003",
        "code": "I12",
        "display": "REF/RRI -- Patient referral"
      },
      "destination": [ {
        "endpoint": "https://apps.hdap.gatech.edu/cqf-ruler-r4/fhir/$process-message",
        "receiver": {
          "reference": "PractitionerRole/638009",
          "type": "PractitionerRole"
        }
      } ]
    }
  ]
}









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```

<a href="#">1954</a> (peter, temp)		
<a href="#">2069</a> (Sams, Bash)		
<a href="#">2072</a> (Cazares, Maria del Carmen)		
<a href="#">2073</a> (Cazares, Maria del Carmen)		

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```

<b>Patient First Name</b>	<input type="text" value="Maria del Carmen"/>
<b>Patient Last Name</b>	<input type="text" value="Cazares"/>
<b>Patient Address</b>	<input type="text" value="1072 Kautzer Path Unit 77"/> <small>Expand</small>
<b>Patient City</b>	<input type="text" value="Methuen Town"/>
<b>Patient State</b>	<input type="text" value="Colorado"/>
<b>Patient Zip Code</b>	<input type="text" value="01841"/>
<b>Patient Date of Birth</b>	<input type="text" value="01-01-1986"/> <input type="button" value="Today"/> M-D-Y
<b>Patient Home Phone</b>	<input type="text" value="555-876-9407"/>
<b>Patient Mobile Phone</b>	<input type="text" value="(985) 234-2342"/>
<b>Sex</b>	<input type="text" value="Female"/>
<b>Patient Height (in)</b>	<input type="text" value="123"/>
<b>Patient Weight (lbs)</b>	<input type="text" value="123"/>
<b>Patient BMI</b>	<input type="text" value="123"/>
<b>Hemoglobin A1c Observation</b>	<input type="text" value="5.8"/>

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```

Screenshots of the feedback pipeline that initiates a feedback from REDCap program project i.e. Diabetes Prevention.

REDCap sends the feedback information to YUSA middleware that generates the feedback bundle using the initial referral bundle data gathered from Hapi FHIR server and REDCap data.

The generated feedback bundle is sent to specified endpoint location. Currently implemented using BSeR IG version 0.2.0

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## YMCA Diabetes Prevention Program (2.2)

Actions: Modify instrument

Download PDF of instrument(s)

VIDEO: [Basic data entry](#)

### Program Feedback Form

Data Access Group: - YMCA of Metropolitan Chicago, Alliance Health Care Services

Editing existing Record ID 963 (.)

Event Name: **Visit Event** (Instance #6)

Record ID 963

Creating Feedback for Patient Ashley Anderson. To initiate a feed back to Practitioner Mrs Pat Duncan MD please click complete and save.

Feedback Note

This is a Note for the Patient from the YMCA  
instance [connectathon](#)

Expand

Include Attendance

Yes  
 No

reset

Include most recent observations

Yes  
 No

reset

Form Status

Complete?

Complete

Lock this record for this form?

If locked, no user will be able to edit this record on this form until someone with Lock/Unlock privileges unlocks it.

Lock

Save & Exit Form

Save & Stay

-- Cancel --

Delete data for THIS FORM only

NOTE: To delete the entire record (all forms/events), see the

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## GTRI

As a supporting technical partner, GTRI has developed a Proof of Concept eReferral submission application: BSeR app.

Using the BSeR app we were able to access the smart on fhir sandbox EHR, and selected a patient for referral. We then added the YUSA's advertised endpoint as a service provider in the BSeR app. We then selected the provider as the service provided for Diabetes, entered in additional vitals, reviewed demographics, and finally submitted to YUSA.

Once submitted, the BSeR app also recorded a copy of the BserRefferalMessageBundle to a local datastore. In lieu of connectivity, we provided a link to the generated document to YUSA, who then ingested the record.

The screenshots are: the launcher context to start the app, the app front page, getting the service provider selected, setting up vital signs, and the final document that was produced.

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1688         <value value="8"></value>
1689         <unit value="1"></unit>
1690       </valueQuantity>
1691     </Observation>
1692   </resource>
1693 </entry>
1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

**BSeR Referral Manager**

**Acuña, Mariana**    Gender: **Female**    Marital Status: **S**    Date of Birth: **Jul 22, 1988 (34)**

Address: 157 Mann Skyway, Chelmsford, Massachusetts, 01824    Contact Information: Phone (Home) 555-641-8587    Language(s): Spanish    Insurance Coverage: *No Insurance Coverage Found*

Select Recipient   
 General Information and Service Type   
 **3 Supporting Information**   
 4 Review and Send

**Vital Signs**

Height \* 59    Unit \* in    Weight \* 130    Unit \* lb    BMI \* 110    kg/m<sup>2</sup>    BP (SYS) \* 100    mmHg / BP (DIA) \* 50    mmHg

**Lab Work**

HATC \* 4 %

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
1673 <status value="final"></status>
1674 <category>
1675 <text value="procedure"></text>
1676 </category>
1677 <code>
1678 <coding>
1679 <code value="BSeR Sessions Attended Observation Code"></code>
1680 <display value="Number of Appointments Attended"></display>
1681 </coding>
1682 </code>
1683 <subject>
1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685 </subject>
1686 <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687 <valueQuantity>
1688 <value value="8"></value>
1689 <unit value="1"></unit>
1690 </valueQuantity>
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1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

This result is being rendered in HTML for easy viewing. You may access this content as [Raw JSON](#) or [Raw XML](#) or [Raw Turtle](#) or view this content in [HTML JSON](#) or [HTML XML](#) or [HTML Turtle](#). Response generated in 11ms.

HTTP 200 OK

Response Headers

```
X-Powered-By: HAPI FHIR 5.4.1 REST Server (FHIR Server; FHIR 4.0.1/R4)
Content-Type: application/fhir+xml;charset=utf-8
X-Request-ID: 1d243661-a5d8-4b21-9cfb-1f72df9477dd
```

Response Body

```
1  {
2    "resourceType": "Bundle",
3    "id": "638810",
4    "meta": {
5      "versionId": "1",
6      "lastUpdated": "2022-09-18T14:30:55.438+00:00",
7      "source": "#8ee7ef3c-a040-48",
8      "profile": [ "http://hl7.org/fhir/us/bser/StructureDefinition/BSeR-ReferralMessageBundle" ]
9    },
10   "type": "message",
11   "entry": [ {
12     "fullUrl": "MessageHeader/232bd7b7-9da7-4116-bb09-84936c056add",
13     "resource": {
14       "resourceType": "MessageHeader",
15       "id": "232bd7b7-9da7-4116-bb09-84936c056add",
16       "meta": {
17         "profile": [ "http://hl7.org/fhir/us/bser/StructureDefinition/BSeR-ReferralMessageHeader" ]
18       },
19       "eventCoding": {
20         "system": "http://terminology.hl7.org/CodeSystem/v2-0003",
21         "code": "I12",
22         "display": "REF/RR1 - Patient referral"
23       },
24       "destination": [ {
25         "endpoint": "https://fhir-on-dev.ymca.net/fhirmessage/referral/trigger/$process-message",
26         "receiver": {
27           "reference": "PractitionerRole/638846",
28           "type": "PractitionerRole"
29         }
30       } ],
31       "sender": {
```

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```
1667   </entry>
1670   <entry>
1671     <resource>
1672       <Observation xmlns="http://hl7.org/fhir">
1673         <status value="final"></status>
1674         <category>
1675           <text value="procedure"></text>
1676         </category>
1677         <code>
1678           <coding>
1679             <code value="BSeR Sessions Attended Observation Code"></code>
1680             <display value="Number of Appointments Attended"></display>
1681           </coding>
1682         </code>
1683         <subject>
1684           <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
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1687         <valueQuantity>
1688           <value value="8"></value>
1689           <unit value="1"></unit>
1690         </valueQuantity>
1691       </Observation>
1692     </resource>
1693   </entry>
1694   <entry>
1695     <resource>
1696       <Composition xmlns="http://hl7.org/fhir">
1697         <status value="final"></status>
1698         <title value="Interim Referral Feedback Report"></title>
```

Abernathy, Omar

Gender: **Male** Marital Status: **Never Married** Date of Birth: **Jul 19, 2000 (22)**

Address  
321 Lind Neck  
Franklin Town, Massachusetts, 02038

Contact Information  
Phone (Home) 555-329-9199

Language(s)  
Portuguese

Insurance Coverage:  
No Insurance Coverage Found

Active Referrals and Drafts

+ Create New Referral

Draft (0)	Active (1)	Complete (0)			
Service	Service Provider	Status	Date Created	Last Updated	Actions
This patient does not have draft referrals.					

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

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1682 </code>
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1688 <value value="8"></value>
1689 <unit value="1"></unit>
1690 </valueQuantity>
1691 </Observation>
1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

**BSeR Referral Manager**

**Abernathy, Omar**    Gender: **Male**    Marital Status: **Never Married**    Date of Birth: **Jul 19, 2000 (22)**

Address: 321 Lind Neck, Franklin Town, Massachusetts, 02038    Contact Information: Phone (Home) 555-329-9199    Language(s): Portuguese    Insurance Coverage: *No Insurance Coverage Found*

1 Select Recipient    2 General Information and Service Type    3 Supporting Information    4 Review and Send

**Selected Service Provider**  
YMCA

**YMCA**

<b>Services Provided:</b>	<b>Available Times:</b>	<b>Languages:</b>
* Diabetes Prevention * Early Childhood Nutrition	Tuesday 10:10 pm - 10:10 pm Wednesday 10:10 pm - 10:10 pm	English

**Service Delivery Location:**  
To be determined by the service provider.

[Show Contact Info](#)

Kim... (YMCA Chicago)

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1677 <code>
1678 <coding>
1679 <code value="BSeR Sessions Attended Observation Code"></code>
1680 <display value="Number of Appointments Attended"></display>
1681 </coding>
1682 </code>
1683 <subject>
1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
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1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

### App Launch Options

#### Launch Type

- Provider EHR Launch (practitioner opens the app from within an EHR)
  - Simulate launch within the EHR user interface
- Patient Portal Launch (patient opens the app from within patient portal)
- Provider Standalone Launch (practitioner opens the app directly and connects to FHIR)
- Patient Standalone Launch (patient opens the app directly and connects to FHIR)
- Backend Service (app connects to FHIR without user login)
- CDS Hooks Service (test your CDS services)

#### FHIR Version

R4

Open FHIR Server Endpoint: <https://r4.smarthealthit.org> Test

Protected FHIR Server Endpoint: <https://launch.smarthealthit.org/v/r4/fhir> Test

#### Patient(s)

launch or launch/patient scope

Patient ID

Simulates the active patient in EHR when app is launched. If no Patient ID is entered or if multiple comma delimited IDs are specified, a patient picker will be displayed as part of the launch flow.

#### Provider(s)

openid and fhirUser scopes

Provider ID

Simulates user who is launching the app. If no provider is selected, or if multiple comma delimited Practitioner IDs are specified, a login screen will be displayed as part of the launch flow.

#### Advanced

#### Active Encounter in EHR

launch or launch/encounter scope

- Show encounter selector
- Use the patient's most recent encounter if available

#### Simulate Authentication Error for Testing

None

Launch
Test With Sample App

**client\_id** The app's `client_id` is not validated on the SMART test server, so any text string will work. Use the error dropdown above to simulate the server response to an invalid `client_id`.

**client\_secret** The app's `client_secret` is not validated on the SMART test server, so any secret will work. If provided, the `Authorization` header must conform to the standard format (Example). Use the error dropdown above to simulate the server response to an invalid `client_secret`.

#### App Launch URL (required)

<https://apps.hdap.gatech.edu/bser-ui/launch>

Launch Appl

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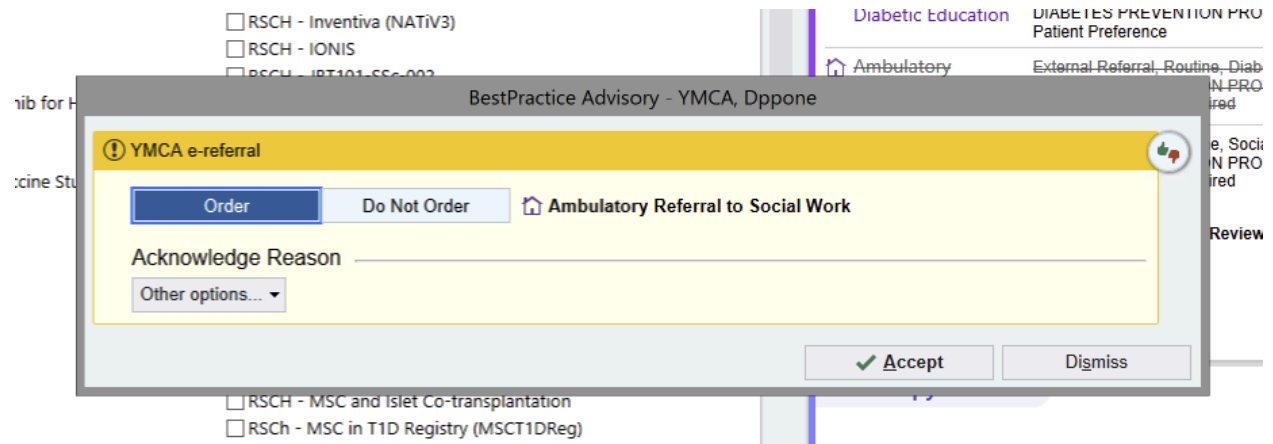
```

1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
1673 <status value="final"></status>
1674 <category>
1675 <text value="procedure"></text>
1676 </category>
1677 <code>
1678 <coding>
1679 <code value="BSeR Sessions Attended Observation Code"></code>
1680 <display value="Number of Appointments Attended"></display>
1681 </coding>
1682 </code>
1683 <subject>
1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685 </subject>
1686 <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687 <valueQuantity>
1688 <value value="8"></value>
1689 <unit value="1"></unit>
1690 </valueQuantity>
1691 </Observation>
1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

## MUSC

BSeR version 1 referral request is triggered from Epic after a test provider signed a YMCA e-referral order:



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```
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1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
1677       <code>
1678         <coding>
1679           <code value="BSeR Sessions Attended Observation Code"></code>
1680           <display value="Number of Appointments Attended"></display>
1681         </coding>
1682       </code>
1683       <subject>
1684         <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685       </subject>
1686       <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687       <valueQuantity>
1688         <value value="8"></value>
1689         <unit value="1"></unit>
1690       </valueQuantity>
1691     </Observation>
1692   </resource>
1693 </entry>
1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

Ambulatory Referral to Social Work

Class: External Referral Internal Referral External Referral

Referral: To Provider Specialty: Social Work Social Work Behavioral Health

To Provider: [Search]

To Location/POS: YMCA DIABETES PREVENTI... [Search]

Reason: Specialty Services Required Specialty Services Required Second Opinion Patient Preference

Priority: Routine Routine Urgent Elective

Reason for Referral? possible postpartum depression

Scheduling Instructions: [Icons] Insert SmartText [Icons] 100%

YMCA, Dppone, DOB: 2/1/1999, MRN: 005544247,N/A, N/A, There are no problems to display for this patient.

Additional Order Details

Next Required [Icons] Accept Cancel

The trigger event from Epic's log:

77	CI_BESTPRACTICE [1500]	20	09/17/2022 2:46 AM [573429156]
78	Order was successfully [1500]	500	09/17/2022 1:05 AM [573429156]

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```

1667 </entry>
1668 <entry>
1669 <resource>
1670 <Observation xmlns="http://hl7.org/fhir">
1671 <status value="final"></status>
1672 <category>
1673 <text value="procedure"></text>
1674 </category>
1675 <code>
1676 <coding>
1677 <code value="BSeR Sessions Attended Observation Code"></code>
1678 <display value="Number of Appointments Attended"></display>
1679 </coding>
1680 </code>
1681 <subject>
1682 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1683 </subject>
1684 <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1685 <valueQuantity>
1686 <value value="8"></value>
1687 <unit value="1"></unit>
1688 </valueQuantity>
1689 </Observation>
1690 </resource>
1691 </entry>
1692 <entry>
1693 <resource>
1694 <Composition xmlns="http://hl7.org/fhir">
1695 <status value="final"></status>
1696 <title value="Interim Referral Feedback Report"></title>
1697 </Composition>
1698 </resource>

```

MUSC has a middleware to receive the trigger event notification and start to generate a BSeR IG 1.0 referral request bundle:

The Place ID for this service request is a referral internal ID (2805251) for this referral, so we can use this ID to track accept, pending and decline requests or write a free-text note about how the service was rendered if MUSC received the referral feedback message from YMCA

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```
1669 </entry>
1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
1677       <code>
1678         <coding>
1679           <code value="BSeR Sessions Attended Observation Code"></code>
1680           <display value="Number of Appointments Attended"></display>
1681         </coding>
1682       </code>
1683       <subject>
1684         <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685       </subject>
1686       <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687       <valueQuantity>
1688         <value value="8"></value>
1689         <unit value="1"></unit>
1690       </valueQuantity>
1691     </Observation>
1692   </resource>
1693 </entry>
1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

```

102     "resource": {
103       "resourceType": "ServiceRequest",
104       "id": "eAyy1KgAVWjPKLjGqE1aqxe0MySZZcQ1Cbaogkr55V6Q3",
105       "meta": {
106         "versionId": "10",
107         "lastUpdated": "2022-09-17T02:46:36Z",
108         "source": "#c7ae7d96-3d6c-40",
109         "profile": [
110           "http://hl7.org/fhir/us/bser/StructureDefinition/BSeR-ReferralServiceRequest"
111         ]
112       },
113       "identifier": [{
114         "type": {
115           "coding": [{
116             "system": "http://terminology.hl7.org/CodeSystem/v2-0203",
117             "code": "PLAC"
118           }]
119         },
120         "value": "2805251"
121       }],
122       "status": "draft",
123       "intent": "order",
124       "code": {
125         "coding": [{
126           "system": "urn:oid:1.2.840.114350.1.13.307.3.7.2.696580",
127           "code": "237",
128           "display": "AMB REFERRAL TO SOCIAL WORK"
129         }],
130       "text": "AMB REFERRAL TO SOCIAL WORK"
131     },

```

The referral feedback message (BSeR IG 1.0) from YMCA:

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
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```

1667     </entry>
1668     <entry>
1669       <resource>
1670         <Observation xmlns="http://hl7.org/fhir">
1671           <status value="final"></status>
1672           <category>
1673             <text value="procedure"></text>
1674           </category>
1675           <code>
1676             <coding>
1677               <code value="BSeR Sessions Attended Observation Code"></code>
1678               <display value="Number of Appointments Attended"></display>
1679             </coding>
1680           </code>
1681           <subject>
1682             <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1683           </subject>
1684           <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1685           <valueQuantity>
1686             <value value="8"></value>
1687             <unit value="1"></unit>
1688           </valueQuantity>
1689         </Observation>
1690       </resource>
1691     </entry>
1692     <entry>
1693       <resource>
1694         <Composition xmlns="http://hl7.org/fhir">
1695           <status value="final"></status>
1696           <title value="Interim Referral Feedback Report"></title>
1697         </Composition>
1698       </resource>

```

```

    },
    "valueString": "Service request in progress"
  },
  },
  {
    "fullUrl": "Bundle/6a7cd83a-2d2c-4af2-9528-e13dd60dda2c",
    "resource": {
      "resourceType": "Bundle",
      "id": "6a7cd83a-2d2c-4af2-9528-e13dd60dda2c",
      "meta": {
        "profile": [
          "http://hl7.org/fhir/us/bser/StructureDefinition/BSeR-DiabetesPreventionReferralFeedbackSupportingInformation"
        ]
      },
      "type": "collection",
      "entry": [
        {
          "fullUrl": "Observation/a2ce20bd-ed2f-417c-b3ec-655f04563619",
          "resource": {
            "resourceType": "Observation",
            "id": "a2ce20bd-ed2f-417c-b3ec-655f04563619",
            "meta": {
              "profile": [
                "http://hl7.org/fhir/us/bser/StructureDefinition/BSeR-ParticipationFeedbackObservation"
              ]
            },
            "status": "final",
            "effectiveDateTime": "2022-09-18",
            "code": {
              "coding": [
                {
                  "code": "298057009",
                  "system": "http://snomed.info/sct",
                  "display": "Number of appointments attended (observable entity)"
                }
              ]
            },
            "subject": {
              "reference": "Patient/9e691882-981e-4dd3-af5e-be44d315d715"
            },
            "valueQuantity": {
              "value": 5
            }
          }
        }
      ]
    }
  }
}

```

We can update the free text node and the number of authorized visits back to Epic:

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```

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1677 <code>
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1695 <resource>
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1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

Yesterday Diabetic Educator

Summerville Family YMCA

To Vendor none	Referred By	By Location/Place of Service MUSC MAIN HOSPITAL	By Department MUSC-L RESEARCH SUPPOR
Priority Routine	Start Date 09/18/2022	Expiration Date 09/18/2023	Referral Entered By
Visits Requested 26	Visits Authorized 5	Visits Completed	Visits Scheduled

**Procedure Information**

**Diagnosis Information**

Diagnosis  
Z86.32 (ICD-10-CM) - History of gestational diabetes

**Referral Notes** Number of Notes: 5

Type	Date	User	Summary	Attachment
General Note	09/18/2022 3:04 PM	User Epic	-	-
Service request in progress				

## Discovered issues / questions (if there are any)

- Potentially need a way to distinguish between a referral bundle and a feedback bundle
- Check all cardinalities - there are some that possibly should be 0..\* rather than 0..1
- Policy: which side should be responsible for the decisions about what data should be included in the IG? Create a Best Practice section, not normative.
- Must Support - definitions (sender, receiver) - define what must support means in the context of a referral
- Must Support - which elements should be marked must support?
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
1673 <status value="final"></status>
1674 <category>
1675 <text value="procedure"></text>
1676 </category>
1677 <code>
1678 <coding>
1679 <code value="BSeR Sessions Attended Observation Code"></code>
1680 <display value="Number of Appointments Attended"></display>
1681 </coding>
1682 </code>
1683 <subject>
1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685 </subject>
1686 <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687 <valueQuantity>
1688 <value value="8"></value>
1689 <unit value="1"></unit>
1690 </valueQuantity>
1691 </Observation>
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1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

- Medication Statement, Allergy Intolerance - should these profiles even be included in the IG?
- Task.for = Patient for purpose of getting demographics - information easier to get at this level
- Add Guidance on Task.status/Task.businessStatus/ServiceRequest.status
- Feedback message - source and sender swapped - allow both participants in both spots
- Potential new domain: Cancer survivorship, physical activity
- BSeR-TobaccoUseCessationFeedbackObservation: issue with the terminology binding on Observation.value, remove valueBoolean, add valueCodeableConcept

## Now what?

- Work with SMEs to write policy and guidance
- Update the IG where needed

### Bulk Data Export

- What was the track trying to achieve?
- List of participants (with logos if you have time and energy)
- Notable achievements
- Screenshots and/or links to further information
- Discovered issues / questions (if there are any)
- Now what?

### C-CDA to FHIR Mapping

- What was the track trying to achieve?
- List of participants (with logos if you have time and energy)
- Notable achievements
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
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1678         <coding>
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1695   <resource>
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1698       <title value="Interim Referral Feedback Report"></title>

```

- Screenshots and/or links to further information
- Discovered issues / questions (if there are any)
- Now what?

## Summary: What Was the Track Trying to Achieve

- Test existing mapping guidance
- Compare and align vendor mappings results to FHIR resources from the same inbound CCD
  - Make best-practice recommendations the areas of alignment
  - Highlight areas of discrepancies and provide the pros and cons for further discussions
- Align mapping guidance and supporting examples for a future HL7 ballot

## List of participants (with logos if you have time and energy)

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1669 </entry>
1670 <entry>
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1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
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1689         <unit value="1"></unit>
1690       </valueQuantity>
1691     </Observation>
1692   </resource>
1693 </entry>
1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
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```

# Notable Achievements

## Across the board

- DateTime: no need to padding with the timestamps
- Different mapping for the FHIR ID element when the C-CDA ID has UUID vs OID (Regex checking for OID and UUID)
- Map OID to the actual code system names. Tis a required list that needs to be mapped for FHIR code systems : <https://build.fhir.org/terminologies-systems.html>. Concept map would be a nice idea to help with this
- Concept map for status mapping from C-CDA to FHIR for all clinical domains (will be separate mapping for different clinical domains/resource)
- handling of codes in the C-CDA translation elements. Options are either map them to code array, or to not map. While we want to keep all source data, it's ideal to distinguish between code in the main entry vs translations. The group agreed to include translations in the code array and just make sure the main code is always the first one in the array.
- FHIR Composition.section.text should be mapped from CDA section.text (convert CDA narrative to HTML).
  - If the CDA entry has a text/reference to the narrative, use the narrativeLink extension on composition.section.entry (reference type)
- Whether to reference the C-CDA encompassingEncounter by creating a FHIR encounter resource and referencing it from the various FHIR resources, unless an entry specifically reference an encounter

## Allergies:

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1698       <title value="Interim Referral Feedback Report"></title>
```

- OnsetDateTime should be mapped from the effectiveTime on the observations, not the Act concern. It's questionable if act concern time should be used as the fallback when the timestamps on the observation is missing.
- Allergen should be mapped to code (required element), although some may attempted to map to reaction.substance

### Immunizations:

\_primarySource: data absence reason in extension when no information is available

### FHIR Patient Resource

managingOrganization should be mapped from the patientRole.providerOrganization in C-CDA.

