Data Modernization Workshop: Building on Shared Services and Enterprise Technologies
May 19, 2021 – May 21, 2021
ONC: The push and pull of standards

Plenary Session | May 20th

Moderator
Charlie Ishikawa, Kahuina Consulting, LLC

Presenter
Ryan Argentieri, Office of the National Coordinator
Introductions

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ONC: The Push and Pull of Standards

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PHII Data Modernization Workshop: Building on Shared Services and Enterprise Technologies

May 20, 2021
Agenda

• Foundations
  • USCDI
  • Data elements and submission process

• Standards development and cooperative agreements
  • FHIR in action
  • Current work (LOINC, HL7) vs. ideal future state (SANER, SMART scheduling, at-home testing)

• Inspiration

• Questions / discussion / feedback
United States Core Data for Interoperability Standard

The United States Core Data for Interoperability (USCDI) standard will replace the Common Clinical Data Set (CCDS) definition.

USCDI includes the following new required data classes and data elements:

- Provenance
- Clinical Notes
- Pediatric Vital Signs
- Address, Email & Phone Number

Health IT developers need to update their certified health IT to support the USCDI for all certification criteria affected by this change.

USCDI standard annual update schedule

ONC will establish and follow a predictable, transparent, and collaborative process to expand the USCDI, including providing stakeholders with the opportunity to comment on the USCDI’s expansion.
ONDEC Submission System Walk Through

USCDI ONDEC (ONC New Data Element and Class) Submission System

USCDI ONDEC supports ONC's intent to develop new versions of the USCDI through a predictable, transparent, and collaborative process, allowing health IT stakeholders to submit new data elements and classes. Review the USCDI ONDEC Fact Sheet to learn more.

How It Works

Step 1. Submit new data elements and classes
- Review Prep Sheet: See questions and prepare content for your submission - updated to include more information on ONC's evaluation of submissions
- Start My Submission: Registered ISA users only - login or create account here

Step 2. ONC evaluates and assigns a level to each data element depending on the overall value, maturity and challenges to implementation
- Comment
- Level 1
- Level 2

Step 3. ONC posts submitted data elements on the USCDI page by level
- Submitters will have an opportunity to add or change information which could change its level determination.
- Other stakeholders can review these submissions and contribute to their development through comments and collaboration with original submitters.

Step 4. Submissions achieving Level 2 by October of each year will be considered for inclusion in the draft of the next version of USCDI. ONC will present the draft to the Health IT Advisory Committee and the public for comment.

Step 5. ONC finalizes the next version of USCDI in July.
Standardized Application Programming Interface (API) for Patient and Population Services

• Established a new application programming interface (API) certification criterion that requires health IT developers to support standardized APIs for single patient and population services.

• Certification criterion is limited to API-enabled “read” services using the HL7® Fast Healthcare Interoperability Resources (FHIR) Release 4 standard, namely FHIR Release 4.0.1

• The use of the FHIR standard and a set of implementation specifications provides known technical requirements against which third-party apps can be developed.

Supports two types of API-enabled services:

» Services for which a single patient’s data is the focus

» Services for which multiple patients’ data are the focus
HL7’s FHIR: What Does It Mean?

- **F** – Fast (to design and implement)
- **H** – Healthcare
- **I** – Interoperability
- **R** – Resources (core healthcare information elements)

- Focus is on easy implementation

- Standardizes core elements of healthcare (i.e., FHIR resources), such as patients, admissions, diagnostic reports, and medications

- Combines features of prior HL7 versions, such as data format standards, with web service technologies that have gained wide, cross-industry use
FHIR in Action: Situational Awareness for Novel Epidemic Response (SANER)

• The SANER project is a collaborative effort to develop a FHIR-based implementation guide for a framework to collect and report situational awareness data from hospitals to centralized public health and other systems.

• The goals are to automate and provide an array of timely data such as:
  - Local, state, regional and national case rates and trends
  - Bed availability for treatment
  - Other resources available for treatment
  - Staff
  - Medications
  - Immunizations
  - Medical equipment (e.g., mechanical ventilators, N95 masks)
  - Supplies (e.g., cleaning supplies)

http://build.fhir.org/ig/HL7/fhir-saner/
FHIR in Action: SANER Vision in Action: Coordination with THSA

- SANER servers deployed at HIE level
- Pilot hospital connects to servers
- Servers adapt data to FHIR
- Servers aggregate data
- Servers provide reporting back to HIE and Pilot Hospital Command & Control center
- Tightly coordinated with local public health
FHIR in Action: Inferno Testing Tool

Inferno Program Edition is a streamlined testing tool for Health Level 7 (HL7®) Fast Healthcare Interoperability Resources (FHIR®) services seeking to meet the requirements of the Standardized API for Patient and Population Services criterion § 170.315(g)(10) in the 2015 Edition Cures Update.

Inferno behaves like an API consumer, making a series of HTTP requests that mimic a real-world client to ensure that the API supports all required standards, including:

- FHIR Release 4.0.1
- FHIR US Core Implementation Guide (IG) STU 3.1.1
- SMART Application Launch Framework Implementation Guide Release 1.0.0
- HL7 FHIR Bulk Data Access (Flat FHIR) (v1.0.0: STU 1)

Inferno is open source and freely available for use or adoption by the health IT community including EHR vendors, health app developers, and testing labs. It can be used as a testing tool for the EHR Certification program supported by the Office of the National Coordinator for Health IT (ONC).

To get started, enter the endpoint of the FHIR service. Inferno Program Edition is only intended to be used on test systems that do not contain PHI.
FHIR in Action: eCR Now

Rapid cohort-based COVID-19 eCR implementation for provider sites that have eCR enabled EHRs

eCR Now FHIR App that other EHRs can use to do electronic case reporting

Nationwide eCR trust framework for eHealth Exchange, Carequality, CommonWell members, and those who connect to them

Critical clinical data for outbreak management includes:
  - Patient identity and contact information
  - Co-morbidities
  - Race and ethnicity
  - Occupation
  - Pregnancy status
  - Travel history
  - Other clinical data – medications, immunizations
Provide support for technical infrastructure and content access issues as well as:

- Bridge gaps between LOINC® and HL7® FHIR®; advance the production deployment of FHIR-based terminology services for LOINC®
- Support LOINC® content developers as they develop new content that support the USCDI
- Update tools maintained by Regenstrief for LOINC® implementers including Regenstrief LOINC Mapping Assistant (RELMA®)

Accelerate and Expand LOINC® Development to Support Interoperable Public Health Reporting including:

- Support rapid development of SARS-CoV-2 LOINC codes and associated mapping services;
- Upgrade technical infrastructure to support IVD manufacturers, labs, and other entities in testing efforts; and
- Terminology standardization
Questions?

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Health IT Feedback Form: https://www.healthit.gov/form/healthit-feedback-form

Twitter: @onc_healthIT

LinkedIn: Search “Office of the National Coordinator for Health Information Technology”

Subscribe to our weekly eblast at healthit.gov
Questions?

- Raise your hand
- Type your questions into the chat
- Use reactions to communicate with panelists.
Next steps

• Continue the discussion on the message board (link provided in the chat).

• Fifteen-minute break: 12:15–12:30 PM EST

• Next session: 12:30 – 1:30 PM EST
  • Campfire sessions
Thank you.
BACK UP SLIDES
USCDI ONC New Data Element and Class (ONDEC) Submission

View Results