### Procedures

*performedX is required; when unknown, where should DAR extension go -*

*\_performedDate.extension or performedPeriod.extension ?*

**It's no longer a requirement per the new US core and FHIR 4.0.1.**

## Issues/Discussion points/Questions

- FHIR has quantity-precision extension that can be used to retain the source precision level (most applicable to results, vital signs but could be usable for other numbers)
- Clearer guidance needed on Note Activity vs. Comment
  - Note activity → map to the resource document reference
  - comment/annotation: map to the note/comment element within the resources
- How to map a C-CDA Unstructured Document - What resources to use?
  - Map to document reference or composition? (need to figure out how would the mapping to composition work)
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
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```

- If go with document reference, we don't have a mapping from C-CDA to
- The group still questions about using Medication request for all medications
- Allergies and problems: FHIR resource Identifiers should be mapped from the observation ID, and less preferred by Concern Act. (same goes for problems).
  - Technically another property of "type" could be add to the id, but that's new and no guarantee that downstream would expect or can handle that
- Reference structure for FHIR: can have the structure of /resource/id within the resource to help with API queries
- In general, context conduction is a risky thing to do, and should be done with caution and on element-by-element basis. For example, encompassingEncounter is very purposeful, and is more reliable and less risky to context conduct, whereas authors are more risky to context conduct, as garbage info can be there, and outside people may not be aware of the rule.
- Plan of treatment mapping: a variety of future-oriented FHIR resources (e.g., serviceRequest, medicationRequest, etc.), which is consistent with C-CDA on FHIR's guidance.
- For Notes
  - Author.time to map to DocumentReference.date
  - Act effectiveTime to map to context.period.start
  - When converting contents from narrative, use the same CDA->HTML conversion used for section.text (i.e. don't base64-encode <paragraph> tags)

## Now What?

- Will continue to test and compare more clinical domains and with more vendors who expressed contributing their mapping results after the Connectathon
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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```

- Will work through the areas of discrepancies to see if consensus can be achieved or questions/issues filed with HL7
- Will solicit feedback on the format of the mapping excel spreadsheet to strike the right balance for clearness and ease to use

## Cancer Electronic Pathology Reporting (Cancer FHIR IG & IHE SDC on FHIR)

- **What was the track trying to achieve?**
  - Create and submit bundle directly from LIS to Cancer Registry endpoints in conformance with the profiles defined in both IGs
  - Use of a HDEA (formerly BSA) to collect and send Cancer Path data to a cancer registry
  - Bundling of complex Specimen collection from an EHR and sending to a registry
  - Automatic trigger creation of the report with the PlanDefinition
  - Automatic triggering criteria for creation and exchange
  - EHR to EHR data transmission
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```

- **List of participants (with logos if you have time and energy)**
  - CDC
  - mTuitive
  - Lantana
  - College of American Pathologists
  - MedMorph
- **Notable achievements**
  - Transmitted Cancer Path data from EHR to EHR
  - Created and submitted bundle directly from LIS to Cancer Registry endpoints
  - Created complex bundle for specimen with parent and child relationship
  - Developed a prototype to scale the automation of parsing and visualizing of FHIR Cancer Path Bundle directly into a cancer registry application.
- **Screenshots and/or links to further information**
  - **Create and Submit a Cancer Pathology conformant Bundle from LIS to Cancer Registry Endpoint**
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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```

## 25891 - TEST(S) PERFORMED

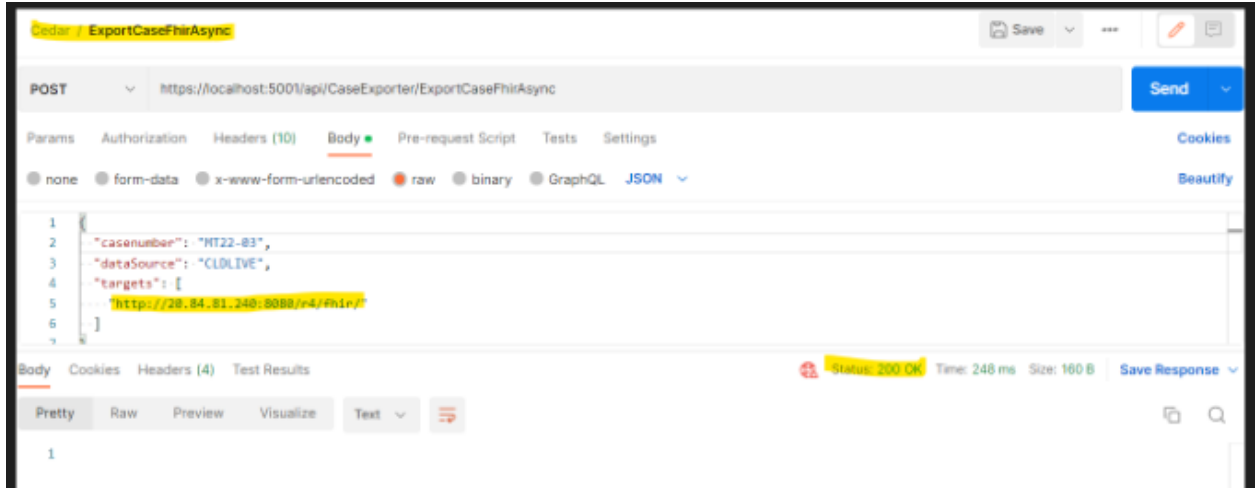
31159 - Test(s) Performed	52536 - Cold Ischemia and Fixation Times
<input type="checkbox"/> 31160 - Estrogen Receptor (ER) Status (Note A) <span style="float: right;">(reset)</span> <div style="background-color: #e0f0ff; padding: 2px;">26435 -</div> <input type="radio"/> 29604 - Positive <div style="background-color: #e0f0ff; padding: 2px;">31766 - Percentage of Cells with Nuclear Positivity#</div> <span style="float: right;">(reset)</span> <ul style="list-style-type: none"> <li><input type="radio"/> 29748 - Specify % <input style="width: 100px;" type="text"/></li> <li>32074 - --OR--</li> <li>32084 - Select range below:</li> <li><input type="radio"/> 32073 - 1-10% (specify)# <input style="width: 100px;" type="text"/></li> <li><input type="radio"/> 32075 - 11-20%</li> <li><input type="radio"/> 32076 - 21-30%</li> <li><input type="radio"/> 32079 - 31-40%</li> <li><input type="radio"/> 32080 - 41-50%</li> <li><input type="radio"/> 32081 - 51-60%</li> <li><input type="radio"/> 32082 - 61-70%</li> <li><input type="radio"/> 32083 - 71-80%</li> <li><input type="radio"/> 32077 - 81-90%</li> <li><input type="radio"/> 32078 - 91-100%</li> </ul> <div style="background-color: #e0f0ff; padding: 2px;">29749 - Average Intensity of Staining</div> <span style="float: right;">(reset)</span> <ul style="list-style-type: none"> <li><input type="radio"/> 29811 - Weak</li> <li><input type="radio"/> 29812 - Moderate</li> <li><input type="radio"/> 29914 - Strong</li> <li><input type="radio"/> 29915 - Negative (less than 1%)</li> </ul> <div style="background-color: #e0f0ff; padding: 2px;">25895 -</div>	<input type="radio"/> 46287 - Meet requirements specified in latest version of the ASCO / CAP Guidelines <span style="float: right;">(reset)</span> <input type="radio"/> 58421 - Do not meet requirements specified in latest version of the ASCO / CAP Guidelines <input type="radio"/> 32114 - Cannot be determined (explain) <input style="width: 100px;" type="text"/>

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1697     </Composition>
1698   </resource>

```

## Receive and Parse Cancer Pathology Bundle

### Cancer ePath Reporting

Breast Example
Lung Example

#### Breast Resection Bundle Example

##### Patient Table

fullUrl	urn:uuid:f1d300e7-d41c-4af4-8381-e8fff79444ef
resourceType	Patient
text.status	generated
text.div	<div xmlns="http://www.w3.org/1999/xhtml"><div class="hapiHeaderText">Meredith <b>SHEPARD </b></div><table class="hapiPropertyTable"><tbody><tr><td>Identifier</td><td>6547</td></tr></tbody></table></div>
identifier.system	urn:system
identifier.value	6547
name.family	Shepard
name.given	Meredith

##### Practitioner Table

fullUrl	urn:uuid:814aebaf-5f60-4ad1-8786-bdc21c253b3f
resourceType	Practitioner
identifier.system	http://somelidentifier.com
identifier.value	pathpract1
name.family	Karev
name.given	Alex
identifier.system.1	http://hl7.org/fhir/sid/us-npi
identifier.value.1	85940584902

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```

## Practitioner Role

fullUrl	urn:uuid:7b1a792c-f413-4d02-afd8-86b673876f1a
resourceType	PractitionerRole
identifier.system	http://someidentifier.com
identifier.value	pathpractRole1
practitioner.reference	Practitioner/pathpract1
practitioner.display	Dr. Alex Karev
reference	Organization/IHESDCParser0
code.coding.system	http://www.hl7.org/fhir/us/cancer-reporting/CodeSystem/pathology-provider-types
code.coding.code	principal-result-interpreter
code.coding.display	Pathologist principally interpreting results on pathology testing

## Diagnostic Report

Previous 1 2 3 4 5 ... 11 Next

Search:

resourceType	DiagnosticReport
status	final
text.status	generated
text.div	<div xmlns="http://www.w3.org/1999/xhtml"><div class="hapiHeaderText"> Pathology Synoptic report</div><table class="hapiPropertyTable"><tbody><tr><td>Status</td><td>FINAL</td></tr></tbody></table></div>
code.coding.system	http://loinc.org
code.coding.code	60568-3
code.coding.display	Pathology Synoptic report
category.coding.system	http://loinc.org
category.coding.code	LP7839-6

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```
1667 </entry>
1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
1677       <code>
1678         <coding>
1679           <code value="BSeR Sessions Attended Observation Code"></code>
1680           <display value="Number of Appointments Attended"></display>
1681         </coding>
1682       </code>
1683       <subject>
1684         <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685       </subject>
1686       <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687       <valueQuantity>
1688         <value value="8"></value>
1689         <unit value="1"></unit>
1690       </valueQuantity>
1691     </Observation>
1692   </resource>
1693 </entry>
1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

## Observation Report

Resource	value
resourceType	Observation
status	final
identifier.system	https://CAP.org/eCC
identifier.value	Breast.Invasive.Res.189_4.002.001.REL_sdcFDF8b92ad2a-0818-4e59-91db-bded3ae09cef/ver1#58807.100004300
reference	urn:uuid:f1d300e7-d41c-4af4-8381-e8fff79444ef
code.coding.system	https://CAP.org/eCC
code.coding.code	58807.100004300
code.coding.display	Procedure (Note A)
reference.1	Practitioner/pathpract1
valueCodeableConcept.coding.system	https://CAP.org/eCC

Previous  2 3 4 5 ... 56 Next Search:

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1677       <code>
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1682       </code>
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1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

## Setup MedMorph Knowledge Artifact Repository for hosting PlanDefinition

```

126     },
127   ],
128   "action": [
129     {
130       "id": "is-encounter-reportable",
131       "description": "This action represents the check for reportability to create the patients eICR.",
132       "textEquivalent": "Check Trigger Codes based on RCTC Value sets.",
133       "code": [
134         {
135           "coding": [
136             {
137               "system": "http://hl7.org/fhir/us/medmorph/CodeSystem/us-ph-plandefinition-actions",
138               "code": "check-trigger-codes"
139             }
140           ]
141         }
142       ],
143       "condition": [
144         {
145           "expression": {
146             "language": "text/fhirpath",
147             "expression": "%DiagnosticReport.code.coding.where(system='http://loinc.org' and code='60568-3')"
148           }
149         }
150       ],
151       "input": [
152         {
153           "id": "DiagnosticReport",
154           "extension": [
155             {
156               "url": "http://hl7.org/fhir/us/medmorph/StructureDefinition/us-ph-fhirquerypattern-extension",
157               "valueString": "DiagnosticReport?code=http://loinc.org|60568-3&patient=Patient/{{context.patientId}}"
158             }
159           ],
160           "type": "DiagnosticReport",
161           "codeFilter": [
162             {

```

- Discovered issues / questions (if there are any)
  - URL defined for the extension on the message processing category – definition in JSON file is different from what is in the website.
  - FHIR Validator was expecting the ID of the Patient Resource and checking against that, instead of checking against the identifier of Patient Resource.
- Now what?
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

```

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1690       </valueQuantity>
1691     </Observation>
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1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
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```

- Continue to test creation, transmission, and parsing of cancer pathology bundle from LIS to cancer registry.
- Create an automated app to parse and visualize the cancer pathology bundle into a cancer registry database.
- Continue to work with MedMorph to integrate the cancer pathology bundle plan definition into the HDEA. Identified another mechanism to connect to the MedMorph HDEA that we didn't have time to test. Will test this next time.
- Will plan to test transmission and receipt of complex specimen bundle.

#### CARIN IG for Blue Button®

- What was the track trying to achieve?
  - Gather feedback from STU2 testing (Oral and Vision claim types, Version management, etc)
- List of participants (with logos if you have time and energy)
  - Blue Cross Blue Shield of Oklahoma
  - Aetna/CVSHealth
  - MITRE
  - Aegis Touchstone
  - Elevance Health
- Notable achievements
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

- Socialized version management strategies to ensure backward compatibility
- Screenshots and/or links to further information
- Discovered issues / questions (if there are any)
  - Backward compatibility challenges
- Now what?

### Clinical Reasoning

- What was the track trying to achieve?
- List of participants (with logos if you have time and energy)
- Notable achievements
- Screenshots and/or links to further information
- Discovered issues / questions (if there are any)
- Now what?

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

# Da Vinci Burden Reduction (BR) Track

- **Track Lead:** Jeff Brown - MITRE Corporation ([Jeffbrown@mitre.org](mailto:Jeffbrown@mitre.org))
- **What was the track trying to achieve?**

To test CRD/DTR/PAS interoperability with various participating parties. e.g. EHR vendors, Providers, Payers, and others. The Da Vinci Coverage Requirements Discovery (CRD), Documentation Templates and Rules (DTR), and Prior Auth Support (PAS) Implementation Guides (IGs) together support an integrated workflow to enable automated submission of required documentation and/or prior authorization from EHR and payer systems respectively. This track will ensure that the IGs work appropriately, independently, as well as in concert.
- **Participants:**

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1697       <status value="final"></status>
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```



PALMETTO GBA®

infor

EVERNORTH™



• **Notable achievements:**

> **Burden Reduction process flow**

- Connected eviCore Da Vinci POC successfully to Epic FHIR sandbox
- Evernorth/eviCore initiated integration/ connection discussions with MCG app for DTR Api
- Evernorth/eviCore initiated discussions with Cambia Health to pilot Da Vinci solution for MSK program

> **CQL (Clinical Quality Language)**

- We should have the CQL to be created at a subset level so it could be like lego pieces to construct a bigger CQL guideline
- Have a Drummond certification program (similar to that) for the ePA to cover the provider, Payer standards
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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1696 <Composition xmlns="http://hl7.org/fhir">
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```

- Have a team to create a CQL generator, we have an open source for CQL execution, we need to have something similar to that. Constructing CQL is a manual and very time intrinsic process. Having an open source for CQL Generation would enable adaptability more. The rules definition process is loosely defined, and payers could adapt any technology, standardizing that would be a real value add.

- **Links:**

Implementation Guides:

CRD: <https://build.fhir.org/ig/HL7/davinci-crd/>

DTR: <http://build.fhir.org/ig/HL7/davinci-dtr/>

PAS: <https://build.fhir.org/ig/HL7/davinci-pas/>

Reference Implementations:

CRD: <https://davinci-crd.logicahhealth.org/>

DTR: <https://davinci-dtr.logicahhealth.org/>

PAS: <https://davinci-prior-auth.logicahhealth.org/>

- **Now what?**

- Continue the regular CQL Interchange/Reusability meetings (Wednesday 1 PM ET) meetings to refine and progress CQL usage and identify areas for continued work
- Align testing results with corresponding Implementation Guide's ballot comments to improve next publication.

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```

# Da Vinci Clinical Documentation Exchange (CDex), Including Support for Attachments

## Participants

- Lloyd McKenzie – Accenture
- Durwin Day – HCSC
- Christol Green – Elevance
- Joel Walker – HLX
- Viken - Infor Healthcare
- Carrie Hammond – Touchstone AGIS
- Ghislain Bellemare – Smile CDR
- Wendy Gereke – Touchstone AGIS
- Rob Abboth – Infor Healthcare

Testing focused on payer requesting supporting documentation and the provider sending attachments for Claims or Prior Authorization.

- New Functionality Described in the CDex Implementation Guide. CDex 2.0.0 “Requesting Attachments”
- This is intended to support the Attachment rules for CMS and as an alternative to the X12n 277 RFAI and 275 transactions.

CDex Reference Implementation Logica (RI) (HealthLX) – Joel Walker [joel.walker@teschglobal.com](mailto:joel.walker@teschglobal.com) – Karell Ruiz Rodriguez

CDex TestScripts Touchstone (Aegis) - Carie Hammond [carie.hammond@aegis.net](mailto:carie.hammond@aegis.net)

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

Track Lead: Lloyd McKenzie Track [lloyd.mckenzie@accenture.com](mailto:lloyd.mckenzie@accenture.com)

Track co-leads: Durwin Day [DAYD@BCBSIL.COM](mailto:DAYD@BCBSIL.COM) , Christol Green [Christol.green@elevance.com](mailto:Christol.green@elevance.com)

## Accomplishments testing the CDex IG

- Able to successfully send a payer Task Request Attachment using Logica/HLX and Touchstone RI's using LOINC/s for a pended claim or prior authorization
- Able to successfully as playing provider submit supporting documentation back to payer with the \$submit-attachment operation. Logica/HLX and Touchstone then would pull patient data for the request DOS and LOINC code and send to payer
- Verified Claims updated supporting Information with attachments
- Logica/HLX sent attachments via observation resource for test values (i.e A1C). They also sent pdf attachments Base64 encoded for medical records.
- Infor Healthcare tested create Task successfully. They are working on adding \$submit-attachment and attachment request profile for next Connectathon
- Tested include signature in Request Attachment and \$submit-attachments

## Challenges

- Had to modify end-points for HLX - Resolved
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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- Added Infor Healthcare server to public domain for testing – Resolved
- Example19 Request Attachment in CDex IG may have compliance validation issues. EX: Task Request Attachments issues

Expected "\$.statusReason.text " but did not find it in request.

**Description:** Confirm that the request attachment statusReason is supported

**Definition:** [\[hide\]](#)

```
{
  "operatorType" : "notEmpty",
  "description" : "Confirm that the request attachment statusReason is supported",
  "path" : "$.statusReason.text ",
  "warningOnly" : false,
  "direction" : "request",
  "stopTestOnFail" : false
```

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```

- HLX IG request attachment example does not meet some data elements cardinality.
- EX: \$submit-attachment issues Logica/HLX errors with signature

### Validation of request body against profile

'<http://hl7.org/fhir/StructureDefinition/Parameters>' by FHIR specification's Validation Engine produced the following results:

1. ERROR: Relative Reference appears inside Bundle whose entry is missing a fullUrl. Location: Parameters.parameter[6].part[2].resource.ofType(Bundle).signature.who.
2. ERROR: Relative Reference appears inside Bundle whose entry is missing a fullUrl. Location: Parameters.parameter[6].part[2].resource.ofType(Bundle).signature.onBehalfOf.
3. ERROR: Bundle.type: minimum required = 1, but only found 0 (from <http://hl7.org/fhir/StructureDefinition/Bundle>). Location: Parameters.parameter[6].part[2].resource.ofType(Bundle) (line 92, col 27).
4. ERROR: bdl-10: 'A document must have a date' failed. Location: Parameters.parameter[6].part[2].resource.ofType(Bundle) (line 92, col 27).
5. ERROR: bdl-11: 'A document must have a Composition as the first resource' failed. Location: Parameters.parameter[6].part[2].resource.ofType(Bundle) (line 92, col 27).
6. ERROR: bdl-12: 'A message must have a MessageHeader as the first resource' failed. Location: Parameters.parameter[6].part[2].resource.ofType(Bundle) (line 92, col 27).

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1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
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1677       <code>
1678         <coding>
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1680           <display value="Number of Appointments Attended"></display>
1681         </coding>
1682       </code>
1683       <subject>
1684         <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```

7. ERROR: bdl-3: 'entry.request mandatory for batch/transaction/history, otherwise prohibited' failed. Location: Parameters.parameter[6].part[2].resource.ofType(Bundle) (line 92, col 27).

8. ERROR: bdl-4: 'entry.response mandatory for batch-response/transaction-response/history, otherwise prohibited' failed. Location: Parameters.parameter[6].part[2].resource.ofType(Bundle) (line 92, col 27).

- Logica/HLX RI needs adjustments/updates to allow easier testing.

## Next Steps

- Payer/provider submission using exchange including clearinghouse (EDFECs or Availity)
- Work on Logica/Health LX RI

# Da Vinci Member Attribution Track

- What was the track trying to achieve?
  - Test the new atr-export operation which will be a generalized bulk data export operation focused on varying content across different DaVinci FHIR IGs.
- List of participants (with logos if you have time and energy)
  - Mark S (Onyx)
  - Dustin (Onyx)
  - Bill Bishop (Optum)
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```
1667 </entry>
1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
1677       <code>
1678         <coding>
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1680           <display value="Number of Appointments Attended"></display>
1681         </coding>
1682       </code>
1683       <subject>
1684         <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685       </subject>
1686       <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
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1688         <value value="8"></value>
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1690       </valueQuantity>
1691     </Observation>
1692   </resource>
1693 </entry>
1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

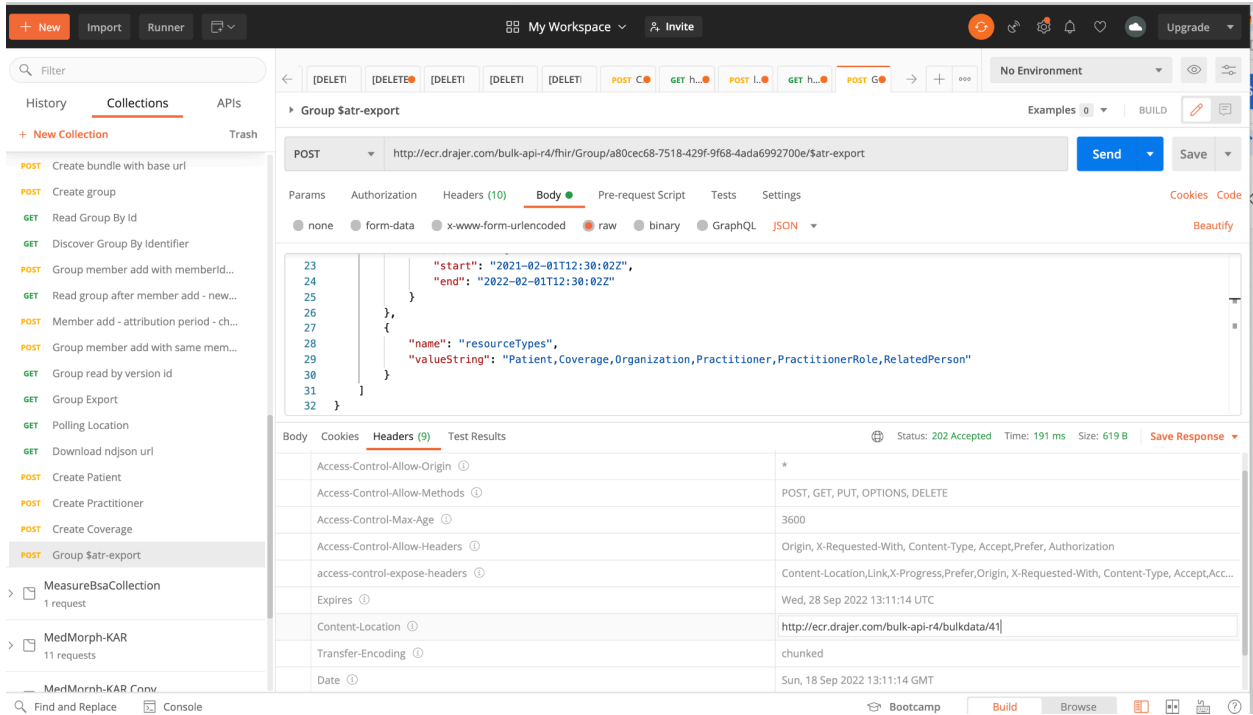
- Dave Degandi (Cambia)
- Durwin (BCBS)
- Nagesh Bashyam (Drajer)
- Notable achievements
  - Tested atr-export with Onyx who performed the role of a client
  - Drajer built the RI and provided the server for testing
  - Discussed the generic export operation with the Bulk Data track and how it can be harmonized
  - Discussed the SHALL requirements for resource types which may not be required for all use cases, should be relaxed to a SHOULD
- Screenshots and/or links to further information
  - <file:///Users/nbashyam/git/davinci-atr/output/OperationDefinition-atr-export.html>

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
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1674       <category>
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1689         <unit value="1"></unit>
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1691     </Observation>
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```

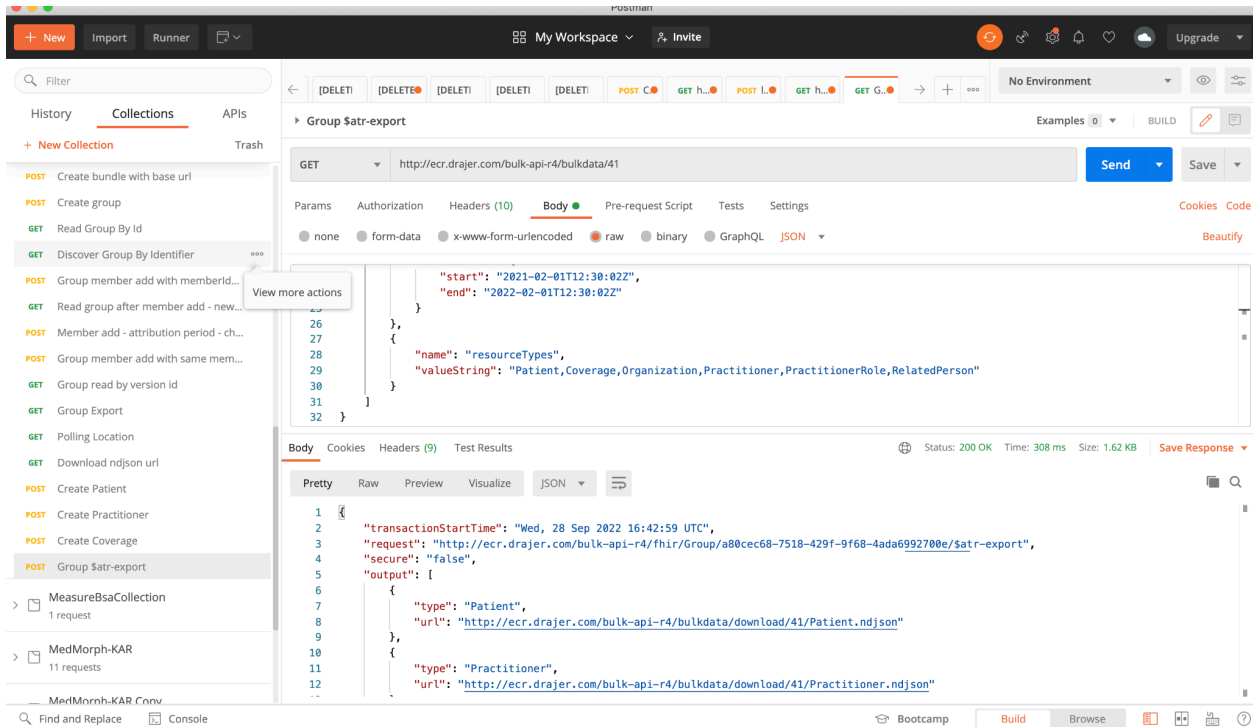


- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
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1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
1677       <code>
1678         <coding>
1679           <code value="BSeR Sessions Attended Observation Code"></code>
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```



- Discovered issues / questions (if there are any)
  - Some requirements such as supporting organizations and practitioners should be relaxed from a SHALL to a SHOULD.
- Now what?
  - Get the IG ready for balloting
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
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1678         <coding>
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

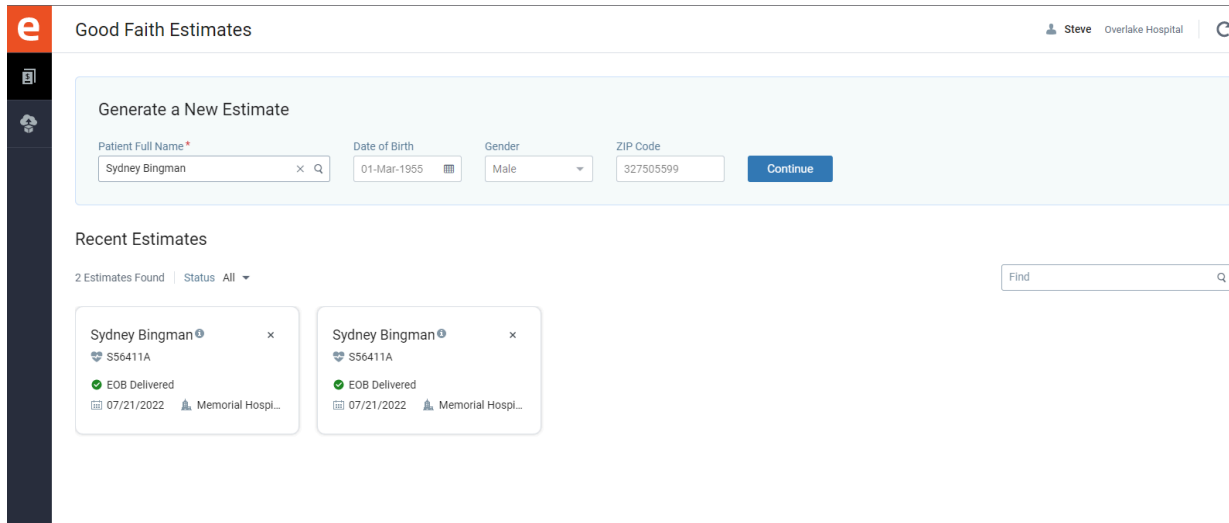
```

# Da Vinci Patient Cost Transparency

- What was the track trying to achieve?
  - To test PCT IG and reference implementation with track participants. Will perform manual testing using various client and server implementations and also run test scripts against the RIs and document any issues found with the various approaches
- List of participants (with logos if you have time and energy)
  - Evernorth
    - Jason Teeple
    - Tom Loomis
    - Eziquiel Morales
  - Edifecs
    - Artem Sopin
  - Athena Health
    - Daniel Kitchener
  - Onyx
    - Ankit Agarwal
  - MITRE
    - Corey Spears
    - Yolanda Liu
  - Lantana
    - Rick Geimer
- Notable achievements
  - Tested \$gfe-submit against MITRE server reference implementation using both Postman and the MITRE JavaScript client RI
  - Tested \$gfe-submit against Edifecs server using MITRE JavaScript client RI
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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1670 <entry>
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1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>
```

- Tested MITRE Java server RI and JavaScript client UI using Touchstone as a proxy, with some successful tests, however some encountered difficulties running the test scripts
- Screenshots and/or links to further information



- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1695 <resource>
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1698 <title value="Interim Referral Feedback Report"></title>

```

# Generate New Estimate

Back Submit Cancel

- Patient Information
- Diagnoses Codes
- Procedure
- Billing Provider
- Review & Generate

## Patient Information

First Name	Last Name	Date of Birth	Gender
Sydney	Bingman	01 Mar 1955	Male
Address Line 1		Address Line 2	
480 E EVERGREEN AVE		-	
City	State	ZIP Code	
LONGWOOD	FL	327505599	
Insurance Plan	Subscriber ID	Group ID	
Florida Blue	H13936781	Blue Care HMO	

## Diagnoses Codes

Diagnoses Codes  
S56411A – STRAIN EXTENSOR MUSC/FAS

## Procedure

99281 – EMERGENCY ROOM/GENERAL

Place of Service	No. of Units
11 – Office	1

## Billing Provider

Organization	Provider Name		
Memorial Hospital West	-		
Address Line 1		Address Line 2	
703 N Flamingo Rd		-	
City	State	ZIP Code	Phone Number
Pembroke Pines	FL	33028	954-436-5000
Specialty/Taxonomy	NPI		
282N00000X	1134102080		
Tax ID Type	Tax ID		

```
1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
1673 <status value="final"></status>
1674 <category>
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1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>
```

## Estimate Details

Cancel

RAW

### Advanced Explanation of Benefit

Start date 7/21/2022 Active

---

**Details**

Type	Insurer	Claim provider
	Florida Blue	Memorial Hospital West
Total	Purpose	Patient
Submitted Amount \$115,364.60	claim	Sydney Bingman
Eligible Amount \$9,605.14		
Deductible \$1,882.31		
CoPay \$0.00		
Coinsurance \$50,484.59		
Noncovered \$0.00		
Paid to provider \$8,616.51		
Member liability \$34,369.26		

Insurance  
Blue Care HMO Premium Family Plus

**Services**

Service	Service Date	Quantity	Item Cost	Eligible Amount	Deductible	Copay	Coinsurance	Not Covered	Paid To Provider	Member Liability
EMERGENCY ROOM/GENERAL	3/18/2022	-	\$11,252.58	\$3,504.05	\$882.04	\$0.00	\$262.20	\$0.00	\$2,359.81	\$1,144.24

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

Patient Cost Transparency Client

GOOD FAITH ESTIMATE ADVANCED EXPLANATION OF BENEFITS

Subject

Select Patient

GFEs

GFE 1

Create New GFE

TOTAL SUMMARY

SUBMIT REQUEST

Patient \*

GFE Type:

Institutional  Professional

Submitting Provider\*:

Demographics:

Patient:  
Birthdate:  
Gender:  
Telephone:  
Address:

---

Insurance:

Subscriber ID:  
Member ID:  
Subscriber Relationship:  
Plan:  
Coverage Period:

[NEXT →](#)

- Discovered issues / questions (if there are any)
  - Java server RI only supports JSON, not XML
  - JavaScript client RI errors out if the Procedure array is deleted in the UI
  - TestScript resources were incorrectly defined, were trying to retrieve AEOB Bundle using a read with /id but should have been using a search with ?identifier (This was fixed during the Connectathon), also encountered issues with gzip encoding on responses (Touchstone does not currently support this). Got around that by adding an Accept-Encoding: identity header to ensure the result is not compressed.
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
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1695 <resource>
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1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

- Also noted that the AEOB Bundle returned by the server RI did not contain a meta.profile tag, which caused issues with validation since it was returned inside a searchset bundle and the test script tried to apply the AEOB profile to the searchset Bundle instead of the collection Bundle contained within it.
- Minor issues with XHTML in some of the IG examples (&reg; instead of &#174;);
- 
- Now what?
  - Discuss findings at WGM sessions
  - Address bugs in RIs
  - Correct issues found in IGs
  - Update TestScript resources to fix issues encountered during the Connectathon, and with upcoming changes to the IG itself.

## Da Vinci Payer Data Exchange (PDex) Post-STU2 Update and Formulary

- What was the track trying to achieve?
  1. Payer-to-Payer Exchange with mTLS Discovery
  2. Provider-Payer Bulk Export
  3. Formulary Bulk Export
- List of participants (with logos if you have time and energy)
  - Michelle Motini (CareEvolution)
  - Michael Cox (Onyx)
  - Dustin Sollick (Onyx)
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
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1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

- Ankit Agarwal (Onyx)
- Ranjana Singhal (b.well)



- Notable achievements
  - Successfully tested use of ATR-Export Operation from Member Attribution - acting as Client
  - mTLS organization and endpoint information will be loaded into National Directory for querying once Certificate for attestation is available.
- Screenshots and/or links to further information
- Discovered issues / questions (if there are any)
  - Allow time between creation of client credential and using it (60 seconds). This is implementation dependent and is related to the time needed for a credential to propagate across an environment.
  - Should mTLS and DCRP in Payer-to-Payer exchange be replaced with UDAP following publication of the security IG.
- Now what?
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

```





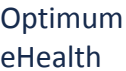
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1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

- Consider UDAP for Payer-to-Payer exchange since Security IG is to be published imminently
- Incorporate Payer-Provider Bulk exchange into next version of PDex IG (Post STU2)
- Detailed implementation guidance is required to help implementers setup mTLS endpoint resources with correct certificates.

## Da Vinci Risk Adjustment

- What was the track trying to achieve?
  - Test the new operations and profiles defined for STU2
- List of participants (with logos if you have time and energy)

				
---	---	---	--	---

- Notable achievements
  - Created new Touchstone test scripts to test the new operations (\$davinci-ra.resolve, \$davinci-ra.evalaute-measure) to test against the updated Reference Implementation
  - Tested the new \$davinci-ra.resolve operation and recorded the test results in a shared google spreadsheet
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

```

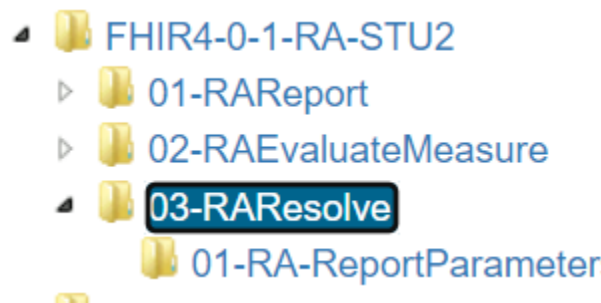
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1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

- Tested the new \$davinci-ra.evaluate-measure operation and recorded the test results in a shared google spreadsheet
- Re-tested all 25 Touchstone test scripts for the \$report operation against the updated Reference Implementation and recorded the test results in ConnectathonManager <http://conman.clinfhir.com/?event=con31>
- Created a test csv file based on example risk adjustment data using example [ra-measurereport01](#) and tested the csv file POST scenario
- Held a breakout session discussing end-to-end risk adjustment workflow from payer to provider and provider back to payer.

- Screenshots and/or links to further information

Touchstone



- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
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1674 <category>
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1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

## Test Definitions - /FHIRsandbox/DaVinci/FHIR4-0-1-RA-STU2/03-RAResolve

[Upload](#)

Name:   All  Test Scripts  Fixtures  Rules Records 1 - 17 of 17 Page Size: 30

Show Invalid Only

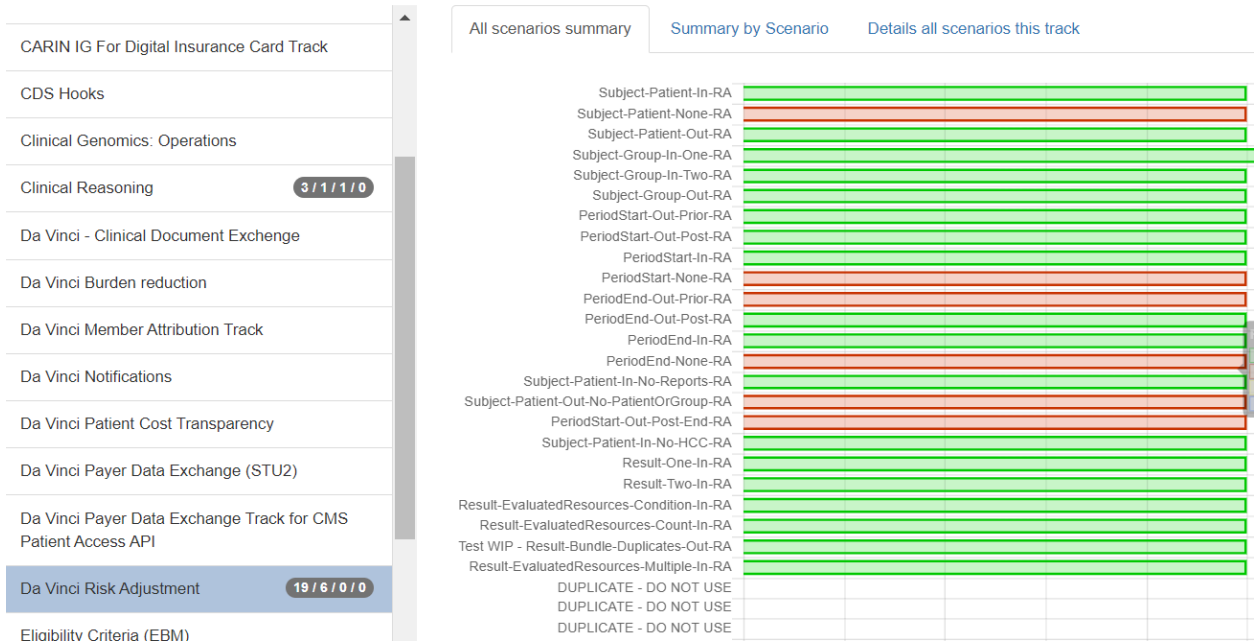
Create Test Setup

<input type="checkbox"/>	Test Script <span>▲</span>	Version	History	Description	Tests	Validator
<input type="checkbox"/>	/FHIRsandbox/DaVinci/FHIR4-0-1-RA-STU2/03-RAResolve/01-RA-ReportParameters/PeriodEnd-In-RA	1		Get all gaps for variable parameters. All \$resolve operations are performed using the FHIR Operation Framework HTTP GET method with url inline parameters. Preconditions: Server has pre-loaded the Clinical Reasoning standard test data set patient and measure data for the patient. The request is for json format as a default.	1	FHIR 4.0.
<input type="checkbox"/>	/FHIRsandbox/DaVinci/FHIR4-0-1-RA-STU2/03-RAResolve/01-RA-ReportParameters/PeriodEnd-None-RA	1		Get all gaps for variable parameters. All \$resolve operations are performed using the FHIR Operation Framework HTTP GET method with url inline parameters. Preconditions: Server has pre-loaded the Clinical Reasoning standard test data set patient and measure data for the patient. The request is for json format as a default.	1	FHIR 4.0.
<input type="checkbox"/>	/FHIRsandbox/DaVinci/FHIR4-0-1-RA-STU2/03-RAResolve/01-RA-ReportParameters/PeriodEnd-	1		Get all gaps for variable parameters. All \$resolve operations are performed using the FHIR Operation Framework HTTP GET method	1	FHIR 4.0.

<http://conman.clinfhir.com/?event=con31>

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1667 </entry>
1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
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1676       </category>
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1680           <display value="Number of Appointments Attended"></display>
1681         </coding>
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1685       </subject>
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1689         <unit value="1"></unit>
1690       </valueQuantity>
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1693 </entry>
1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
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1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```



- Now what?
  - Review and resolve errors identified from the testing.
  - Continue to discuss end-to-end risk adjustment workflow in the Risk Adjustment weekly calls.

## Dental Data Exchange

- What was the track trying to achieve?
  - POST of Dental Referral Note (Composition) including Conditions and ServiceRequests
  - POST of Dental Consultation Note (Composition) including updated Conditions and Procedures
- List of participants (with logos if you have time and energy)



- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```



**ADA** American Dental Association®  
America's leading advocate for oral health

- Notable achievements
  - Successfully POSTed both types of Dental Bundles
  - Identified implementation issues across 3 separate implementations as a result of testing
- Screenshots and/or links to further information:
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>
```

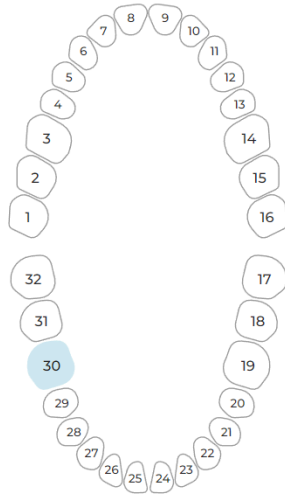
### Referral Composition

#30 pulpal necrosis and periapical pathosis with draining fistula. Clinical impression is that possible vital pulp remnants remain. #30 possible cracked DB cusp; rule out cracked tooth. Clinical impression is that tooth is restorable. #29 D caries lesion. On exam of the right lower quadrant, tooth #30 was sensitive to percussion (lingering for 45 seconds) and to cold (sharp, stops when cold removed). No sensitivity to palpation, pain upon biting with relief upon opening. No evidence of new caries on distal; missing #28, replaced with endosteal (root form) implant with full crown tooth-colored restoration; #32 impacted with possible full boney impaction. One cm swelling present on buccal free-gingival around #29 and #30 with sinus tract present #30B. Periodontal pocket depth WNL.

### Reason for Referral

Referral to endodontist for evaluation of #30 and endodontic therapy. (D3330) Suspect irreversible pulpitis with necrotic pulp and periapical pathosis. Tooth is restorable despite possible incomplete fracture DB cusp #30.

### Service Request



A dental chart showing teeth 1 through 32. Tooth 30 is highlighted in blue. To the right of the chart is a list of service request codes:

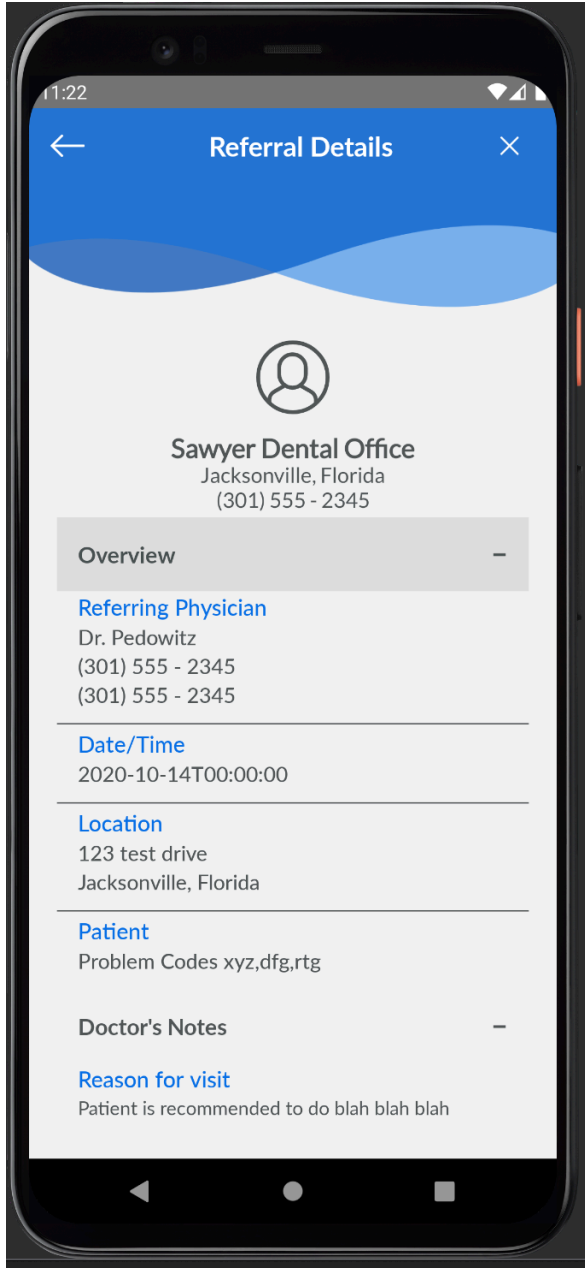
- D2393 - Resin-Based Composite
- D3910 - Surgical Procedure for Isolation
- D7230 - Removal of impacted tooth
- D0475 - Decalcification Procedure
- D2722 - Crown - Resin with Noble Metal
- D7288 - Brush Biopsy
- D3330 - Endodontic therapy, molar tooth (excluding final restoration) 3.

Is this an emergency?

Yes  No

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1670 <entry>
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1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>
```



interacted with three separate servers (EMR Direct,  
 and revocation testing  
 Identity Matching reference implementation and

```

1669 </entry>
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1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

- Discovered issues / questions (if there are any)
  - Need to be able to support post-coordinated codes (modifier codes) for bodySite across Condition, Observation, Procedure, and ServiceRequest to properly communicate Dental data
  - Need to relax cardinality for Composition Sections to meet implementers where they are and establish realistic MVP expectations
- Now what?
  - Discuss approach to modifications/extension to bodySite with Vocab WG
  - Coordinate with CARIN BB effort to ensure alignment of representation of Dental Data

### FAST Infrastructure (Security, Identity, Directory, Exchange)

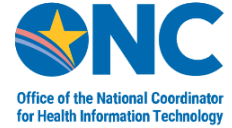
- What was the track trying to achieve?
  - Integrate AEGIS Touchstone monitoring of data exchange as a stepping stone to broader future testing capability
  - Test end-to-end FAST solutions (Security, Identity, Directory, Exchange)
  - Verify that the FAST infrastructure supports requirements in the CMS rules for Interoperability and Patient Access as well as Reducing Provider and Patient Burden
  - Educate FHIR community on FAST solutions in preparation for January connectathon
- List of participants (with logos if you have time and energy)

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

1667 </entry>
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1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```



U.S. Department of Veterans Affairs

- 
- Notable achievements
  -
- Screenshots and/or links to further information
  - Scenario 2: Patient visits Hospital for an appointment; Hospital identity proofs Patient and collects information during patient registration through intermediary

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
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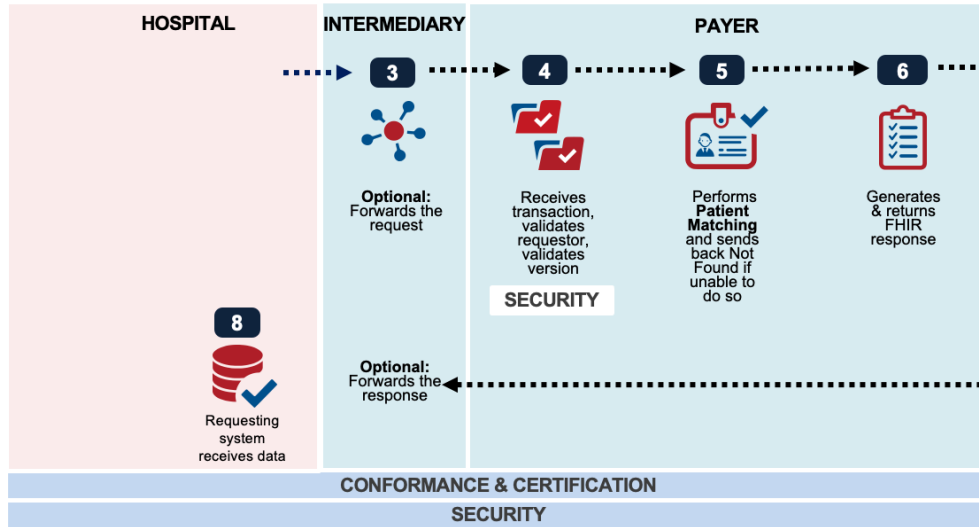
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1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

**Prerequisites**

Patient identity verification & minimum demographics collection by Payer per **Guidance on Identity Assurance, Patient Matching**  
 Optional: Create Digital Identity  
 Optional: Record attribute verification status



- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

## New Identity

Will execute [http://localhost:3000/baseR4/Patient/\\$match](http://localhost:3000/baseR4/Patient/$match) Change Server

Vladimir Quentin  Gender  Date of Birth: 12/01/1956

**Address**

Address Line 1  Address Line 2

City  State  Zipcode

Email  Phone Number

**Identifiers**

Q147604567  Insurance Payer Identifier

Passport Number

Submit valuable information with a promised minimum weighted value score of 10

IDI Base Match
IDI Level 0 Match
IDI Level 1 Match

[See previous identity matches](#)

© MITRE 2022

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- Successfully demonstrated the Identity Matching reference implementation and

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```

Notice: 1 match found!

[New Match Request](#) | [All Identity Matches](#) Delete

**Vladimir Queentin**  
Match attempted 06:20:02 PM 09/18/22

Date of birth: 1956-12-01

Gender:

Address:

Email:

Mobile:

Driver's License: Q147604567

NIPi:

Passport:

State ID:

Level: IDI Patient LO Weight = 16

Response status: 200

**FHIR Request**

```
{
  "resourceType": "Parameters",
  "id": "example-13",
  "parameter": [
    {
```

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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## New Identity

Will execute [http://localhost:3000/baseR4/Patient/\\$match](http://localhost:3000/baseR4/Patient/$match) Change Server

Vladimir Queentin  Gender  Date of Birth: 12/01/1956

**Address**

Address Line 1  Address Line 2

City  State  Zipcode

Email  Phone Number

**Identifiers**

Q147604567  National Insurance Payer Identifier

Passport Number  State ID

Submit valuable information with a promised minimum weighted value score of 20

IDI Base Match
IDI Level 0 Match
IDI Level 1 Match

[See previous identity matches](#)

© MITRE 2022

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  - Certificate issuance and revocation testing
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1686 <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687 <valueQuantity>
1688 <value value="8"></value>
1689 <unit value="1"></unit>
1690 </valueQuantity>
1691 </Observation>
1692 </resource>
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1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

Alert: Save failed on client side, please check inputs. ✕

## New Identity

Will execute `http://localhost:3000/baseR4/Patient/$match` Change Server

**1 error occurred:**

- IDI Level Input scores do not have a weighted total of at least 20. Consider classifying the identity as IDI L0 or adding an identifier.

Vladimir Queentin  Gender  Date of Birth: 12/01/1956

**Address**

Address Line 1  Address Line 2

City  State  Zipcode

Email  Phone Number

**Identifiers**

Q147604567  National Insurance Payer Identifier

Passport Number  State ID

IDI Base Match IDI Level 0 Match IDI Level 1 Match

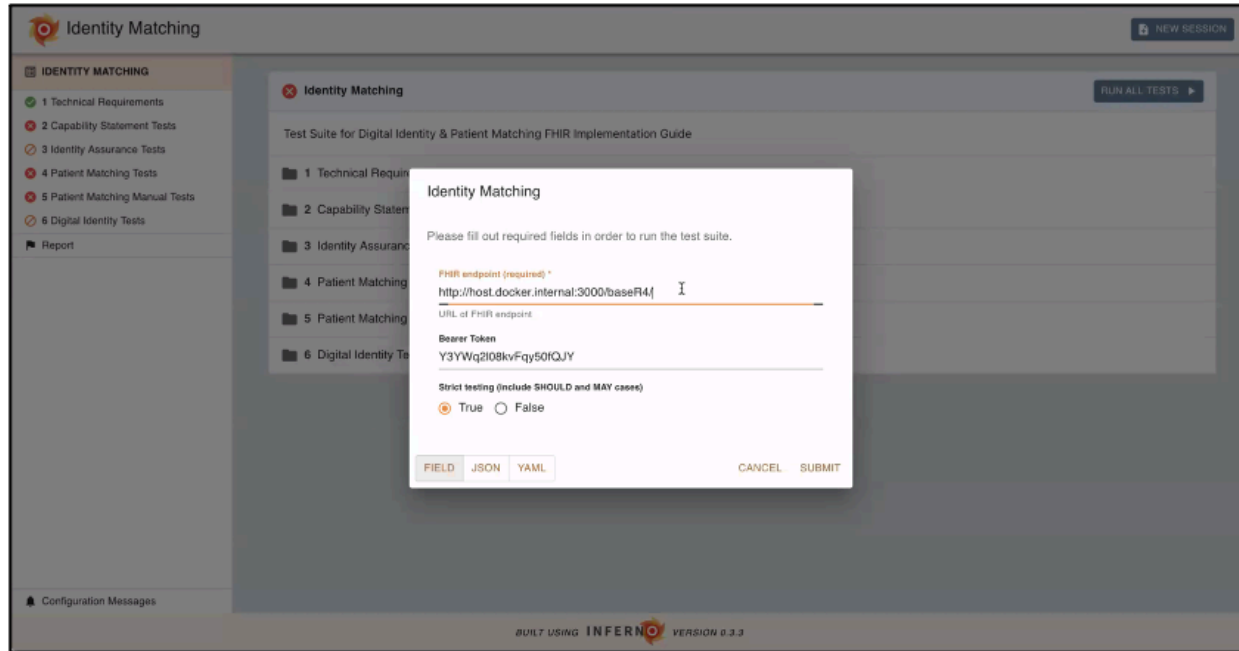
[See previous identity matches](#)

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
1673 <status value="final"></status>
1674 <category>
1675 <text value="procedure"></text>
1676 </category>
1677 <code>
1678 <coding>
1679 <code value="BSeR Sessions Attended Observation Code"></code>
1680 <display value="Number of Appointments Attended"></display>
1681 </coding>
1682 </code>
1683 <subject>
1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
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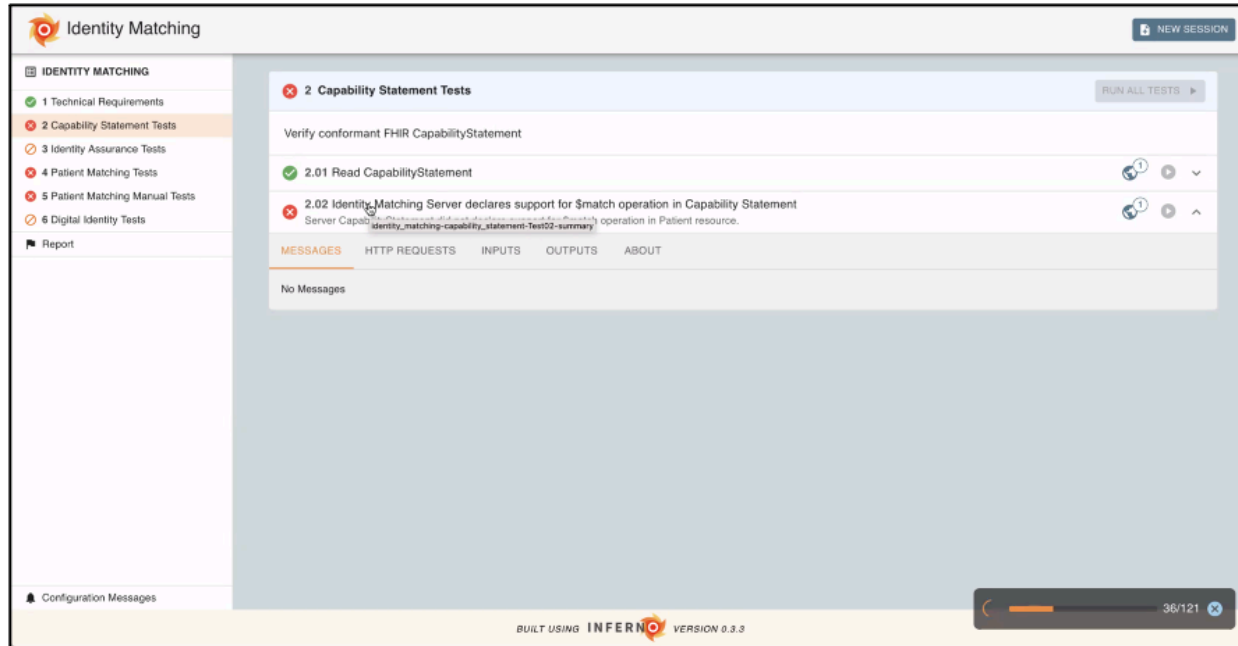


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```

- Discovered issues / questions (if there are any)
  - Not enough people to test with
  - COVID prevented some participants from attending
  - RI documentation was not as clear as it needs to be for new implementers in some areas (e.g., Tiered OAuth)
  - Postman collections would also help with testing
- Now what?
  - Multi-community certificate authority needs to be setup
  - Need more authorities than UDAP.org
  - January connectathon planning
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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```

- Identify specific tracks to attest connectathon-related endpoints with the National Directory
- Will also test dynamic registration and UDAP authorization / authentication
- Send invitation to the FHIR community to use the National Directory RI at January connectathon across all tracks

#### FAST National Directory US Realm & Da Vinci Payer Data Exchange Plan-Net

- What was the track trying to achieve?
  - Test National Directory & Plan Net Implementation Guides
  - Verify that the National Directory & Plan Net supports requirements in the CMS rules for Interoperability and Patient Access as well as Reducing Provider and Patient Burden
- List of participants (with logos if you have time and energy)
  - MITRE, Lantana, Onyx Health, Mettle Solutions, Elevance Health, Aegis, Firely

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

onyx



MITRE

firely

Lantana  
CONSULTING GROUP



Elevance  
Health

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```

- Notable achievements
  - Collaboration with DaVinci Payer Data Exchange (Pdex) to load mTLS organization and endpoint information into National Directory for querying once Certificate for attestation is available.
  - Surescripts client successfully interacted with National Directory
  - Conducted Breakout Session to propose National Directory and Trust Framework for January Connectathon
  - Breakout Session with Josh Mandel to discuss structure and organization of IG
  - Payer (Anthem) conducted queries against National Directory
  - Discussions with Firely on potential international applications of National Directory
  - Discussions with Simplifier to provide Endpoint information into National Directory
  - Deployed a copy of the National Directory software and transferred to Lantana.
  - Configured the National Directory to work with Touchstone in Proxy configuration mode, which allows us to validate 3rd party apps are querying the Directory correctly.
  - Implemented Consent based access control lists on the Protected Womens Shelter federated directory. Restricted data now requires login authentication and configurable via

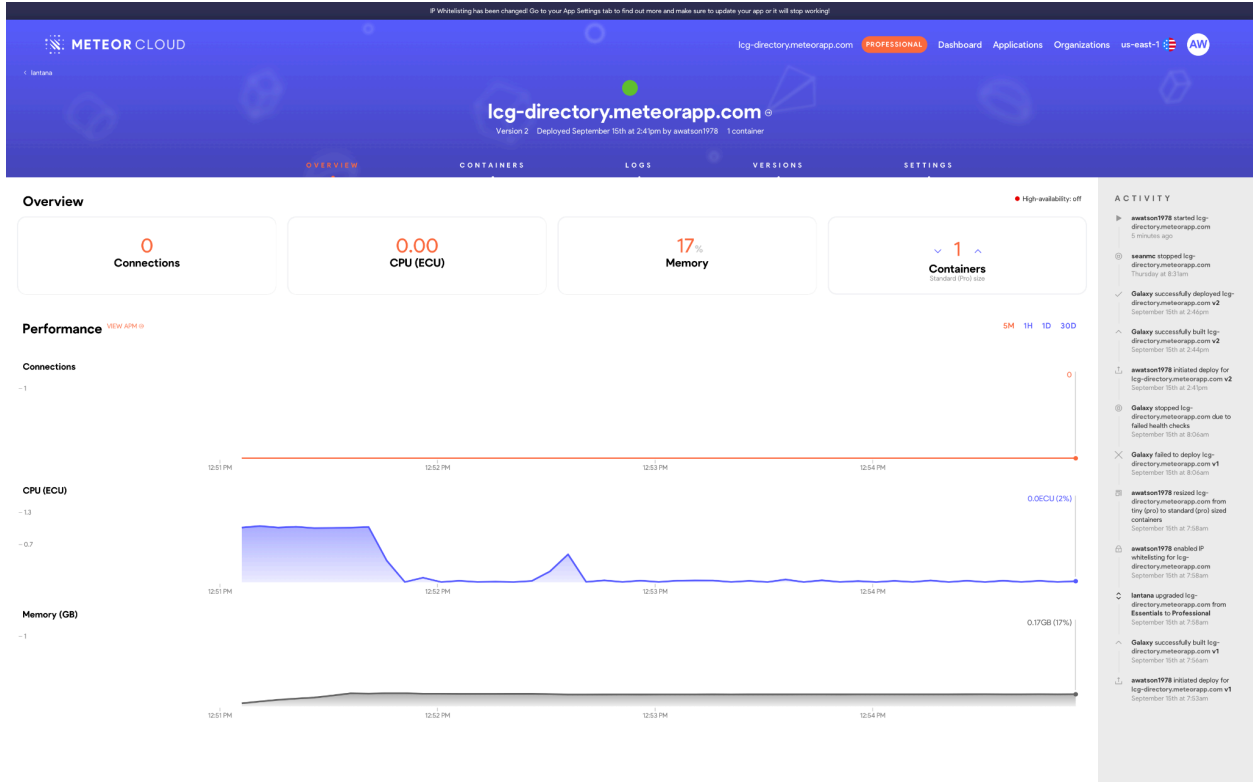
- Screenshots and/or links to further information

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```

Server Stats

5802256 Practitioners	1558786 Organizations	5594530 Locations	431054 Endpoints	1607 Healthcare Services	2 Insurance Plans
--------------------------	--------------------------	----------------------	---------------------	-----------------------------	----------------------

Search Parameters

Name					Number of Records
St. James Hospital					1000
City	State	Postal Code	Country		
	Illinois	60618	USA		
Practitioner Specialty	Endpoint Type				
Cardiologist	HL7 FHIR				
Healthcare Service	Insurance Plan				
Physical Therapy	BCBS PPO Silver				

SEARCH CLEAR SUBSCRIBE

No Search Results

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```

**TOUCHSTONE** HL7 FHIR - Test Systems - Organizations - Users - Docs - Abigail -

**Test Script Execution - /FHIR4-0-1-Basic/P-R/Practitioner/Client Assigned Id/Practitioner-client-id-json** ← To Test Execution

Exec ID: 202209121524205669242001      Description: FHIR Server Practitioner Basic Operation Tests - JSON - Client Assigned Resource Id - Create, Delete, History, Read, Search, Update, View. Support for referenced resource type Organization Update, Delete and Search is also required.

Start Time: 09/12/2022 02:24:20PM

End Time: **Running**

Duration: 312h 29m 18s

Version: 5

Validator: FHIR 4.0.1

Test Setup: Practitioner  
 Executed By: Abigail Robin Watson  
 Organization: MITRE  
 Origin: MITRE - Local Postman - national-directory.meteorapp.com  
 Destination: MITRE - National Care Directory <https://national-directory.meteorapp.com/baseR4>  
 Test Script: /FHIR4-0-1-Basic/P-R/Practitioner/Client Assigned Id/Practitioner-client-id-json

7 tests    0 passes    1 failures    0 warnings    0 skipped    10 running    0 waiting    5 not started    **0% successful** Refresh

Setup [show] Duration: 3.545s Status: **Passed**

Summary	0% passed	Pass	Fail	Warn	Other	Total
delete Organization	3	1	0	0	7	11
updateCreate Organization	1	0	0	0	1	1
delete Practitioner	1	0	0	1	2	2
history-instance Practitioner	0	0	0	1	1	1
read Practitioner	0	0	0	2	2	2
search-type Practitioner	0	0	0	1	1	1
update Practitioner	0	0	0	1	1	1
updateCreate Practitioner	0	1	0	0	1	1
viewed Practitioner	0	0	0	1	1	1

**Tests**

Test Name	Description	Status	Duration
Test: Step1-CreateNewPractitioner	Creates a new Practitioner in JSON format where the client assigns the resource id. The expected response code is 201 (Created) with a content of either the created Practitioner resource in JSON format, an OperationOutcome resource in JSON format or an empty payload.	Failed	158.740s

Action: **updateCreate - Practitioner**    Status: **Created**    Duration: **158.996s**    Details:

Origin: MITRE - Local Postman - national-directory.meteorapp.com  
 Destination: MITRE - National Care Directory <https://national-directory.meteorapp.com/baseR4>

Expected the following request:

```
Method: PUT
URL: https://touchstone.aegis.net:58388/baseR4/Practitioner/$create?resourceId={substitute variable}
Request: Body [example]
Headers: USER_KEY 3951506P4N0N040N0Z
Content-Type application/fhir+json
Accept application/fhir+json
```

Description: Create Practitioner with client assigned resource id

Type: updateCreate [show]

Resource: Practitioner

Submitted URL: <https://touchstone.aegis.net:58388/baseR4/Practitioner/0cd94bc05d410caaf15af6443967>

Forwarded URL: <https://national-directory.meteorapp.com:443/baseR4/Practitioner/0cd94bc05d410caaf15af6443967>

Definition: ...more [show]

Request: Method: PUT  
 Path: https://national-directory.meteorapp.com:443/baseR4/Practitioner/0cd94bc05d410caaf15af6443967  
 Origin IP: 136.226.6.177  
 Headers: Accept application/fhir+json  
 Accept-Encoding gzip, deflate, br  
 Connection keep-alive  
 Content-Length 933  
 Content-Type application/fhir+json  
 Cookie galaxy=sticky-GVaxp5ZLax6Z2qzI-zwz1  
 Host national-directory.meteorapp.com  
 Postman-Token 136dcab3-397b-4182-4b62-c3ba721c9c7  
 USER\_KEY 3951506P4N0N040N0Z  
 User-Agent PostmanRuntime/7.29.2  
 X-Forwarded-For 136.226.6.177  
 X-Forwarded-Host touchstone.aegis.net:58388  
 X-Forwarded-Proto https

Response: Body [show]

```
Status: HTTP/1.201 Created
Headers: Access-Control-Allow-Header *
Access-Control-Allow-Origin *
Cache-Control no-store
Content-Encoding gzip
Content-Type application/fhir+json;charset=utf-8
Date Mon, 12 Sep 2022 19:27:03 GMT
Etag R4
Last-Modified Mon Sep 12 2022 19:27:03 GMT+0000 (Coordinated Universal Time)
Measurereport baseR4/Practitioner/5pWRudj85h7Tj2
Pragma no-cache
```

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```

## 1 Organizations

Name	Phone	Email	Address	City	State	Postal Code	# Endpoints
Hartford General Hospital	(111)-222-3333		123 Main Street	Hartford	CT	00014-1234	0

1-1 of 1 &lt; &gt;

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

## 2 Organizations

Name	Phone	Email	Address	City	State	Postal Code	# Endpoints
Hartford General Hospital	(111)-222-3333		123 Main Street	Hartford	CT	00014-1234	0
St. Dymphna's Women's Shelter	(111)-222-3333		555 Side Street	Hartford	CT	00014-1234	0

1-2 of 2 &lt; &gt;

NEW ORGANIZATION TOGGLE SELECT LAYOUT FILTERS

- Discovered issues / questions (if there are any)
  - Lack of testers limited ability to test National Directory components with vendor solutions
- Now what?
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

- Collect feedback from connectathon to combine with ballot comments to assist with reconciliation

## FHIRcast

The FHIRcast track aimed to accomplish three related goals -- welcome and enable the broader community to learn and onramp to FHIRcast, to test and demonstrate interoperability, and also to progress the specification.

### Participants

Alex Z. Liu, Epic  
 Bas van den Heuval, Philips  
 Catie Ladd, Nuance  
 Eric Martin, Siemens.  
 Isaac Vetter, Epic  
 Mike Ross, Qvera - partial observer

### Notable achievements

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
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1678         <coding>
1679           <code value="BSeR Sessions Attended Observation Code"></code>
1680           <display value="Number of Appointments Attended"></display>
1681         </coding>
1682       </code>
1683       <subject>
1684         <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
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1690       </valueQuantity>
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```

The core group of FHIRcast experts came to our first connectathon to, in many cases, meet each other face to face for the first time!

We tested interoperability between the Epic test client and Nuance's hub, the Epic test client and Philips hub, the Philips client and the Nuance hub.

## What's next?

With a steadily increasing number of production uses of FHIRcast for simple context exchange, the focuses for the project are refining and clarifying the specification while preserving backward compatibility, while advancing the more sophisticated content sharing use-case.

In practice, the group FHIRcast work group is spending significant time and energy continuing STU3 ballot reconciliation. Join us! Infrastructure & Messaging - Tuesday mornings US at 10a Eastern!

# ICHOM Breast Cancer Track

## Summary

Testing the ICHOM Breast Cancer FHIR IG for both the creators and consumers, accurately representing the data that needs to be created as well as receiving it, in accordance with intended use of the ICHOM Breast Cancer Patient Reported Outcome Measure (PCOM).

In particular, we will focus on testing both the clinical content and PROMs content:with focus on the following scenarios covered:

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```
1667 </entry>
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

- FHIR <-> Power Apps using Microsoft FHIR Server. Showing two-way integration. Scenarios covered:
  - Whenever a Patient registration in the Back Office System is made, send it to the FHIR Server [1].
  - Whenever a Questionnaire Response is uploaded on FHIR Server, send it to the Back Office system for validation [2].
  - Whenever one of the above occurs, send a Teams message (could be anything, like collecting BI reports, doing additional post-processing, initiating different flows) [3].
- Pre-population of Questionnaires using FHIR SMART Launch Context. Initial work on the pre-population of the questionnaires based on data existing currently in the FHIR server where the Questionnaire is hosted. On form load, before user interaction, the information available is prepopulated in the questionnaire, so the Patient does not need to fill it up [4].

The Connectathon focus is on Implementing both Questionnaires and profiles in independently developed systems.

## Participants

Name	Organization
Hristo Ivanov	Mysynergy
Ward Weistra	Firely
Vadim Peretokin	Philips Healthcare
Kurt Allen	PenRad

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
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- Successfully demonstrated the Identity Matching reference implementation and

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1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

Chris Melo	Philips Healthcare
Greg Robinson	ICHOM

## Notable Achievements

### Day 1

We had the unexpected pleasure of additional participants join our track for testing. This session quickly became productive and interactive, during which we covered:

- Hristo Ivanov (Mysynergy) FHIR Server receiving/sending data related to ICHOM IG
- Questionnaire prepopulation was explored
- Ward Wiestra (Firely) receipt/sending data related to ICHOM IG
- Kurt Allen (PenRad) sending questionnaire data to Ward Wiestra; successfully received and retrieved
- Kurt Allen evolved his questionnaire tool to add patient references
- Kurt Allen sent data over to Hristo's authenticated server; Hristo analysed it and sent a notification to MS Tteams with the data; message received in Teams
- Hristo updated questionnaires to use value-quantity in height/weight
- Hristo added prepopulation to patient demographics

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
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1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
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1675         <text value="procedure"></text>
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```

## Day 2 10:00-12:00 Session

With less attendees, we were able to focus on Day 1 uncovered issues. So, this session continued with the testing of prepopulation methods

- Testing continues with Questionnaire Prepopulation
  - Testing using patient resource, and gathering data for use in form prepopulation
- Testing of prepopulation into Kurt Allen's FHIR application using patient data

## Screenshots

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```
1669 </entry>
1670 <entry>
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1692   </resource>
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

## ICHOM Questionnaire App - Clinical Response

The screenshot shows a web-based questionnaire interface for clinical response at 6 months post-treatment follow-up. The form is organized into four main sections:

- General information:** Includes fields for 'What is the patient's medical record number?' (value: 001) and 'What is the patient's last name?' (value: LastName).
- Tumor factors:** Includes questions about genetic mutations (value: No mutation), surgery (radio button selected), and various AJCC stages (pTX, pN0, pM0). It also includes fields for tumor size (Type a number) and number of lymph nodes resected/involved (value: 999).
- Treatment Variables:** Includes questions about treatment received (Select one or more), re-operations (value: No), and current systemic treatment (value: no, never had systemic treatment).
- Disability of care:** Includes questions about the impact of complications (value: No complication) and whether the complication is attributable to treatment (value: No).

The interface is displayed in a Windows application window titled 'MainWindow' with a standard menu bar (File, Store, Exit) and a taskbar at the bottom showing the Start button and system tray.

## Send Teams Messages


- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and


```


1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
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1675 <text value="procedure"></text>
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1690 </valueQuantity>
1691 </Observation>
1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```


0022489e5114","resourceVersionId":1},"eventType":"Microsoft.HealthcareApis.FhirResourceCreated","dataVersion":"1","metadataVersion":"1","eventTime":"2022-09-05T08:16:47.5917021Z"]}]

 Hristo Ivanov via Power Automate 5.09 r. 11:24  
 [{"id":"7cfc0262-be56-56d5-b0ff-08b2a5d62360","topic":"/subscriptions/67a0ec8b-86fb-485b-91f0-6cbd5401e971/resourceGroups/fhir/providers/Microsoft.HealthcareApis/workspaces/hristo","subject":"hristo-ouch.fhir.azurehealthcareapis.com/Patient/2f1370b2-a92a-ed11-9db1-0022489e5114","data":{"resourceType":"Patient","resourceFhirAccount":"hristo-ouch.fhir.azurehealthcareapis.com","resourceFhirId":"2f1370b2-a92a-ed11-9db1-0022489e5114","resourceVersionId":2},"eventType":"Microsoft.HealthcareApis.FhirResourceUpdated","dataVersion":"2","metadataVersion":"1","eventTime":"2022-09-05T08:24:34.3723882Z"}]

 Hristo Ivanov via Power Automate 5.09 r. 13:03  
 Updated Patient!  
 URL: hristo-ouch.fhir.azurehealthcareapis.com/Patient/2f1370b2-a92a-ed11-9db1-0022489e5114


 Hristo Ivanov via Power Automate 5.09 r. 15:31  
 Updated Patient!  
 URL: hristo-ouch.fhir.azurehealthcareapis.com/Patient/2f1370b2-a92a-ed11-9db1-0022489e5114

Patient:  
 Вихрониев

 Hristo Ivanov via Power Automate 5.09 r. 16:33  
 Updated Patient!  
 URL: hristo-ouch.fhir.azurehealthcareapis.com/Patient/2f1370b2-a92a-ed11-9db1-0022489e5114

Patient:  
 Костандов

Yesterday

 Hristo Ivanov via Power Automate Yesterday 22:24  
 New Response:  
 hristo-ouch.fhir.azurehealthcareapis.com/QuestionnaireResponse/7c4df259-6555-4e10-a614-9bd0d428e38b

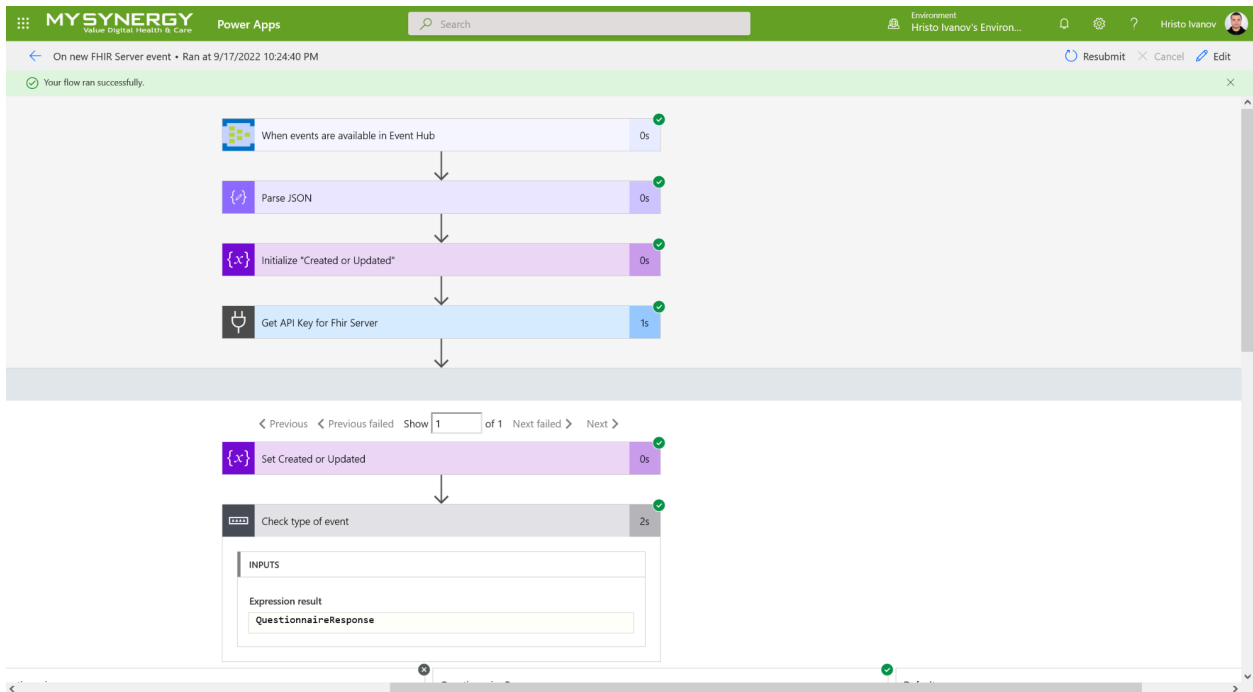
## Prepopulation of Questionnaire Data

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
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1674 <category>
1675 <text value="procedure"></text>
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1681 </coding>
1682 </code>
1683 <subject>
1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685 </subject>
1686 <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687 <valueQuantity>
1688 <value value="8"></value>
1689 <unit value="1"></unit>
1690 </valueQuantity>
1691 </Observation>
1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```



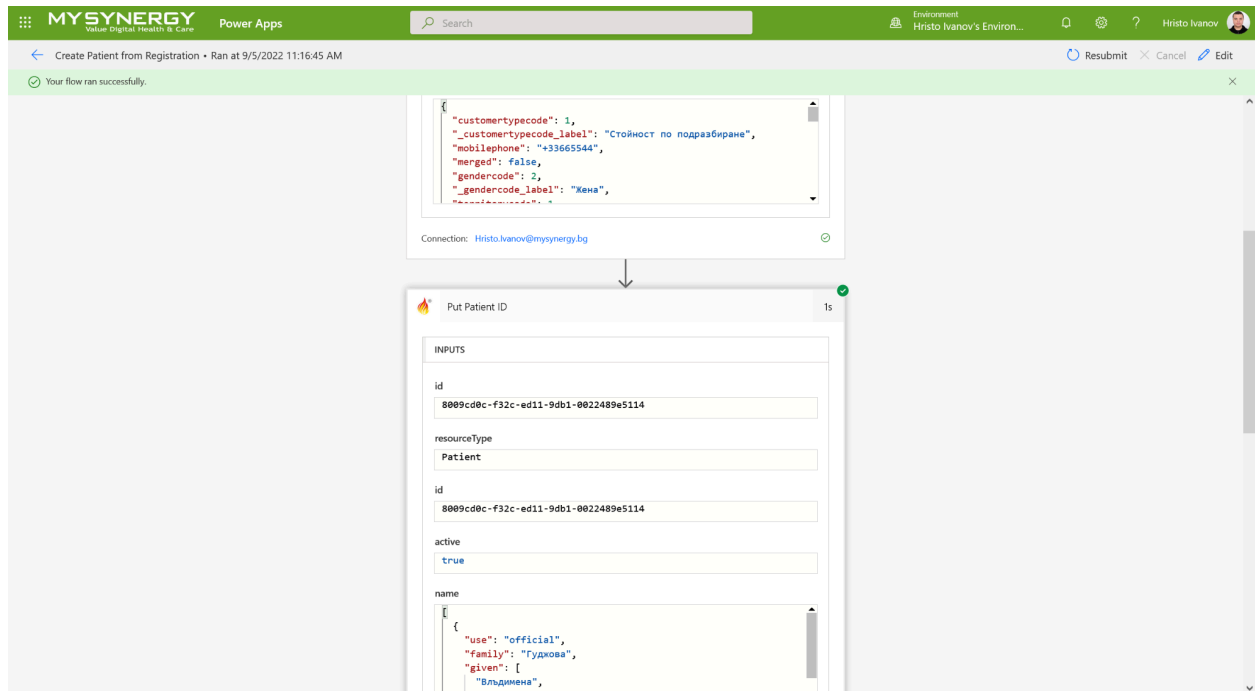
## Send Patient to FHIR Server

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
1673 <status value="final"></status>
1674 <category>
1675 <text value="procedure"></text>
1676 </category>
1677 <code>
1678 <coding>
1679 <code value="BSeR Sessions Attended Observation Code"></code>
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1682 </code>
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1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
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1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```



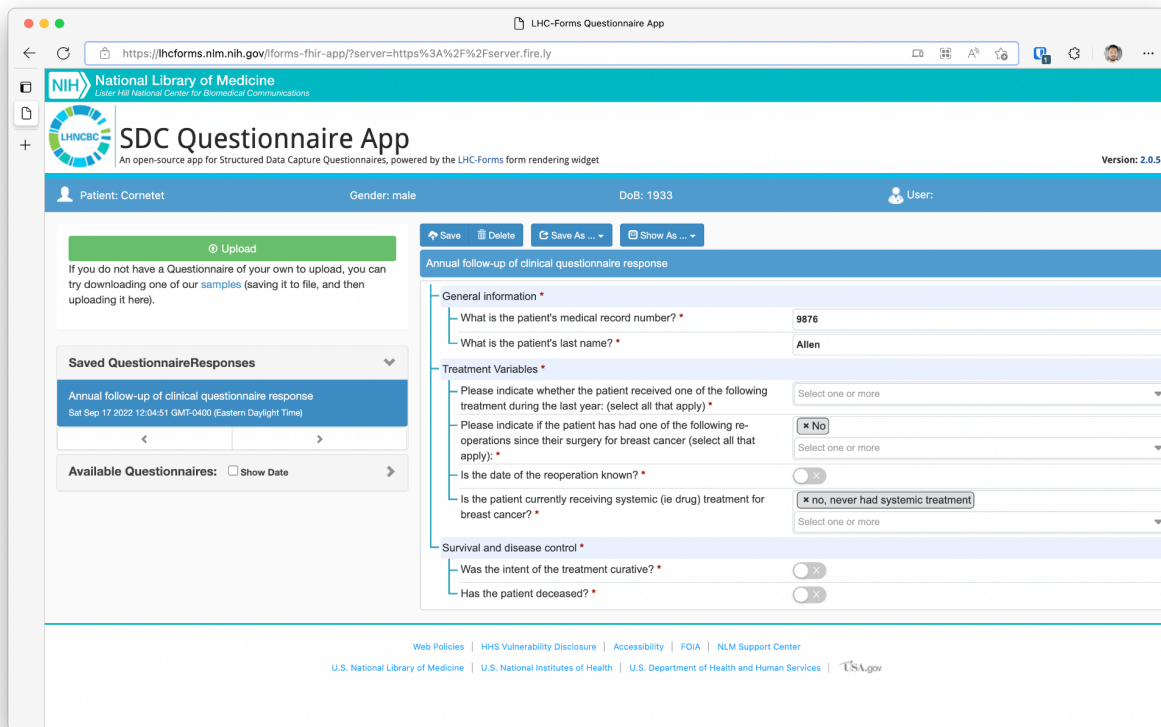
## SDC Questionnaire App

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
1673 <status value="final"></status>
1674 <category>
1675 <text value="procedure"></text>
1676 </category>
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1681 </coding>
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1689 <unit value="1"></unit>
1690 </valueQuantity>
1691 </Observation>
1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```



## Discovered Issues/General Notes

- Great discussion concerning general usefulness of the data contained within the Set
- Understanding of redundant data being collected
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

```

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1689 <unit value="1"></unit>
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1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

- Reported erroneous SDC profile tag to LHC about lhforms
- Ward found that we're asking duplicate information on patient even though we're linked to the patient resource
- Renamed discrete resources to profiles
- Patient ID - changed from numerical to text
- FHIR#38640 reported by Ward yesterday on the possible data duplication
- FHIR#38641 reported by Ward on the wrong code Tis in two Observations
- FHIR#38642 reported by Ward on the Questionnaire narratives
- Add more pages and resources to Jira for ICHOM

## Now What?

- Continue testing with additional partner, The Clinician at end of September
- Refinements as follows:
  - Patient ID to be changed from numerical to text within ICHOM PCOM Set
  - Eliminate duplicate information gathering
  - Evolve questionnaire prepopulation with additional logic or intelligent data gathering
  - Register new value sets and code systems with UTG
  - Review full specification context
    - define Must Support & document it
  - Update Questionnaires to ICHOM 5.0 July set update
  - QI Core, IPS, and IPA alignment
  - AJCC codes publication
- Prepare documentation for FMG submission for ballot review
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```

# Imaging

- **What was the track trying to achieve?**

- Validate DICOM SR to FHIR Observation IG and associated resources
  - New FHIR R5 resource ImagingSelection

- **List of participants**

- Canon Medical
- Mayo Clinic
- Philips
- Qvera

- **Notable achievements**

- Several participants implemented IG from scratch during Connectathon
  - Python
  - Java
  - Qvera mapping tools

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

- **Screenshots and/or links to further information**

- <https://touchstone.aegis.net/touchstone/scriptexecution?exec=202209171652317967661811&qn=/FHIR4-0-1-Connectathon31/Imaging/DicomSrMappingCollection>
- ImagingSelection test

```
"resource": {
  "resourceType": "ImagingSelection",
  "id": "fa8e0948175f3117a3b8c4be2ff972ec",
  "status": "registered",
  "subject": {"reference": "Patient/acb045960122378999c97cd7ca532f8b"},
  "code": { "coding": [{
    "system": "http://dicom.nema.org/resources/ontology/DCM",
    "code": "121191",
    "display": "Referenced Segment"}]},
  "derivedFrom": [{"reference": "ImagingStudy/3062949fdd063819b50c2c22fb3fe6ef"}],
  "instance": [{
    "uid": "1.2.276.0.7230010.3.1.4.0.57823.1553343864.578878",
    "sopClass": {
      "system": "urn:ietf:rhc:3986",
      "code": "urn:oid:1.2.840.10008.5.1.4.1.1.66.4"
    }
  }],
  "subset": ["1"]
}
```

- **Discovered issues / questions (if there are any)**

- Hard to find R5 servers / many libraries and tools not yet updated
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```
1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
1673 <status value="final"></status>
1674 <category>
1675 <text value="procedure"></text>
1676 </category>
1677 <code>
1678 <coding>
1679 <code value="BSeR Sessions Attended Observation Code"></code>
1680 <display value="Number of Appointments Attended"></display>
1681 </coding>
1682 </code>
1683 <subject>
1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685 </subject>
1686 <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687 <valueQuantity>
1688 <value value="8"></value>
1689 <unit value="1"></unit>
1690 </valueQuantity>
1691 </Observation>
1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>
```

- **Now what?**

- Some further work needed on IG
- Hoping to have more R5 resources to work with in January

International Patient Access (IPA) Track

- What was the track trying to achieve?
- List of participants (with logos if you have time and energy)
- Notable achievements
- Screenshots and/or links to further information
- Discovered issues / questions (if there are any)
- Now what?

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

# International Patient Summary

## What was the track trying to achieve?

- Promote the sharing of experiences
- Identify tools and resources for IPS examples and validation
- Identify gaps and pitfalls in the IPS adoption

## List of participants

Robert Hausam, Hausam Consulting  
John D'Amore, More Informatics  
Rene Spronk, Firely  
Peter Jordan, HL7 New Zealand  
Alexander Zautke, Firely  
Steve Moore, Washington University  
Giorgio Cangioli, HL7 Italy  
Bakha Nurzhanov, Amazon  
Alexander Henket, Nictiz Netherlands  
Andrea K Fourquet, eHealth Sign  
Jean Duteau, Duteau Design Inc

## Notable achievements

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
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```

Testing of a textual representation of IPS (and other FHIR Documents). Rene Spronk brought an old fashioned but powerful Gopher tool to test our APIs (<http://fhirgopher.xyz/>). This tool was downloaded and demonstrated by Rene and also experimented by Steve Moore. It was both a static GitHub repository and live FHIR server (ips.health)

Implementation and active development of an IPS reference server at <https://ips.health> This server supports the \$summary operation to generate an IPS document. This is an open-source developed server with code changes to the HAPI server publicly available: [https://github.com/CrossroadsLabs/hapi-fhir/commits/rb\\_id\\_ips](https://github.com/CrossroadsLabs/hapi-fhir/commits/rb_id_ips) This server will eventually be moved to HL7 hosting (and an HL7 repository). The pipeline for IPS generation follows these steps:

1. Get all resources related to the patient specified
2. Initialize Bundle and Composition
3. Assign resources by ResourceType, category or code to 14 IPS sections (see Filtering Logic for more information)
4. Evaluate if required resources are missing for required sections. If no resources found, create pseudo resource. a. Allergies List b. Problem List c. Medication List
5. Filter out resources (see Filtering Logic for more information)
6. Bundle pruning: removal of resources which have been filtered out in pipeline (See Narrative Generation)
7. Generate narrative for Composition.section

More documentation is available here:

[https://github.com/jddamore/fhir-ips-server/blob/main/docs/Summary\\_Creation\\_Steps.md](https://github.com/jddamore/fhir-ips-server/blob/main/docs/Summary_Creation_Steps.md)  
(note that ultimate repository may move)

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
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1698       <title value="Interim Referral Feedback Report"></title>
```

Significant discussion was had around the content that should be displayed in the human rendered narrative of IPS document. Additional discussion continuing on <https://chat.fhir.org>

Active interaction with New Zealand server:

[https://terminz.azurewebsites.net/fhir/Patient/\\$summary?profile=http://hl7.org/fhir/uv/ips/StructureDefinition/Bundle-uv-ips&identifier=https://standards.digital.health.nz/ns/nhi-id|NNJ9186&\\_format=application/json](https://terminz.azurewebsites.net/fhir/Patient/$summary?profile=http://hl7.org/fhir/uv/ips/StructureDefinition/Bundle-uv-ips&identifier=https://standards.digital.health.nz/ns/nhi-id|NNJ9186&_format=application/json)

A joint session was held with IPA which involved several additional participants as well as several people who joined online via Zoom. Online notes available here:

<https://chat.fhir.org/#narrow/stream/261969-IPA/topic/connectathon.20IPS.20FIPA.20breakout.20at.2011a.20this.20morning!.20Room.20chan>

Development of a loading script (JavaScript) which can take a Bundle (either document or transaction type) and can decompose individual resources for loading. It also can load a directory of resources in separate files. See

Several ticket dispositions were determined and the IPS FHIR IG continues to move toward a new publication. Release candidate noted in github:

<https://github.com/HL7/fhir-ips/releases/tag/2.0.0-rc1>

Publication update reviewed with group. See

<https://chat.fhir.org/#narrow/stream/207835-IPS/topic/IPS.20Publication.20Updates.2028Sept.202022.29>

## Screenshots and/or links to further information

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

## ips.health IPS Reference Implementation Server

HAPI FHIR

### FHIR R4 (More Informatics)

This server is built to support the International Patient Summary (IPS) through an adaptation of the [HAPI FHIR](#) project, which is a 100% open-source (Apache 2.0 Licensed) Java based implementation of the FHIR specification.

This server supports a HL7 FHIR R4 \$summary operation to retrieve a document Bundle that conforms to the [FHIR Implementation Guide for IPS](#). You can load data using standard FHIR R4 API interactions and generate new summaries. The server has been pre-loaded with a set of example patients to demonstrate IPS documents. This server and the supporting code are under active development and may change. Reach out through the [HL7 FHIR community](#)

Here are some useful links to learn more:

- [General IPS Introduction](#)
- [Project Overview](#)
- [Example Documentation](#)
- [Server Documentation](#)
- [Health Level Seven \(HL7\), International](#)
- [More Informatics \(John D'Amore, contributor/hosting\)](#)
- [Crossroad Labs \(Rio Bennin, developer\)](#)
- [Hausam Consulting \(Rob Hausam, contributor\)](#)

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```



cmd C:\WINDOWS\system32\cmd.exe

```
Patient 18c3886a-d5e8-467d-a21a-965e14798aa2 loaded
Organization d3be6f88-cfde-4560-81a7-94714f9e966d loaded
Organization c477e277-78da-4d41-9e48-a7481ca24a60 loaded
Organization 81a8fb49-9fe0-4b3e-843a-71f429949ef4 loaded
Organization c5d1da00-7c79-48c0-a5f3-05dd36127f03 loaded
Organization bf258598-158a-4b53-af91-debffe288de1 loaded
Practitioner 76ff83ef-ac31-430e-ada6-7c57040e7e3c loaded
Practitioner 548d5be6-728d-4914-afa9-ec91c93443a0 loaded
Practitioner c999c55e-2b15-4641-bfe5-b86640f698aa loaded
Practitioner 149ca65a-a177-49df-b064-fb73369b0543 loaded
Practitioner ced39e3d-daca-47e6-beb1-014c714a628f loaded
AllergyIntolerance aa10ac4a-bff0-4991-9ec9-6b28f9fb28d6 loaded
AllergyIntolerance d963c366-5e0e-4a1a-932d-f77d25b2870f loaded
AllergyIntolerance 8095fa63-4555-492d-8e90-6c76cebbfea3 loaded
AllergyIntolerance 16726e6a-e1c1-42d7-a8b8-2085253e2224 loaded
AllergyIntolerance 9d70c666-5737-47e1-8e68-d8f6999cb8ac loaded
CarePlan a4f911b3-f938-401a-8f37-b3c021129184 loaded
CarePlan d887760f-3c8b-4c06-bc27-02deda74ab54 loaded
CarePlan 7f7d9c09-e03c-40ad-9fc4-004dbccec112 loaded
CarePlan e43e205f-4a3c-434e-aa3e-a17ad2b5edf6 loaded
CarePlan ff2166a7-43e2-4215-9721-d1c21ed9595e loaded
```

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1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>
```

# International Patient Summary (IPS) Viewer for Connectathon

Links to [published Implementation Guide](#) and the [latest CI build](#)

Please note that this tool is an open-source project under development. It only renders the following sections of IPS bundles: Allergies, Immunizations, Medications, Problems and Results

## Submit Data

This is for test data only. **Please do not submit PHI.**

Paste your IPS here:

```
{
  "resourceType": "Bundle",
  "identifier": {
    "system": "urn:ietf:rfc:4122",
    "value": "79cd2332-81b0-4bb5-bd8b-966a7769ce43"
  },
  "type": "document",
  "timestamp": "2022-09-18T18:53:38.019+00:00",
}
```

Try a sample

[Repository of IPS Samples](#)

Clear

View IPS

Displaying Entries Content ▾

## Discovered issues / questions (if there are any)

- An IPS bundle sample had references that did not resolve. The sample was updated in IPS examples repository:  
[https://github.com/jddamore/IPSviewer/tree/main/samples/validated\\_samples](https://github.com/jddamore/IPSviewer/tree/main/samples/validated_samples)
- Code changes made to create a valid IPS bundle using ips.health
- Review and feedback on the narrative generation pipeline
- Places where error codes are not appropriate given the HAPI default response to OperationOutcome when UUID id strategy enforced

## Now what?

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>
```

- Going to present to International Council at WGM
- Going to present two block votes for voting at Patient Care at WGM. See <https://chat.fhir.org/#narrow/stream/207835-IPS/topic/Block.20Votes.20for.20Sept.202022.20WGM>
- Handoff of the IPS Reference Implementation planned for HL7
- Continue work to compare IPA vs. IPS profiles
- Publish the release candidate of IPS (STU update publication) <http://build.fhir.org/ig/HL7/fhir-ips/>

#### Longitudinal Maternal & Infant Health Information for Research

- What was the track trying to achieve?
- List of participants (with logos if you have time and energy)
- Notable achievements
- Screenshots and/or links to further information
- Discovered issues / questions (if there are any)
- Now what?

## ONC Certification (g)(10) Standardized API Testing

- What was the track trying to achieve?
  - Test server implementations with these Implementation Guides: US Core, SMART App Launch, and Bulk Data Export
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

- List of participants (with logos if you have time and energy)
  - SMART on FHIR
  - Allscripts/Veradigm
  - MITRE
  - Drummond Group
  - Edenlab
  - Epic
  - MEDITECH
  - BCH
  - HealthAll
- Notable achievements
  - Drummond demonstrated the Certification Testing Process
  - Discussion with IG authors about implementation questions and future releases
- Screenshots and/or links to further information
- Discovered issues / questions (if there are any)
  - Reference resolution for references with test only
    - Issued raised to CGP to patch US Core v3.1.1
  - Search parameter combination that server does not support
    - Server implementation considers to ignore unsupported parameters as instructed in FHIR search page
- Now what?

Many certified products will be testing (g)(10) between now and December 31.

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```

# Patient Track

The Patient Track continues to provide a good starting point for those wanting to learn about FHIR and how it works. The formal testing component is also helpful for introducing FHIR Testing and Conformance approaches that help ensure success for both IG designers as well as FHIR implementers. In addition to the participants listed below, there were others who stopped by and learned about how the FHIR Connectathon in general works and what its mission and goals are as well as how the FHIR Testing and Conformance frameworks can improve interoperability in the real world.

## Participants:

Alison Kemp, ONC  
Himali Saitwal, EMI Advisors LLC  
Tushar Mohapatra, CVS Health  
Dr. Phil DePalo, IHE  
Jose Lacal, NIHPO Inc  
Dr. Igor Yuabov, Children's Hospital of Philadelphia  
Dorothy Egan, Tata America Int'l Corp  
Kendrah Baker, MiHIN  
Amber Weeks, MiHIN  
Bakha Nurzhanov, Amazon Web Services  
Ron Shapiro, Qvera

## Achievements:

Many participants were able to successfully create, update, search and delete a FHIR Patient resource as a FHIR Client as well as a FHIR Server. Participants also found success using the

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

AEGIS Touchstone testing tool to complete the Patient Track formal testing scenarios. Track participants were then able to move on to other tracks to do further testing.

### Questionnaire

- What was the track trying to achieve?
- List of participants (with logos if you have time and energy)
- Notable achievements
- Screenshots and/or links to further information
- Discovered issues / questions (if there are any)
- Now what?

## SDOH and Human Services Care Planning Track

- **What was the track trying to achieve:**

The HHS Administration of Child and Families Interoperability and Innovation Program goal is to improve quality outcomes for children and families. Leveraging other HL7 work efforts, the track will build on various efforts of exchanging and using SDOH and Human Services data in making the data accessible for the care team and patient in a FHIR R4 compliant person-centric server based on multiple consent directives. The focus of this track will be child welfare educational use cases and person consent directives.

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```
1667 </entry>
1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
1677       <code>
1678         <coding>
1679           <code value="BSeR Sessions Attended Observation Code"></code>
1680           <display value="Number of Appointments Attended"></display>
1681         </coding>
1682       </code>
1683       <subject>
1684         <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685       </subject>
1686       <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687       <valueQuantity>
1688         <value value="8"></value>
1689         <unit value="1"></unit>
1690       </valueQuantity>
1691     </Observation>
1692   </resource>
1693 </entry>
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

- **List of participants:**



- **Notable Achievements (with Screenshots and Further Information):**

The ACF Development Server, sitting on Google Cloud, hosts the Operational Data Hub which is care coordination and care management software that is being shared as the open source ACF ODH Community Edition (see the FHIR Server Block in the “Systems - Actors list below).

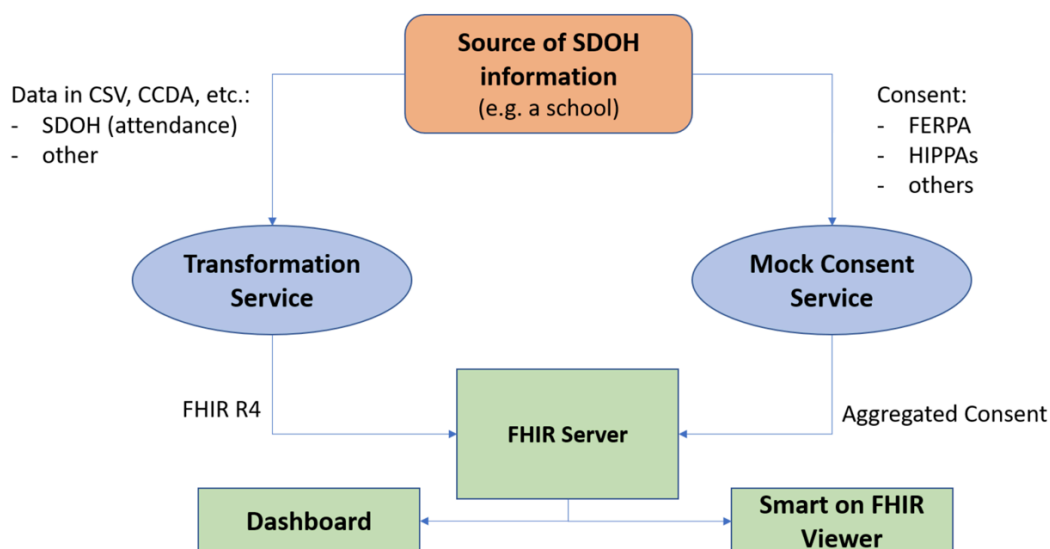
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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- Successfully demonstrated the Identity Matching reference implementation and

```

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1693 </entry>
1694 <entry>
1695 <resource>
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1697 <status value="final"></status>
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```

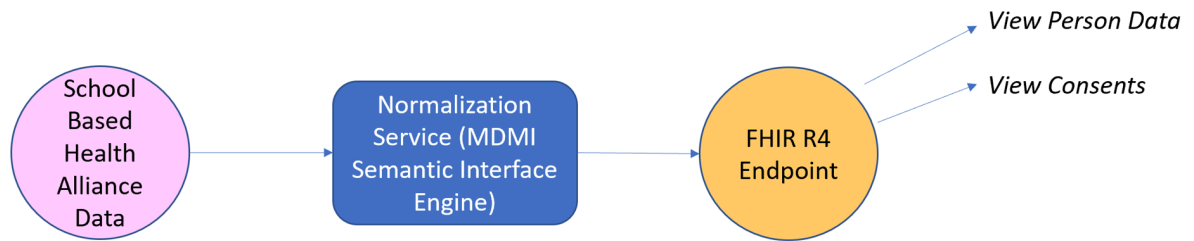
# Systems - Actors



First, our track took school-based data (absenteeism data/school health clinic data) and mapped it to FHIR R4 and ingested the data into the FHIR R4 Endpoint:

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

The screenshot shows the Postman interface for a REST client configuration. The workspace is named "Team Workspace". The collection is "SBHA-Demo / SBHA\_DemographicsToFHIR". The request method is "POST" and the URL is "((test-url))?source=SBHA.Demographics&target=FHIRR4JSON.MasterBundle". The query parameters are:

KEY	VALUE
source	SBHA.Demographics
target	FHIRR4JSON.MasterBundle

The response body is a JSON object representing an FHIR entry:

```

2  "entry": [
3    {
4      "request": {
5        "method": "POST",
6        "url": "Patient"
7      },
8      "resource": {
9        "extension": [
10       {
11         "extension": [
12           {
13             "valueCoding": {
14               "system": "urn:oid:2.16.840.1.113883.6.238",
15               "code": "2135-2",
16               "display": "Hispanic or Latino"
17             },
18             "url": "ombCategory"
19           }
20         ],
21         "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-ethnicity"
22       }
23     }
24   ]
25 }

```

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```

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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```

Secondly, our track also created, posted, and retrieved Consents on the Google Cloud Healthcare API, specifically the Consent Management API:

```
Windows PowerShell
gcCloud help -- SEARCH_TERMS
PS C:\Users\gargi> $cred = gcCloud auth application-default print-access-token
>> $headers = @{ Authorization = "Bearer $cred" }
>>
>> Invoke-WebRequest `
>> -Method Get `
>> -Headers $headers `
>> -Uri "https://healthcare.googleapis.com/v1/projects/zanenet-acf/locations/us-central1/datasets/dev-zanenet-acf/consentStores/ConsentDateStore/consents" | Select-Object -Expand
```

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```
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1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>
```

```

{
  "consents": [
    {
      "name": "projects/zanenet-acf/locations/us-central1/datasets/dev-zanenet-acf/consentStores/ConsentDateStore/consents/19ea0fc6-e338-44d6-8745-ad65f3f9f842",
      "userId": "35d2996b-cfe1-4e7b-a169-01988d1c2cf9",
      "consentArtifact": "projects/zanenet-acf/locations/us-central1/datasets/dev-zanenet-acf/consentStores/ConsentDateStore/consentArtifacts/4e55644d-ead5-4fad-bb59-e93b33ab1f0e",
      "state": "ACTIVE",
      "revisionId": "be805257",
      "revisionCreateTime": "2022-09-16T12:22:55.879863Z",
      "expireTime": "2022-09-17T12:16:15.850259331Z"
    },
    {
      "name": "projects/zanenet-acf/locations/us-central1/datasets/dev-zanenet-acf/consentStores/ConsentDateStore/consents/8bb5b5ff-a624-4ab7-904c-a3cb8316f1e8",
      "userId": "2b4d6383-5b1a-43fd-96b1-944254d9f15b",
      "consentArtifact": "projects/zanenet-acf/locations/us-central1/datasets/dev-zanenet-acf/consentStores/ConsentDateStore/consentArtifacts/af8f3a18-0dc7-4584-ad67-5aeb5e634fc7",
      "state": "ACTIVE",
      "revisionId": "58f79051",
      "revisionCreateTime": "2022-09-16T12:03:19.653363Z",
      "expireTime": "2022-09-17T11:56:39.610652471Z"
    }
  ]
}

```

### ACF DEV ODH BOX Smart on FHIR Launch for Consent:

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```



Name **Robert Lee**      Gender **Female**      Gender Identity      Phone **619-456-3723**      SIL Score      Medicaid ID **XXXXXXXX6789**

SMART Apps

MEDICAL REFERRAL x BEHAVIORAL HEALTH x SOCIAL SERVICES x

Reload Add Goal

Goal	Status	End Date	Action

CARETEAM'S TASKS x ATTACHMENTS x OBSERVATIONS x CONDITIONS x

Reload New Task

The tasks for **Robert Lee** are :

Include:  Cancelled  Completed  Show all practitioner tasks

Activity Type	Description	Owner	End Date	Action

CLIENT'S CARE TEAMS x RELATED PERSONS x CLIENT'S COMMUNICATIONS x CLIENT'S INSURANCE/BENEFITS x

New Care Team

The care teams for **Robert Lee** are :

Name	Status	End Date	Telecom	Action

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

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1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```

**Robert Lee**

Identifier  
null: 675432456789  
SSN: XXXXX7667  
null: OCP-DEV-DVYLU8THKA

MRN

DOB  
09/12/2011

Gender  
Female

---

^ Patient's Consents

[+ Add A New Consent](#)

<p>Authorized to share: - Omnibus Care Plan (SAMSHA)</p>	<p>Sharing with: - Omnibus Care Plan (SAMSHA) - Robert_Lee_2022-09-15 17:32:27.885</p>	<p>Effective dates: 09/17/2022 - 09/17/2023</p>	<p><a href="#" style="font-size: small;">Less Details</a></p>
<p>Share the following purposes:</p> <div style="display: flex; gap: 10px;"> <div style="background-color: #e2e3e5; border-radius: 10px; padding: 2px 10px; display: flex; align-items: center;"> <input checked="" style="width: 15px; height: 15px; margin-right: 5px;" type="checkbox"/> <span>Treatment</span> </div> </div>			
<p>Consent state: <b>DRAFT</b></p>			<p><a href="#" style="background-color: #4a5568; color: white; padding: 5px 15px; border-radius: 5px;">Manage Consent</a></p>

Records : < 1 - 1 > / 1

- **Discovered Issues/Questions:**

- Issues surrounding adding Policies (who can view the data/which organizations can view the data) into the actual Consent
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

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```

- How to computationally address school-based consent (FERPA) versus healthcare based consent (HIPAA) in the ACF ODH Dev Environment (and in general; policies, etc.).

- **Now What/ Next Steps:**

- o Setup a FHIR endpoint in the ACF ODH Dev box to load the output data from SBHA
- o Launch a Provider Viewer from the ACF ODH Dev box to show the FHIR R4 data from the conversion School Based Health Alliance Data (CSV files)
- o Continue to advance the Consent ingestion into the ACF ODH Environment for loading, query, and retrieval (FERPA versus HIPAA, etc.).

#### SPL to FHIR and Back

- What was the track trying to achieve?
  - List of participants (with logos if you have time and energy)
  - Notable achievements
  - Screenshots and/or links to further information
  - Discovered issues / questions (if there are any)
  - Now what?
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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1697 <status value="final"></status>
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```

## Subscriptions

- What was the track trying to achieve?
- List of participants (with logos if you have time and energy)
- Notable achievements
- Screenshots and/or links to further information
- Discovered issues / questions (if there are any)
- Now what?

## Terminology Service / Gender Harmony

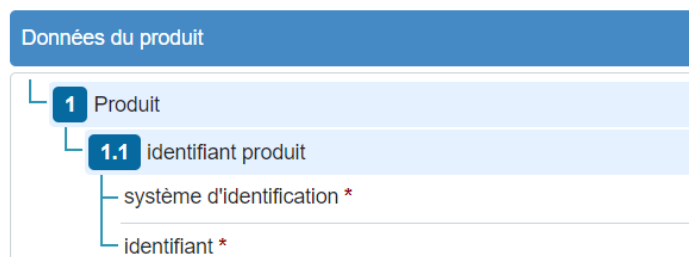
- What was the track trying to achieve?
- List of participants (with logos if you have time and energy)
- Notable achievements
- Screenshots and/or links to further information
- Discovered issues / questions (if there are any)
- Now what?

# Questionnaire

- What was the track trying to achieve?
  - Testing and implementation of the Structured Data Capture Implementation Guide
- List of participants (at least present briefly)
  - Kurt Allen
  - Grahame Grieve
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1697 <status value="final"></status>
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```

- Paul Lynch
- Bill Lober
- Lloyd McKenzie
- Lisa Nelson
- Vadim Peretokin
- Brian Postlethwaite
- Jose Costa Teixeira
- Ye Wang
- Ward Weistra
- Notable achievements
  - Collaborated on fhirpath.js enhancements
  - Work on definition-based \$extract
  - Worked on adding support for the translation
  - Added support for entryForm to LHC-Forms
- Screenshots and/or links to further information
  - Early translation support in LHC-Forms:



- Discovered issues / questions (if there are any)
  - Should the Questionnaire declare what languages it supports?
  - Uncovered an issue with the NLM SMART on FHIR app
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1690 </valueQuantity>
1691 </Observation>
1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

- Should a Questionnaire with a question that is read-only, required, and without an initial value be valid?
- Now what?
  - Continued work on resolving tracker items for the SDC IG, and on implementations.

## TestScript and FHIR Testing

- What was the track trying to achieve?
  - Demonstrate approaches for IG authors to create tests either through FSH or auto-generation tools.
  - Demonstrate interoperability between testing systems.
  - Easily (zero-effort or low-effort) build and integrate TestScripts as artifacts within an IG.
- List of participants (with logos if you have time and energy)



- AEGIS A E G I S

- MITRE **MITRE**

- Notable achievements
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
1673 <status value="final"></status>
1674 <category>
1675 <text value="procedure"></text>
1676 </category>
1677 <code>
1678 <coding>
1679 <code value="BSeR Sessions Attended Observation Code"></code>
1680 <display value="Number of Appointments Attended"></display>
1681 </coding>
1682 </code>
1683 <subject>
1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685 </subject>
1686 <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687 <valueQuantity>
1688 <value value="8"></value>
1689 <unit value="1"></unit>
1690 </valueQuantity>
1691 </Observation>
1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

- AEGIS demonstrated the generation of TestScripts using reusable FSH rulesets that model the testing process.
  - <http://wildfhir4.aegis.net/ig/carin-bb-ig-1.2.0-testscript/index.html>
- MITRE demonstrated the generation of TestScripts using an IG CapabilityStatement.
  - <https://github.com/fhir-crucible/testscript-generator>
- AEGIS and MITRE demonstrated the interoperability of FSH-generated TestScripts in both Touchstone and the testscript-engine.
  - <https://touchstone.aegis.net/touchstone/>

The screenshot shows the Touchstone web interface. The top navigation bar includes 'HL7 FHIR', 'Test Systems', 'Organizations', 'Users', 'Admin', 'Docs', and 'Richard'. The left sidebar contains navigation options like 'Conformance', 'Current', 'Results Summary', 'Suites', 'Test Executions', 'History', 'Exchanges', 'Test Setups', 'Test Setup', 'List', and 'Test Definitions'. The main content area is titled 'Test Execution' and displays a summary for a specific test run. The summary includes the Exec ID (202209180839214280414147), Start Time (09/18/2022 08:39:21AM), End Time (09/18/2022 08:39:36AM), Status (Failed), Duration (14.661s), and Test Scripts (18). A progress bar shows 18 tests with 0 passes, 12 failures, 6 warnings, 0 skipped, 0 running, 0 waiting, and 0 not started. A '33% successful' badge is also present. Below the summary is a table of test results with columns for Test Script Execution, Version, Latest, Description, Origin, Destination, Status, Start, End, Duration, Passed, and Tests.

Test Script Execution	Version	Latest	Description	Origin	Destination	Status	Start	End	Duration	Passed	Tests
/FHRSandbox/AEGIS/FHIR4-0-1-CARINBB-Test/TestScript-C4BB-Coverage-read-validate-json	2	2	Example TestScript to test C4BB-Coverage resource read and profile validation	TouchstoneFHIR	AEGIS.net, Inc. - WildFHIR FHIR-4-0-1 http://wildfhir4.aegis.net/fhir4-0-1	Passed	09/18/2022 08:39:21AM	09/18/2022 08:39:22AM	0.727s	0 of 1	1
/FHRSandbox/AEGIS/FHIR4-0-1-CARINBB-Test/TestScript-C4BB-Coverage-read-validate-xml	2	2	Example TestScript to test C4BB-Coverage resource read and profile validation	TouchstoneFHIR	AEGIS.net, Inc. - WildFHIR FHIR-4-0-1 http://wildfhir4.aegis.net/fhir4-0-1	Passed	09/18/2022 08:39:22AM	09/18/2022 08:39:22AM	0.517s	0 of 1	1
/FHRSandbox/AEGIS/FHIR4-0-1-CARINBB-Test/TestScript-C4BB-EOB-Inpatient-institutional-read-validate-json	2	2	Example TestScript to test C4BB-ExplanationOfBenefit-Inpatient-Institutional resource read and profile validation	TouchstoneFHIR	AEGIS.net, Inc. - WildFHIR FHIR-4-0-1 http://wildfhir4.aegis.net/fhir4-0-1	Failed	09/18/2022 08:39:23AM	09/18/2022 08:39:24AM	1.170s	0 of 1	1
/FHRSandbox/AEGIS/FHIR4-0-1-CARINBB-Test/TestScript-C4BB-EOB-Inpatient-institutional-read-validate-xml	2	2	Example TestScript to test C4BB-ExplanationOfBenefit-Inpatient-Institutional resource read and profile validation	TouchstoneFHIR	AEGIS.net, Inc. - WildFHIR FHIR-4-0-1 http://wildfhir4.aegis.net/fhir4-0-1	Failed	09/18/2022 08:39:24AM	09/18/2022 08:39:25AM	0.950s	0 of 1	1
/FHRSandbox/AEGIS	2	2	Example TestScript to test C4BB-	TouchstoneFHIR	AEGIS.net, Inc. - WildFHIR	Failed	09/18/2022	09/18/2022	0.908s	0 of 1	1

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
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```

1669 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
1673 <status value="final"></status>
1674 <category>
1675 <text value="procedure"></text>
1676 </category>
1677 <code>
1678 <coding>
1679 <code value="BSeR Sessions Attended Observation Code"></code>
1680 <display value="Number of Appointments Attended"></display>
1681 </coding>
1682 </code>
1683 <subject>
1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685 </subject>
1686 <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687 <valueQuantity>
1688 <value value="8"></value>
1689 <unit value="1"></unit>
1690 </valueQuantity>
1691 </Observation>
1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

- <https://github.com/fhir-crucible/testscript-engine>

```

FINISHED EXECUTING RUNNABLE. FINAL EXECUTION SCORE: [33.0].

SUMMARY OF EXECUTION RESULTS:
Execution of [C4BB-Organization-read-validate-xml] failed with score: [33.0].
Execution of [C4BB-EOB-Inpatient-Institutional-read-validate-json] failed with score: [33.0].
Execution of [C4BB-Coverage-read-validate-json] failed with score: [33.0].
Execution of [C4BB-Organization-read-validate-json] failed with score: [33.0].
Execution of [C4BB-Practitioner-read-validate-xml] failed with score: [33.0].
Execution of [C4BB-EOB-Professional-NonClinician-read-validate-xml] failed with score: [33.0].
Execution of [C4BB-Patient-read-validate-json] failed with score: [33.0].
Execution of [C4BB-Patient-read-validate-xml] failed with score: [33.0].
Execution of [C4BB-Coverage-read-validate-xml] failed with score: [33.0].
Execution of [C4BB-EOB-Oral-read-validate-json] failed with score: [33.0].
Execution of [C4BB-EOB-Outpatient-Institutional-read-validate-json] failed with score: [33.0].
Execution of [C4BB-EOB-Professional-NonClinician-read-validate-json] failed with score: [33.0].
Execution of [C4BB-EOB-Inpatient-Institutional-read-validate-xml] failed with score: [33.0].
Execution of [C4BB-Practitioner-read-validate-json] failed with score: [33.0].
Execution of [C4BB-EOB-Oral-read-validate-xml] failed with score: [33.0].
Execution of [C4BB-EOB-Pharmacy-read-validate-json] failed with score: [33.0].
Execution of [C4BB-EOB-Pharmacy-read-validate-xml] failed with score: [33.0].
Execution of [C4BB-EOB-Outpatient-Institutional-read-validate-xml] failed with score: [33.0].

See more execution details in the TestReports at: [/Users/jwalonoski/git/testscript-engine/TestReports].

Execution finished. Enter (q) to quit, press any other key to continue execution: █

```

- AEGIS and MITRE demonstrated the interoperability of CapabilityStatement-based TestScripts in both Touchstone and the testscript-engine.

- <https://touchstone.aegis.net/touchstone/>

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
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1667     </entry>
1670     <entry>
1671       <resource>
1672         <Observation xmlns="http://hl7.org/fhir">
1673           <status value="final"></status>
1674           <category>
1675             <text value="procedure"></text>
1676           </category>
1677           <code>
1678             <coding>
1679               <code value="BSeR Sessions Attended Observation Code"></code>
1680               <display value="Number of Appointments Attended"></display>
1681             </coding>
1682           </code>
1683           <subject>
1684             <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685           </subject>
1686           <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687           <valueQuantity>
1688             <value value="8"></value>
1689             <unit value="1"></unit>
1690           </valueQuantity>
1691         </Observation>
1692       </resource>
1693     </entry>
1694     <entry>
1695       <resource>
1696         <Composition xmlns="http://hl7.org/fhir">
1697           <status value="final"></status>
1698           <title value="Interim Referral Feedback Report"></title>

```

The screenshot shows the Touchstone Test Execution interface. The top navigation bar includes 'HL7 FHIR', 'Test Systems', 'Organizations', 'Users', 'Docs', and 'John'. The left sidebar contains navigation options like 'Conformance', 'Current', 'Results Summary', 'Suites', 'Test Executions', 'History', 'Exchanges', 'Test Setups', 'Test Setup', and 'List'. The main content area displays 'Test Execution' details for 'Exec ID: 202209171656435192182236', 'Test Setup: FHIR Sandbox-MITRE-CARIN\_V2--All', 'Executed By: John Fraser', 'Organization: MITRE', 'Origin: TouchstoneFHIR', 'Destination: AEGIS.net, Inc. - WildFHIR FHIR-4-0-1', and 'Validator: FHIR 4.0.1'. A summary bar shows '10 tests' with '10 passed', '0 failures', '0 warnings', '0 skipped', '0 running', '0 waiting', and '0 not started', along with a '100% successful' badge. Below this is a table of test script executions:

Test Script Execution	Version	Latest	Description	Status	Start	End	Duration	Passed	Tests
/FHIRSandbox/MITRE/CARIN_V2/carin_blue_button_2_explanationofbenefit_shall_read	1	1		Passed	09/17/2022 04:56:43PM	09/17/2022 04:56:44PM	0.898s	1 of 1	
/FHIRSandbox/MITRE/CARIN_V2/carin_blue_button_2_explanationofbenefit_shall_search_type	1	1		Passed	09/17/2022 04:56:44PM	09/17/2022 04:56:45PM	0.857s	1 of 1	
/FHIRSandbox/MITRE/CARIN_V2/carin_blue_button_2_organization_may_search_type	1	1		Passed	09/17/2022 04:56:45PM	09/17/2022 04:56:46PM	0.952s	1 of 1	
/FHIRSandbox/MITRE/CARIN_V2/carin_blue_button_2_organization_shall_read	1	1		Passed	09/17/2022 04:56:46PM	09/17/2022 04:56:47PM	0.932s	1 of 1	
/FHIRSandbox/MITRE/CARIN_V2/carin_blue_button_2_patient_may_search_type	1	1		Passed	09/17/2022 04:56:47PM	09/17/2022 04:56:48PM	0.876s	1 of 1	
/FHIRSandbox/MITRE/CARIN_V2/carin_blue_button_2_patient_shall_read	1	1		Passed	09/17/2022 04:56:48PM	09/17/2022 04:56:49PM	0.929s	1 of 1	
/FHIRSandbox/MITRE/CARIN_V2/carin_blue_button_2_practitioner_may_search_type	1	1		Passed	09/17/2022 04:56:49PM	09/17/2022 04:56:50PM	0.896s	1 of 1	
/FHIRSandbox/MITRE/CARIN_V2/carin_blue_button_2_practitioner_shall_read	1	1		Passed	09/17/2022 04:56:50PM	09/17/2022 04:56:51PM	0.896s	1 of 1	
/FHIRSandbox/MITRE/CARIN_V2/carin_blue_button_2_relatedperson_may_search_type	1	1		Passed	09/17/2022 04:56:51PM	09/17/2022 04:56:52PM	0.905s	1 of 1	
/FHIRSandbox/MITRE/CARIN_V2/carin_blue_button_2_relatedperson_shall_read	1	1		Passed	09/17/2022 04:56:52PM	09/17/2022 04:56:53PM	0.879s	1 of 1	

- <https://github.com/fhir-crucible/testscript-engine>

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
1677       <code>
1678         <coding>
1679           <code value="BSeR Sessions Attended Observation Code"></code>
1680           <display value="Number of Appointments Attended"></display>
1681         </coding>
1682       </code>
1683       <subject>
1684         <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685       </subject>
1686       <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687       <valueQuantity>
1688         <value value="8"></value>
1689         <unit value="1"></unit>
1690       </valueQuantity>
1691     </Observation>
1692   </resource>
1693 </entry>
1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```

```

SUMMARY OF EXECUTION RESULTS:
Execution of [carin-blue-button-2-practitioner-may-search-type] failed with score: [33.0].
Execution of [carin-blue-button-2-organization-may-search-type] failed with score: [33.0].
Execution of [carin-blue-button-2-organization-shall-read] failed with score: [33.0].
Execution of [carin-blue-button-2-relatedperson-shall-read] failed with score: [33.0].
Execution of [carin-blue-button-2-explanationofbenefit-shall-search-type] failed with score: [33.0].
Execution of [carin-blue-button-2-explanationofbenefit-shall-read] failed with score: [33.0].
Execution of [carin-blue-button-2-practitioner-shall-read] failed with score: [33.0].
Execution of [carin-blue-button-2-patient-shall-read] failed with score: [33.0].
Execution of [carin-blue-button-2-patient-may-search-type] failed with score: [33.0].
Execution of [carin-blue-button-2-relatedperson-may-search-type] failed with score: [33.0].

See more execution details in the TestReports at: [../testscript_generator/TestReports].

Execution finished. Enter (q) to quit, press any other key to continue execution: ^[[A

The SERVER UNDER TEST is [http://hapi.fhir.org/baseR4]. Would you like to change the SERVER UNDER TEST? [Y/N] y

```

- Screenshots and/or links to further information
  - TestScripts integrated into an IG

The screenshot shows the HL7 FHIR website for the CARIN Consumer Directed Payer Data Exchange (CARIN IG for Blue Button®) 1.2.0 - STU 2 Pre-Publish US. The navigation menu includes 'Home', 'Background', 'Use Cases', 'Guidance', 'Testing', 'FHIR Artifacts', 'Security', 'Examples', 'Downloads', and 'Change Notes'. A dropdown menu is open under 'FHIR Artifacts', with 'TestScripts' selected. Below the navigation, there is a 'Table of Contents' and a 'Home' section. The 'Home' section includes the 'Official URL' and 'Active as of 2022-09-16'. A sidebar on the right contains links for 'Introduction', 'Authors', and 'Acknowledgements'.

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671 <resource>
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1674 <category>
1675 <text value="procedure"></text>
1676 </category>
1677 <code>
1678 <coding>
1679 <code value="BSeR Sessions Attended Observation Code"></code>
1680 <display value="Number of Appointments Attended"></display>
1681 </coding>
1682 </code>
1683 <subject>
1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685 </subject>
1686 <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687 <valueQuantity>
1688 <value value="8"></value>
1689 <unit value="1"></unit>
1690 </valueQuantity>
1691 </Observation>
1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

### 7.0.7 Testing Artifacts: TestScripts

These test definitions are available to FHIR test engines to verify systems are conforming to this implementation guide

<a href="#">testscript-C4BB-Coverage-read-validate-json</a>	Example TestScript to test C4BB-Coverage resource read and profile validation
<a href="#">testscript-C4BB-Coverage-read-validate-xml</a>	Example TestScript to test C4BB-Coverage resource read and profile validation
<a href="#">testscript-C4BB-ExplanationOfBenefit-Inpatient-Institutional-read-validate-json</a>	Example TestScript to test C4BB-ExplanationOfBenefit-Inpatient-Institutional resource read and profile validation
<a href="#">testscript-C4BB-ExplanationOfBenefit-Inpatient-Institutional-read-validate-xml</a>	Example TestScript to test C4BB-ExplanationOfBenefit-Inpatient-Institutional resource read and profile validation
<a href="#">testscript-C4BB-ExplanationOfBenefit-Oral-read-validate-json</a>	Example TestScript to test C4BB-ExplanationOfBenefit-Oral resource read and profile validation
<a href="#">testscript-C4BB-ExplanationOfBenefit-Oral-read-validate-xml</a>	Example TestScript to test C4BB-ExplanationOfBenefit-Oral resource read and profile validation
<a href="#">testscript-C4BB-ExplanationOfBenefit-Outpatient-Institutional-read-validate-json</a>	Example TestScript to test C4BB-ExplanationOfBenefit-Outpatient-Institutional resource read and profile validation

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1667 </entry>
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1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
1677       <code>
1678         <coding>
1679           <code value="BSeR Sessions Attended Observation Code"></code>
1680           <display value="Number of Appointments Attended"></display>
1681         </coding>
1682       </code>
1683       <subject>
1684         <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685       </subject>
1686       <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687       <valueQuantity>
1688         <value value="8"></value>
1689         <unit value="1"></unit>
1690       </valueQuantity>
1691     </Observation>
1692   </resource>
1693 </entry>
1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```

## 7.0.4 Structures: Resource Profiles

These define constraints on FHIR resources for systems conforming to this implementation guide

C4BB Coverage	Data that reflect a payer's coverage that was effective as of the date of service or the date of admission of the claim.
C4BB ExplanationOfBenefit Inpatient Institutional	The profile is used for Explanation of Benefits (EOBs) based on claims submitted by clinics, hospitals, skilled nursing facilities and other institutions for inpatient services, which may include the use of equipment and supplies, laboratory services, radiology services and other charges. Inpatient claims are submitted for services rendered at an institution as part of an overnight stay. The claims data is based on the institutional claim format UB-04, submission standards adopted by the Department of Health and Human Services.
C4BB ExplanationOfBenefit Oral	This profile is used for Explanation of Benefits (EOBs) based on claims submitted by providers of oral services including Dental, Denture and Hygiene. The ADA Dental Claim Form provides a common format for reporting dental services to a patient's dental benefit plan.
C4BB ExplanationOfBenefit Outpatient Institutional	This profile is used for Explanation of Benefits (EOBs) based on claims submitted by clinics, hospitals, skilled nursing facilities and other institutions for outpatient services, which may include including the use of equipment and supplies, laboratory services, radiology services and other charges. Outpatient claims are submitted for services rendered at an institution that are not part of an overnight stay. The claims data is based on the institutional claim form UB-04, submission standards adopted by the Department of Health and Human Services.
C4BB ExplanationOfBenefit Pharmacy	This profile is used for Explanation of Benefits (EOBs) based on claims submitted by retail pharmacies. The claims data is based on submission standards adopted by the Department of Health and Human Services defined by NCPDP (National Council for Prescription Drug Program)
C4BB ExplanationOfBenefit Professional NonClinician	This profile is used for Explanation of Benefits (EOBs) based on claims submitted by physicians, suppliers and other non-institutional providers for professional and vision services. These services may be rendered in inpatient or outpatient, including office locations. The claims data is based on the professional claim form 1500, submission standards adopted by the Department of Health and Human Services.

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```

1667     </entry>
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1674           <category>
1675             <text value="procedure"></text>
1676           </category>
1677           <code>
1678             <coding>
1679               <code value="BSeR Sessions Attended Observation Code"></code>
1680               <display value="Number of Appointments Attended"></display>
1681             </coding>
1682           </code>
1683           <subject>
1684             <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685           </subject>
1686           <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687           <valueQuantity>
1688             <value value="8"></value>
1689             <unit value="1"></unit>
1690           </valueQuantity>
1691         </Observation>
1692       </resource>
1693     </entry>
1694     <entry>
1695       <resource>
1696         <Composition xmlns="http://hl7.org/fhir">
1697           <status value="final"></status>
1698           <title value="Interim Referral Feedback Report"></title>

```

Table of Contents > Artifacts Summary > C4BB Coverage

CARIN Consumer Directed Payer Data Exchange (CARIN IG for Blue Button®) - Local Development build (v1.2.0). See the Directory of published versions

Content Detailed Descriptions **TestScripts** Examples XML JSON

### 7.16.1 Resource Profile: C4BB Coverage

Official URL: <a href="http://hl7.org/fhir/us/carin-bb/StructureDefinition/C4BB-Coverage">http://hl7.org/fhir/us/carin-bb/StructureDefinition/C4BB-Coverage</a>	Version: 1.2.0
Active as of 2022-09-16	Computable Name: C4BBCoverage

Data that reflect a payer's coverage that was effective as of the date of service or the date of admission of the claim.

#### 7.16.1.0.1 Notes on Fields

- The Coverage FHIR Resource defines a comprehensive set of data elements. Many of them are not relevant to this use case. When reviewing the Profile Snapshot, several data elements previously hidden are now exposed. Fields intended for consideration to be provided in the API are marked as **Must Support**; i.e., a red **S** or have a minimum cardinality of 1. All other data elements are not expected to be sent by a Responder; if they are sent a Requestor can choose to ignore them
- The Coverage Reference Resource shall be returned with data that was effective as of the date of service of the claim
- The numbers (e.g. (1)) following the data element descriptions correlate to the MapID in the [CBCDS Data Dictionary](#) and the [Mapping Worksheet](#) & as described [here](#)

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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```

wildfhir4.aegis.net/ig/carin-bb-ig-1.2.0-testscript/StructureDefinition-C4BB-Coverage-testscripts.html

**HL7 International** **CARIN Consumer Directed Payer Data Exchange (CARIN IG for Blue Button®)** 1.2.0 - STU 2 Pre-Publish US **HL7 FHIR®**

Home Background Use Cases Guidance Testing FHIR Artifacts Security Examples Downloads Change Notes

Table of Contents > Artifacts Summary > C4BB Coverage

CARIN Consumer Directed Payer Data Exchange (CARIN IG for Blue Button®) - Local Development build (v1.2.0). See the Directory of published versions

Content Detailed Descriptions **TestScripts** Examples XML JSON

### 7.16.7 Resource Profile: C4BBCoverage - TestScripts

Active as of 2022-09-16

TestScripts for the C4BB-Coverage Profile.

[testscript-C4BB-Coverage-read-validate-json](#)

[testscript-C4BB-Coverage-read-validate-xml](#)

IG © 2022+ HL7 Financial Management Working Group. Package hl7.fhir.us.carin-bb#1.2.0 based on FHIR 4.0.1. Generated 2022-09-16  
 Links: Table of Contents | QA Report | Version History | | |

- Discovered issues / questions (if there are any)
  - Downloading of IG artifacts is heterogeneous... some IGs offer a “package.tgz”, some offer a “Full Spec” download, some offer a “JSON Definitions” download, some offer downloads of individual files.
  - Most IGs do not appear to have a CapabilityStatement.
  - AEGIS tests require TestScript.test.name.
  - AEGIS tests require TestScript.test.action.operation.method
  - MITRE tests must avoid special variable syntax
  - MITRE tests do not support dynamic variables
- **Now what?**
  - [The following are notes from Breakout Meeting to discuss report out @ 11 AM]
    - Jay Walonoski
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
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```

- Current state of TestScripts in IGs: very little
- We are thinking of ways to generate or make easier to add TestScripts
  - No effort approach: generate TestScripts based on CapabilityStatement
  - Low effort approach: author some FSH, create test scripts for IG, they get published in your IG
- Overall results we set out to test were successful.
- Findings: some slight differences in TestScript fields being used, but we used the Connectathon to make compatibility changes.
- Grahame Grieve: Some IGs, e.g. IPS, don't have anything to say about API; no reason for them to define CapabilityStatement
  - JW Important for IG authors to express actors in computable ways. A lot of downstream benefits. Better than just sequence diagrams
- GG Look at what's coming in R5: actor definitions, sequence definitions, obligations on actors, requirements, example scenarios
  - Richard Ettema What's the timeline for IG pub to handle these?
  - GG Nobody's pushing me yet. Could start exploring those things. Haven't prioritized anything yet. If people start clamoring for using IGs this way...
  - No plan to backport this stuff in R4
- GG wants us to have negative test examples included
  - ACTION: Make a task for FHIR-I to add negative tests into an IG
    - <https://jira.hl7.org/browse/FHIR-38670>
- Format for uploading/including test packages we use to load; these should have same NPM format as others
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

- Discussion about auto-generation of examples and negative examples, similar to white noise testing or fuzzy testing. Is it valuable? Is it meaningful to FHIR API testing or meaningful to IG use-case testing?
- GG Testing should be both in IG at same time and afterwards separately
- GG Could have multiple testing packages for same IG that would follow same pattern
  - But base IG could have some testing resources
- GG We don't want negative testing resources to appear in IG and be mistaken as good resources
- JW I'd like to see negative examples. Could present in a way that makes it obvious
- Joe: Would we add the ability for TestScript to reflect a manual step? Potentially.
  - Joe: Has anyone added extensions to do this? Not that we know.
- Discussion about what is "In scope for test script" – many opinions. Discussion of manual steps, extensions for manual steps/assertions, platform proxy inspection and alteration of requests/responses, etc.
- Now what?
- Actions
  - Create request for FHIR-I add negative examples to an IG
    - <https://jira.hl7.org/browse/FHIR-38670>
  - Jira ticket on TestScript for manual intervention
    - <https://jira.hl7.org/browse/FHIR-38671>
  - Next Connecathon
    - Make sure all platforms can use same NPM testing package format
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- Other previously discussed topics/ideas not addressed in breakout meeting

# Vulcan/Gravitate Health - ePI/IPS (Phase 4)

## What was the track trying to achieve?

Track Objective is to test and gather feedback on the following:

1. Draft Core ePI Implementation Guide before ballot
2. Core ePI Profile vs national/regional profiles
3. G-Lens business rules and its connection to HL7 accelerators besides Vulcan
4. Gravitate Health Federated Open-Source Platform and Services (FOSPS) a' version and its support to end-to-end scenarios.

The track is supported by the EU IMI Project Gravitate Health, the EU funded project UNICOM and supports the ePI pilot project at the European Medicines Agency.

## List of participants (with logos if you have time and energy)

Felleskatalogen  
 HL7 Europe  
 Vulcan  
 Glemser

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```

Pfizer  
UPM

## Notable achievements

1. Developed plans on how to handle allergens and interactions as a priority
2. Decided to compare the patients' drugs with the list of interactions between those drugs.
3. Decided on an operation to provide the EMA ePI in the full 'US style' format by combining the ePI plus SPOR product data
4. Clarified how we plan to incorporate more SPL profile data into the Vulcan IG
5. Decided how to use active substance to facilitate tracking Drug-Drug Interaction (DDI), Drug-Food Interaction (DFI), Drug-Lab Interactions (DLI,) and other (e.g., smoking, alcohol)
6. Agreed on one possible architecture solution that includes a mobile app, API, and services.

## Screenshots and/or links to further information

Screen captures from the Gravitate Health app that utilizes information from the ePI, IPS, and other sources.

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```

DEBUG

Hello,  
**Sandro Conte**

## My medications

### Ibuprofen 200mg film-coated tablets

Oral Route

Patient told to take with food

[View leaflet](#) 

[View details](#) >

### Humalog Mix50 Insulin KwikPen, 3ml pre-fill

Oral R

[View](#)

: separate servers (EMR Direct,

reference implementation and

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```

## < Ibuprofen 200mg film-coated ...

# Ibuprofen 200mg film-coated tablets

## Ingredients

Dolutegravir sodium 50 mg  
Lamivudine 50 mg

## Other ingredients

Microcrystalline cellulose  
Sodium starch glycolate  
Magnesium stearate  
Mannitol

: separate servers (EMR Direct,

reference implementation and

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# Ibuprofen 200mg film-coated ...

## Ibuprofen 200mg film-coated tablets

1. What Ibuprofen is and what it is used for



2. What you need to know before you take Ibuprofen



3. How to take Ibuprofen



4. Possible side effects



5. H

6. O

oth

: separate servers (EMR Direct,

reference implementation and

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```

# Ibuprofen 200mg film-coated ...

## Ibuprofen 200mg film-coated tablets

### 1. What Ibuprofen is and what it is used for

Ibuprofen is a medicine that contains two active ingredients used to treat human immunodeficiency virus (HIV) infection: dolutegravir and lamivudine.

### 2. What you need to know before you take Ibuprofen

Do not take Ibuprofen

- if you are allergic (hypersensitive) to dolutegravir or lamivudine or any of the other ingredients of this medicine (listed in s...
- If y...

separate servers (EMR Direct,

reference implementation and

### 3. H...

How t...

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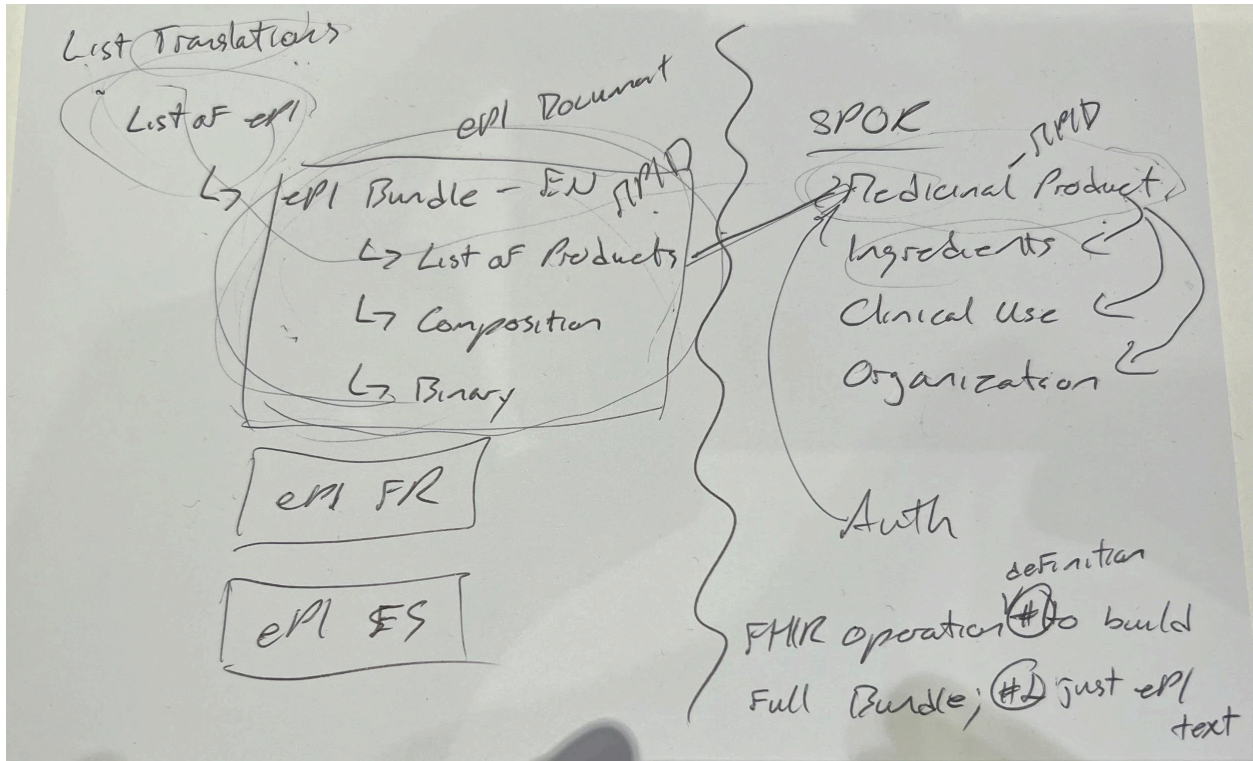
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Sample of output from brainstorming sessions.

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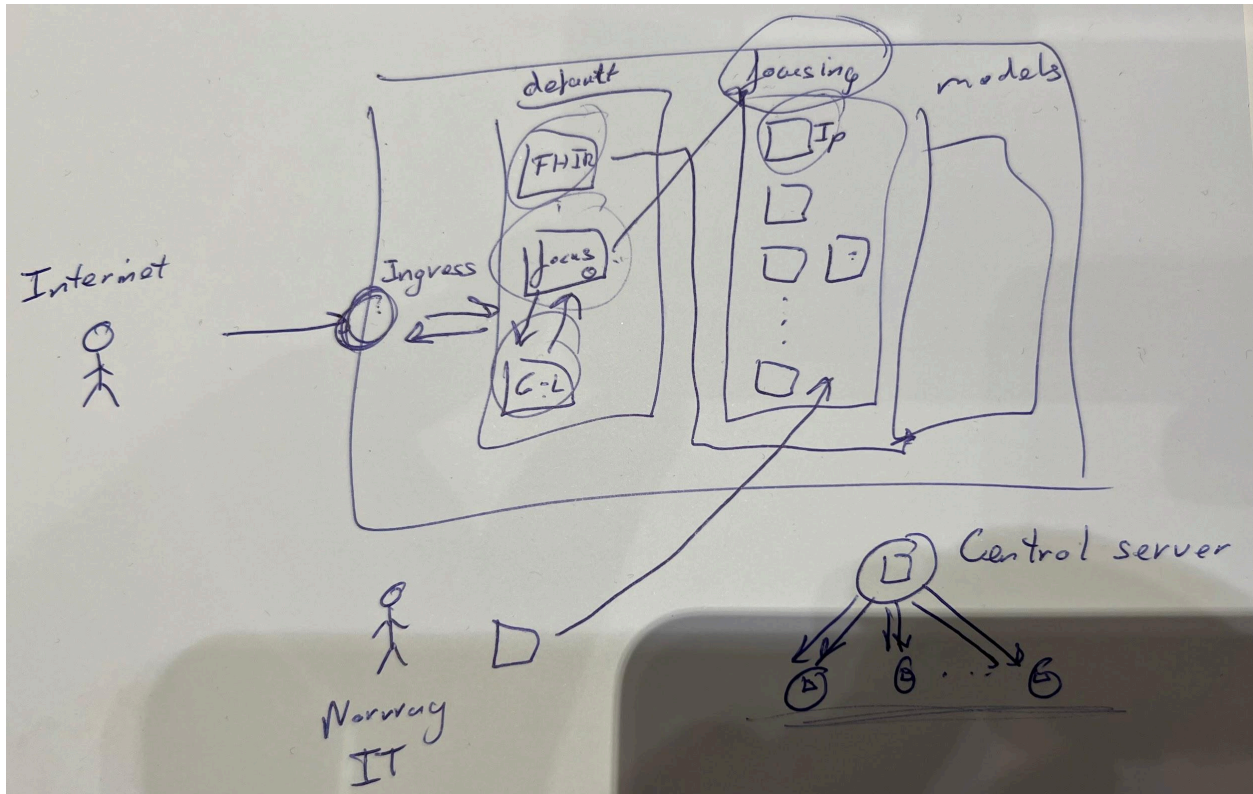


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1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
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1687 <valueQuantity>
1688 <value value="8"></value>
1689 <unit value="1"></unit>
1690 </valueQuantity>
1691 </Observation>
1692 </resource>
1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```



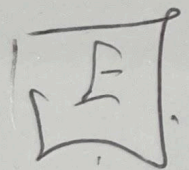
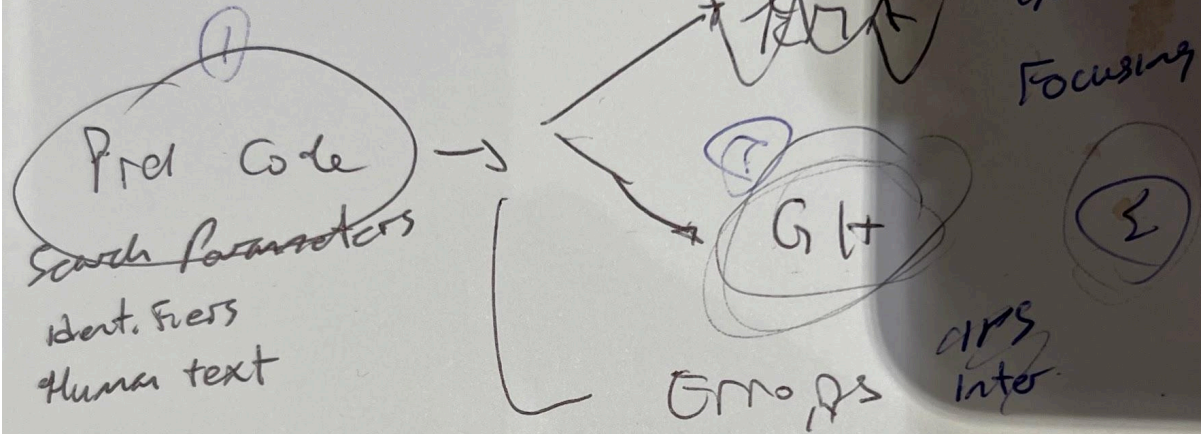
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
1673 <status value="final"></status>
1674 <category>
1675 <text value="procedure"></text>
1676 </category>
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1678 <coding>
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1681 </coding>
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1683 <subject>
1684 <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685 </subject>
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1689 <unit value="1"></unit>
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1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

Procedure CODE → Food - drinking  
 → Grapefruit  
 → lifestyle changes  
 → interaction EM  
 → what are the directions for their drug  
 → what interaction for B drugs  
 → General Focusing



Query 1 - Return Full leaflet  
 2 - Return Focused

```

1667 </entry>
1670 <entry>
1671 <resource>
1672 <Observation xmlns="http://hl7.org/fhir">
1673 <status value="final"></status>
1674 <category>
1675 <text value="procedure"></text>
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1678 <coding>
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1693 </entry>
1694 <entry>
1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>
  
```

## Discovered issues / questions

1. Project depends on SPOR data but does not yet have access to the data.
2. Dependent on the health authorities to agree with the same approach, requirements and solutions for ePI
3. All regions have different terminologies
4. Unknown what other health authorities think of the project (e.g., Australia, Canada)
5. Unknown if health authorities will support the clinical use definition in the ePI which is needed to facilitate interactions, indication, contraindication, warnings
6. A lot of information should be connected to the substance rather than the product.  
Certain information, like interactions, may not always be found if the search target is the product.
  - a. If interaction info is attached to the substance then that information will automatically attach to the product when the substance is assigned to product.
7. Multiple different sources for interaction data in each country. How to connect the patient to the right data; and how to connect the patient if they are travelling?

## Now what?

1. Make final draft of the profiles and IG
    - a. Incorporate connectathon feedback into the IG
    - b. Finish terminologies for the IG
  2. Obtain access to SPOR data
  3. Consider using G-SRS until we have SPOR or EU-SRS access
  4. Investigate interactions further by doing a proof of concept with real data
    - a. Consider presenting the interactions solution at upcoming events.
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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1667 </entry>
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1674       <category>
1675         <text value="procedure"></text>
1676       </category>
1677       <code>
1678         <coding>
1679           <code value="BSeR Sessions Attended Observation Code"></code>
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1681         </coding>
1682       </code>
1683       <subject>
1684         <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
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1688         <value value="8"></value>
1689         <unit value="1"></unit>
1690       </valueQuantity>
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

# Phenotypic data

- What was the track trying to achieve?
  - Refine the Phenopacket IG and corresponding HAPI FHIR Java code
  - Demonstrate conversion of GA4GH Phenopacket file(s) to corresponding FHIR representation according to the IG
  -
- List of participants (with logos if you have time and energy)
  - Shahim Essaid
  - Chris Roeder
  - Peter Robinson
  - Martha Beckwith
  - Melissa Haendel
  - Patrick Werner
- Notable achievements
  - Fixed various infelicities in the existing IG, for instance, adding severity and modifiers and specific named component slices
  - Wrote HAPI FHIR Java code to convert GA4GH Phenopackets (JSON) to FHIR version, post this to a FHIR server, search and retrieve the FHIR message and translate back to GA4GH JSON (important parts work, the goal is not 100% identical round trip!)
  - Coordination with Patrick Werner on adoption of the FHIR Genomics Reporting IG version 2 (previously, we had been using a version of the Genomics Reporting version 1 IG which we had extended. Now, nearly all required fields are available in the version 2)
  - Discussions as to scope and goals of the project
- Screenshots and/or links to further information
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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1677       <code>
1678         <coding>
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1680           <display value="Number of Appointments Attended"></display>
1681         </coding>
1682       </code>
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1698       <title value="Interim Referral Feedback Report"></title>
```

- <https://github.com/pnrobinson/hapi-pheno-client/>
- <https://github.com/phenopackets/vulcan>
- 
- Discovered issues / questions (if there are any)
- 
- Now what?
  - Integration with FHIR Genomics Reporting IG version 2
  - COntinued work on HAPI FHIR java code

## Vulcan - Real World Data (RWD) for Research and Regulatory Submissions

Vulcan - Real World Data (RWD) for Research and Regulatory Submissions

- What was the track trying to achieve?

Current IG: [HL7.FHIR.UV.VULCAN-RWD\Home - FHIR v4.0.1](#)

The main goal of this track is to help define a minimal set of clinical research FHIR resources and elements in an EHR that can be utilized in an interoperable and consistent manner for clinical research objectives (e.g., academic, regulatory, etc.). An implementation guide is being developed that defines FHIR profiles that can be used in an EHR setting to represent data that will be supportive of RWD research needs and also to retrieve relevant research data from Real World Data (RWD) sources to facilitate downstream use (directly or after transformation) for submissions to pharmaceutical regulatory agencies. The downstream use of retrieved data is not covered in this guide but separate efforts exist to give advice for such use. Many sources of RWD exist, but for the

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1678 <coding>
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```

current phase of work, the scope of this Implementation Guide is limited to the use of Electronic Health Record (EHR) systems as sources of RWD. The intent is for future iterations of the Implementation Guide to have a wider scope of RWD such as from Registries, Payer systems, and HIEs. Additionally, our focus is currently limited to the use of EHR data for retrospective analysis of data which already exists as part of normal healthcare encounters - *not* data created as part of prospective clinical studies.

- List of participants (with logos if you have time and energy)

These organizations were the ones present at the in-person connectathon Vulcan RWD table on September 17-18, 2022



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1695 <resource>
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1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

- Notable achievements including Screenshots and/or links to further information

General:

- Created a synthetic data set to help develop EHR queries
- Successfully queried the data using the inclusion/exclusion criteria for patients of interest:
  - female or male aged 18 years or older
  - have a Encounter record representing a hospitalization with an initial diagnosis of Acute Coronary Syndrome where the patient was discharged alive some time between September 2020 to September 2021 :
    - ACS is represented for this scenario one of these ICD 10 codes ([I21](#) Acute myocardial infarction; [I20-I25](#) Ischemic heart diseases; [I24](#) Other acute ischemic heart diseases)
    - the Encounter diagnosis will point to a Condition with one of those codes
    - The Encounter will have hospitalization information included [IG defined this, but needed to skip due to synthetic data issues]
    - The Encounter hospitalization discharge disposition code is not 'exp' (expired) [IG defined this, but it was decided that disposition
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

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1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

codes are often spotty and imperfect. Therefore we chose to simply capture the discharge information as opposed to filter out by this data.]

- have been given one of ticagrelor, prasugrel or clopidogrel after the date of diagnosis of ACS (as represented by the Condition or Encounter record found above)

Drug Name	Brand Name	RxNorm CUI
ticagrelor	brilinta	1116632
prasugrel	effient	613391
clopidogrel	plavix	32968, <del>687667, 153658</del>

— A few of these codes were found to be inaccurate so we simply didn't include them. These and other identified issues will be updated in the IG narrative

- Compared retrieved data to source data to confirm that queries were working correctly
- Compared queried data to other EHR sources

Team will review output to determine if any revisions are needed to Profiles in the IG.

Will update use case to fix errors in codes and improve clarity of inclusion criteria

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1695 <resource>
1696 <Composition xmlns="http://hl7.org/fhir">
1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>
```

## Intersystems:

Generated synthetic data for EHR queries:

- Synthetic data contains Encounter records with one of I20, I21, I22, I23, I24, or I25 reasonCode to represent ACS diagnosis
- Synthetic data contains MedicationAdministration record with one of the three drugs: ticagrelor (1116632), prasugrel (613391), or clopidogrel (32968)
- Synthetic data contains Encounter records with a random dischargeDisposition code (e.g., home, long, exp, hosp, etc.)
- Synthetic data can be queried for Encounter's ICD 10 code and MedicationAdministration's drug code, but not discharge code however

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1690       </valueQuantity>
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1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>
```

intersystems-dev / Encounter

GET `{{fhir-host}}/Encounter?reason-code=I20,I21,I22,I23,I24,I25` Send

Params • Authorization Headers (6) Body Pre-request Script Tests Settings Cookies

Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Edit
<input type="checkbox"/> reason-code:below	I20,I21,I22,I23,I24,I25			
<input checked="" type="checkbox"/> reason-code	I20,I21,I22,I23,I24,I25			

Body Cookies Headers (10) Test Results Status: 200 OK Time: 876 ms Size: 97.25 KB Save Response

Pretty Raw Preview Visualize JSON Copy Search

```

1  {
2    "resourceType": "Bundle",
3    "id": "4f5015b0-3783-11ed-a158-02a7b1c59300",
4    "type": "searchset",
5    "timestamp": "2022-09-18T18:39:49Z",
6    "total": 130,
7    "link": [
8      {
9        "relation": "self",
10       "url": "https://fhir.rykjpjvemdgt.workload-prod-fhiraas.isccloud.io/Encounter?reason-code=I20%2CI21%2CI22%2CI23%2CI24%2CI25"
11     }
12   ],
13   "entry": [
14     {
15       "fullUrl": "https://fhir.rykjpjvemdgt.workload-prod-fhiraas.isccloud.io/Encounter/f286015eda87c42ec2cc859861ccdaf8",
16       "resource": {
17         "resourceType": "Encounter",
18         "id": "f286015eda87c42ec2cc859861ccdaf8",
19         "identifier": [

```

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1671         <status value="final"></status>
1672         <category>
1673           <text value="procedure"></text>
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1675         <code>
1676           <coding>
1677             <code value="BSer Sessions Attended Observation Code"></code>
1678             <display value="Number of Appointments Attended"></display>
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1680         </code>
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1686           <value value="8"></value>
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1694       <Composition xmlns="http://hl7.org/fhir">
1695         <status value="final"></status>
1696         <title value="Interim Referral Feedback Report"></title>

```

intersystems-dev / MedicationAdministration

GET {{fhir-host}}/MedicationAdministration/?status=completed&code=http://www.nlm.nih.gov/research/umls/rxnorm%7C1116632,http://www.nlm.nih.gov... Send

Params Authorization Headers (6) Body Pre-request Script Tests Settings Cookies

Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Edit
<input checked="" type="checkbox"/> status	completed			
<input checked="" type="checkbox"/> code	http://www.nlm.nih.gov/research/umls/rxnorm%7C11166...			

Body Cookies Headers (10) Test Results Status: 200 OK Time: 1596 ms Size: 617.71 KB Save Response

Pretty Raw Preview Visualize JSON

```

1  {
2    "resourceType": "Bundle",
3    "id": "3b6a87c6-3781-11ed-90bb-02a7b1c59300",
4    "type": "searchset",
5    "timestamp": "2022-09-18T18:27:03Z",
6    "total": 1031,
7    "link": [
8      {
9        "relation": "first",
10       "url": "https://fhir.rykpsjvemdgtg.workload-prod-fhiraas.iscccloud.io/MedicationAdministration?page=1&queryId=1242f32e-3781-11ed-90bb-02a7b1c59300"
11      },
12     {
13       "relation": "self",
14       "url": "https://fhir.rykpsjvemdgtg.workload-prod-fhiraas.iscccloud.io/MedicationAdministration?code=http%3A%2F%2Fwww.nlm.nih.gov%2Fresearch%2Fumls%2Frxnorm%7C1116632%2Chttp%3A%2F%2Fwww.nlm.nih.gov%2Fresearch%2Fumls%2Frxnorm%7C613391%2Chttp%3A%2F%2Fwww.nlm.nih.gov%2Fresearch%2Fumls%2Frxnorm%7C32968%2Chttp%3A%2F%2Fwww.nlm.nih.gov%2Fresearch%2Fumls%2Frxnorm%7C687667%2Chttp%3A%2F%2Fwww.nlm.nih.gov%2Fresearch%2Fumls%2Frxnorm%7C153658&status=completed"

```

Cookies Bootcamp Auto-select agent Runner Trash

Modified the FHIR Server so that queries can include search parameters

- Certain modifiers such as “:not” are not supported

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```

intersystems-dev / Trying the Search Parameter from IG

GET `{{fhir-host}}/Encounter?dischargeDisposition=hosp` Send

Params • Authorization Headers (6) Body Pre-request Script Tests Settings Cookies

Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Edit
<input checked="" type="checkbox"/> dischargeDisposition	hosp			

Body Cookies Headers (10) Test Results Status: 200 OK Time: 196 ms Size: 5.82 KB Save Response

Pretty Raw Preview Visualize JSON

```

1  {
2    "resourceType": "Bundle",
3    "id": "ee145f48-377f-11ed-90ba-02a7b1c59300",
4    "type": "searchset",
5    "timestamp": "2022-09-18T18:25:02Z",
6    "total": 2,
7    "link": [
8      {
9        "relation": "self",
10       "url": "https://fhir.rykpvsvemdtg.workload-prod-fhiraas.isccloud.io/Encounter?dischargeDisposition=hosp"
11     }
12   ],
13   "entry": [
14     {
15       "fullUrl": "https://fhir.rykpvsvemdtg.workload-prod-fhiraas.isccloud.io/Encounter/1156768",
16       "resource": {
17         "resourceType": "Encounter",
18         "id": "1156768",
19         "text": {
20           "status": "generated",
21           "div": "<div xmlns='https://www.w3.org/1999/xhtml'>Emergency visit that escalated into inpatient patient @example</div"

```

Cookies Bootcamp Auto-select agent Runner Trash

## Parexel:

Implemented a receiver - using the intersystems FHIR servers, we

- identified the cohort of patients that meet the ACS inclusion criteria and
- showed how we could create a per-patient bundle containing multiple resources (MedicationX, AllergyIntolerance etc)

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
1670 <entry>
1671   <resource>
1672     <Observation xmlns="http://hl7.org/fhir">
1673       <status value="final"></status>
1674       <category>
1675         <text value="procedure"></text>
1676       </category>
1677       <code>
1678         <coding>
1679           <code value="BSeR Sessions Attended Observation Code"></code>
1680           <display value="Number of Appointments Attended"></display>
1681         </coding>
1682       </code>
1683       <subject>
1684         <reference value="http://jboss12-eap:9080/demo12-3-1APIServer/ihe/fhir-unsecured/Patient/1896903398884890"></reference>
1685       </subject>
1686       <effectiveDateTime value="2022-09-18T11:21:10-04:00"></effectiveDateTime>
1687       <valueQuantity>
1688         <value value="8"></value>
1689         <unit value="1"></unit>
1690       </valueQuantity>
1691     </Observation>
1692   </resource>
1693 </entry>
1694 <entry>
1695   <resource>
1696     <Composition xmlns="http://hl7.org/fhir">
1697       <status value="final"></status>
1698       <title value="Interim Referral Feedback Report"></title>

```

- ideally , this bundle would contain all resources needed for analysis and would only be created in this way when we don't have access to an IPS capable server
- pulled per-patient IPS data from the ips.health server

#### Shared work

- [https://github.com/pete88b/vulcan\\_rwd\\_ig/blob/main/rwd\\_ig\\_cohort\\_building.ipynb](https://github.com/pete88b/vulcan_rwd_ig/blob/main/rwd_ig_cohort_building.ipynb)
  - Python notebook that builds a cohort for the ACS use case
  - This notebook can be run by anyone on [Google Colab](#) - hopefully making it easy for people to explore the code and logic we used to build the ACS cohort
- <https://vulcan-rwd-ig.azurewebsites.net/static/index.html>
  - Wireframe UI showing how we could “template” inclusion criteria, using placeholders for disease codes etc
  - We plan to make this functional in the next couple of weeks to make it easy for people to see how changing parameters effects the patients included

#### Droice:

Implemented a receiver using a drill down approach in Python.

- Query 1: Get the patients that match the criteria
  - Patients born before 2004-09-17 (18 Years or older)
  - Gender is male, female, other, or unknown (basically not missing)
- Query 2: Iterate through the encounters of one patient and generate flags for the patients that match each criteria for at least one encounter
  - ICD Code starts with 'I20', 'I21', 'I22', 'I23', 'I24', or 'I25'
  - Date of the encounter is between "2013-09-01" and "2016-09-30"
  - The Encounter status is "finished"
  - The dischargeDisposition is not "exp" (SKIPPED)
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1694 <entry>
1695 <resource>
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1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

- Query 3: Iterate through all patients and look for patients who have any of the medications
  - The RXNORM Code is one of '32968', '687667', '153658', '613391', or '1116632'
  - Or the drug is called 'ticagrelor', 'prasurgrel', or 'clopidogrel'
  - And the drug was administered after the first diagnosis of ACS

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```

1669 </entry>
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1672     <Observation xmlns="http://hl7.org/fhir">
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1675         <text value="procedure"></text>
1676       </category>
1677       <code>
1678         <coding>
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1690       </valueQuantity>
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1695   <resource>
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```

## Bioveras:

- Conducted a profile comparison (US Core vs Rwd) using the FHIR Validator tool to understand the number of constraints applied in the Rwd profiles above US Core

Profile	Count of Constraints Above US Core
ConditionRwd	7
EncounterRwd	2
MedicationRequestRwd	6
MedicationAdministrationRwd	Full Rwd Profile
MedicationDispenseRwd	Full Rwd Profile
MedicationStatementRwd	Full Rwd Profile
ObservationLaboratoryResultsRwd	16
ProcedureRwd	6

- Conducted landscape analysis to highlight commonly adopted US based profiles (US Core and CARIN Blue Button) that may be easily extended to fulfill the requirements of the Rwd defined profiles
- Demoed a proof of concept SMART on FHIR application to illustrate the feasibility of matching a patient's medical history represented in FHIR resources against a simple study inclusion / exclusion criteria

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```

**I/E Checklist** Auto Complete Export

---

**Inclusion Criteria:** >= 18 years of age Inclusion

---

**Inclusion Criteria:** Confirmed diagnosis of Acute Coronary Syndrome Inclusion

---

Source	Clinician Comments	Meets Criteria
Condition http://snomed.info/sct   22298006   Acute myocardial infarction active   confirmed 2012-08-31 ID: smart-Condition-182	<div style="border: 1px solid #ccc; padding: 5px; min-height: 60px;">           Patient has confirmed diagnosis.         </div>	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unconfirmed

---

**Inclusion Criteria:** Have been given one of ticagrelor, prasugrel or clopidogrel after the date of diagnosis of ACS Inclusion

- Discovered issues / questions (if there are any)
  - Hospitalization could not be well captured in our synthetic data and may be a challenge to capture in RWD. It may be better to query for this as an element to be included in the data rather than use as a selection criteria
  - Death status is sometimes ambiguous due to coding errors as well as intentional omission by data vendors so this may be better captured as a data element rather than used as a selection criteria. Retrieved patient data can then be cross referenced with other sources (e.g. the national death index) or claims/encounter history can be reviewed to determine if the patient is deceased
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

- Query adjusted to account for non-binary and other gender designations. Revised query will return any responses where gender is “not null”
- it was decided that disposition codes are often spotty and imperfect, which, for cohort building, will result in potentially valid patient records being discarded. Therefore we chose to simply capture the discharge information as opposed to filter out by this data and let the researcher do the determinations.

- Now what?

- The current implementation guide will be reviewed and revised based on any findings from the connectathon with the intent to submit for ballot in January 2023
- Finalize data pull for the ACS use case and consult with someone who knows the use case to say whether the captured information is good or even sufficient for the question.
- Review of commonly used EHR data vendors offerings and data structures to finalize the list of data elements needed to be included in the query
  - Team will discuss areas of future work which may include
    1. Visiting new research use cases to expand required data elements
    2. Fully test the data collection tab in the IG
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```

3. Consider how to express the required search parameters in the IGs
4. Focus on technological considerations for actual implementation of the IG
5. Add Claims support with CAIRNS Profiles
6. Consider multiple ways of establishing “not dead” - ie patient had subsequent encounters
7. Expand beyond focus on data elements to address outstanding issues of terminology difference between healthcare data and clinical trials: consider functionality such as mapping (RXNorm to NDC, Medra to ICD10, etc) may be added and these elements brought in as separate fields.
  - a. Might include terminology server considerations
8. Identify specific information that could support the research use case but is only found in unstructured data such as clinicians notes, images, etc. Any initiatives (AI/NLP) that could support this?
9. How to address the operational definitions of the diseases, etc, you are looking for: some may be simply ie a heart attack, others like a “syndrome” may be diffuse.
10. How to address partial indications of a diseases (drugs suggest a diseases lab result, explicit diagnosis)

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```

# Vulcan Schedule of Activities

- What was the track trying to achieve?
- List of participants (with logos if you have time and energy)
- Notable achievements

Generated an extensive set of data for testing both IP Administration and Unscheduled Visits Scenario

- Methodology for Implementation of IP planning and execution
  - Using MedicationAdministration and MedicationStatement (in-site vs off-site dosing)
  - Screenshots Attached:
- Testing of defining and detecting unscheduled activities
  - Mock data input and retrieved (Discharge Summary)
  - Mock unscheduled visit created and selected via API

Jean updated his React app that displays activities in visit windows to incorporate administrations and unscheduled activities

- Screenshots and/or links to further information

Jean's React UI Updates

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```



- Discovered issues / questions (if there are any)
- Now what?

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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```

# SPL to FHIR and Back

- What was the track trying to achieve?

We were testing our draft Implementation Guide, focusing on the transformation of SPL Drug Label documents to FHIR and the HTML presentation of the FHIR Bundles

- List of participants (with logos if you have time and energy)

Jean Duteau, Duteau Design Inc

Charles Yagmour, Samvit Solutions

Vikas Sinha, IBM

Scott Gordon, FDA

- Notable achievements

Uncovered minor issues with the transforms and the presentation stylesheets

Discovered some quirks in the SPL representation of the text elements, especially use of markup in the titles and captions in lists and tables

We gained a lot of confidence in the underlying transforms and the profiles representing Medicinal Products

Met with the Vulcan ePI track to discuss plans and show what we have done to date

- Discovered issues / questions (if there are any)

We determined that we need to rewrite the FHIR HTML transformation from scratch rather than make modifications to the existing SPL transformation

Need to look at the SPL schema to determine all of the text tags that are allowed as the SPL Implementation Guide does not list them

- Screenshots and/or links to further information

<http://splfhir-demo.com.s3-website.us-east-2.amazonaws.com/>

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```

# SPL/FHIR Mapping Prototype

Connectathon September 2022

Convert SPL to FHIR (XML)

LOINC Code	Document Type
51726-8	NDC/NHRIC LABELER CODE REQUEST
51725-0	ESTABLISHMENT REGISTRATION
71743-9	GENERIC DRUG FACILITY IDENTIFICATION SUBMISSION (GDUFA)
34391-3	HUMAN PRESCRIPTION DRUG LABEL

Convert FHIR to SPL (XML)

LOINC Code	Document Type
51726-8	NDC/NHRIC LABELER CODE REQUEST
51725-0	ESTABLISHMENT REGISTRATION
71743-9	GENERIC DRUG FACILITY IDENTIFICATION SUBMISSION (GDUFA)
34391-3	HUMAN PRESCRIPTION DRUG LABEL

## SPL HTML Representation

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```

Product Information				
Product Type	HUMAN PRESCRIPTION DRUG	Item Code (Source)	NDC:53217-187(NDC:0591-5543)	
Route of Administration	ORAL			
Active Ingredient/Active Moiety				
	Ingredient Name	Basis of Strength	Strength	
	ALLOPURINOL (UNII: 63CZ7GJN5I) (ALLOPURINOL - UNII:63CZ7GJN5I)	ALLOPURINOL	100 mg	
Inactive Ingredients				
	Ingredient Name	Strength		
	CROSCARMELOSE SODIUM (UNII: M280L1HH48)			
	LACTOSE MONOHYDRATE (UNII: EWQ57Q8ISX)			
	MAGNESIUM STEARATE (UNII: 70097M6I30)			
	CELLULOSE, MICROCRYSTALLINE (UNII: OP1R32D61U)			
	STARCH, CORN (UNII: O8232NY3S)			
	SODIUM LAURYL SULFATE (UNII: 368GB541J)			
Product Characteristics				
Color	WHITE	Score	2 pieces	
Shape	ROUND	Size	10mm	
Flavor		Imprint Code	DAN;DAN;5543	
Contains				
Packaging				
#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:53217-187-00	100 in 1 BOTTLE; Type 0: Not a Combination Product	04/06/2009	
2	NDC:53217-187-30	30 in 1 BOTTLE; Type 0: Not a Combination Product	04/06/2009	
3	NDC:53217-187-60	60 in 1 BOTTLE; Type 0: Not a Combination Product	04/06/2009	
4	NDC:53217-187-90	90 in 1 BOTTLE; Type 0: Not a Combination Product	04/06/2009	
Marketing Information				
	Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
	NDA	NDA018832	04/06/2009	

Labeler - Aidarex Pharmaceuticals LLC (801503249)

Revised: 2/2017

Aidarex Pharmaceuticals LLC

## FHIR HTML Representation

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

```

1667 </entry>
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1672 <Observation xmlns="http://hl7.org/fhir">
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1695 <resource>
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1697 <status value="final"></status>
1698 <title value="Interim Referral Feedback Report"></title>

```

Product Information				
Product Type	HUMAN PRESCRIPTION DRUG	Item Code (Source)	NDC:53217-187	
Route of Administration	ORAL			
Active Ingredient/Active Moiety				
Ingredient Name		Basis of Strength	Strength	
ALLOPURINOL (UNII: 63CZ7GJNS1) (ALLOPURINOL - UNII:63CZ7GJNS1)		ALLOPURINOL	100 mg	
Inactive Ingredients				
Ingredient Name			Strength	
CROSCARMELLOSE SODIUM (UNII: M280L1HH48)				
LACTOSE MONOHYDRATE (UNII: EWQ57Q815X)				
MAGNESIUM STEARATE (UNII: 70097M6130)				
CELLULOSE, MICROCRYSTALLINE (UNII: OP1R32D61U)				
STARCH, CORN (UNII: O8232NY35J)				
SODIUM LAURYL SULFATE (UNII: 368GB5141J)				
Product Characteristics				
Color	WHITE	Score	2 pieces	
Shape	ROUND	Size	10	
Flavor		Imprint Code	DAN,DAN;5543	
Contains				
Packaging				
#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:53217-187-00	100 in BOTTLE;Type 0: Not a Combination Product	04/06/2009	
2	NDC:53217-187-30	30 in BOTTLE;Type 0: Not a Combination Product	04/06/2009	
3	NDC:53217-187-60	60 in BOTTLE;Type 0: Not a Combination Product	04/06/2009	
4	NDC:53217-187-90	90 in BOTTLE;Type 0: Not a Combination Product	04/06/2009	
Marketing Information				
Marketing Category		Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA		NDA0118832	04/06/2009	
Labeler - Aidarex Pharmaceuticals LLC (801503249)				

- Now what?

Look at working with the Vulcan ePrescribing Information team on consolidating the content in the two Implementation Guides

Continue working on the transformations between SPL and FHIR and back

Continue working on the HTML representation of the FHIR drug label Bundles

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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1698 <title value="Interim Referral Feedback Report"></title>

```

# Clinical Reasoning

## What was the track trying to achieve?

- Testing of FHIR-based eCQMs for the AU2022 cycle
  - 23 Eligible Clinician measures (MAT exports)
  - 11 Eligible Hospital measures (MAT exports)
  - 1 HEDIS (BCSE MY2023) Measure
- Testing of QICore-based eCQMs for the AU2022 cycle
  - 29 Eligible Clinician measures authored in VSCode CQL IDE
  - 3 Eligible Hospital measures authored in VSCode CQL IDE
- Testing of measure terminology services
  - VSAC NLM FHIR UAT Testing Endpoint

## List of participants (with logos if you have time and energy)

- Bellese
  - Centers for Medicare and Medicaid Services (CMS)
  - Clinical Cloud Solutions
  - CQLab
  - EMI Advisors
  - ICF
- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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- Alphora
- The Joint Commission
- The MITRE Corporation
- National Committee for Quality Assurance
- Wolters Kluwer
- Yale CORE

## Notable achievements

- Testing of FHIR-based eCQMs for the AU2022 cycle
  - 23 Eligible Clinician measures (MAT exports)
  - 11 Eligible Hospital measures (MAT exports)
  - 1 HEDIS (BCSE MY2023) Measure
  - 6 of those able to run on all test cases
  - 1 all test cases passed successfully (4)
  - 5 mixture pass/fail
  - Testing results logged in conman
- First functional calculation of a continuous variable ratio measure
  - Identified issue with the measure specification not making correct use of the criteriaReference extension
  - Raised issue of “identifier” element
- Testing of QICore-based eCQMs for the AU2022 cycle
  - 29 Eligible Clinician measures authored in VSCode CQL IDE
  - 3 Eligible Hospital measures authored in VSCode CQL IDE
- Testing of measure terminology services
  - VSAC NLM FHIR UAT Testing Endpoint (~8 passed without issue, ~12 partial pass/fail, issues to report)
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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```

- Connectathon release 0.3.0 of vscode-cql plugin to address feedback on QICore-based measures
  - Supported additional testing/validation at connectathon, but results in:
    - Version increment for FHIRHelpers and all shared libraries
    - Requires the use of profile tags for test cases for measures using QICore

## Screenshots and/or links to further information

### Discovered issues / questions (if there are any)

- Terminology related issues:
  - Should add dataAbsentReason to Shareable profiles for elements that can reasonably be omitted based on content constraints
  - Should require that terminology servers mark which profiles the resources conform to
  - Submit a core FHIR ticket to mark code systems and value sets with the universal jurisdiction
- Measure specification/calculation issues:
  - Submit issue to add an “identifier” element to Measure.group, Measure.group.population, Measure.group.stratifier, and Measure.supplementalData
    - Consider “linkId” approach similar to Questionnaire/QuestionnaireResponse and PlanDefinition/RequestOrchestration?
- QICore Authoring Issues:
  - FHIRHelpers version change
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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```

- Required due to addition of “ToValueSet” operator
- FHIRHelpers version change required versioning of
  - QICoreCommon
  - MATGlobalCommonFunctions
  - SupplementalDataElements
  - CumulativeMedicationDuration
- All QICore test cases now need profile tags
  - Because translated ELM relies on constraints introduced by profiles in QICore, the execution environment now needs to ensure that resources returned by the retrieves conform to the profiles stated by the retrieve
    - For example, MedicationAdministration reduces possible types for medication to CodeableConcept, so the ELM emitted assumes that all medication elements will be CodeableConcept at runtime, this means the data access layer is responsible for ensuring that the resources returned by a retrieve conform to the stated profile. This is similar to the JavaScript engine’s configuration option for running in a “trusted” environment where resources state the profiles they conform to and the engine “trusts” that that declaration is valid.

## Now what?

- Changes made to the translator, engine, evaluator, language server, and vscode plugin will be included in the 2.0 branches of those components and included in the scheduled end of September release of the translation and tooling stack. The plugin will also be updated to 2.0.0 as part of that release
- Continue testing with QICore-based measures
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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```

- Planned enhancements to better support profile-informed authoring
  - Dynamic model info: A model info provider that builds model info from any IG, not just the specific IGs currently supported (USCore and QICore)
  - Derived model info: The model info derivation process will be enhanced to support derived IGs, rather than flattening IGs as is done now (i.e. FHIR, USCore, QICore, rather than flattening the full hierarchy into QICore)
  - VSCode Plugin expanded to support NPM package lookup, rather than having to copy referenced libraries as is currently done
  - QICoreCommon will be included as a component of the QICore IG, rather than built as a library in the repositories as is currently done
  - Updated tooling stack will be submitted as a PR to the publisher

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
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- Successfully demonstrated the Identity Matching reference implementation and

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```

# International Patient Access (IPA)

## What was the track trying to achieve?

The track intended to do the following:

- Use existing tools to validate servers, implementation guides
- Test clients against servers
- Discuss future development

## List of participants (with logos if you have time and energy)

Ben McAlister - Cerner, HL7 UK

Rob Hausam - Consultant

John D'Amore - More Informatics

Bakha Nurzhanu - AWS

Isaac Vetter - Epic

Vassil Peytchev - Epic

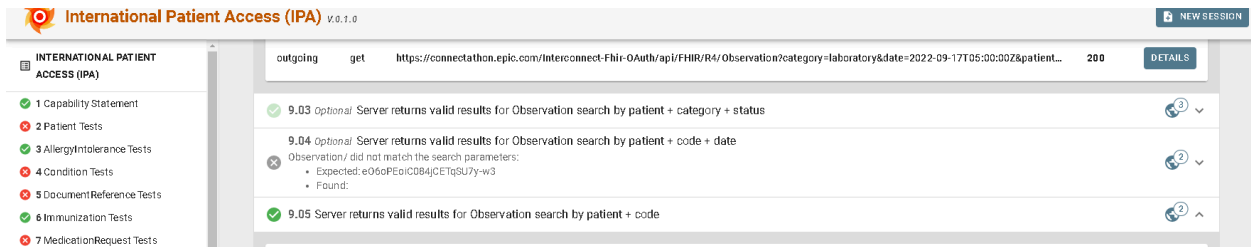
## Notable achievements

- The Inferno test suite was updated to the current package, which contains the majority of reconciled issues.
- Epic's connectathon server ran the Inferno test suite (see screenshot)
- The joint [breakout session](#) with the International Patient Summary (IPS) set several important directions for the future use and development of IPA
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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```

- Interest from other participants in the Connectathon, multiple discussions on scoping, and real-life challenges like resource de-duplication.

## Screenshots and/or links to further information



## Discovered issues / questions (if there are any)

As the IG is getting ready for publication, there is a need to update some of the tests to reflect the current requirements.

For the next connectathon,

- get clients to test against a available servers (Epic’s server will be available)
- get other servers to validate against the Inferno tests
- evangelize potential new capabilities in the HL7 validator to determine “consistency” of other base profiles and IPA (see discussion in [the breakout session](#)).

## Now what?

1. Publish STU 1
2. Immediately start working on STU 2
  - Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
    - Dynamic registration
    - Certificate issuance and revocation testing
  - Successfully demonstrated the Identity Matching reference implementation and

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```

### 3. Connectathon in January!

- Surescripts client successfully interacted with three separate servers (EMR Direct, National Directory, Evernorth)
  - Dynamic registration
  - Certificate issuance and revocation testing
- Successfully demonstrated the Identity Matching reference implementation and

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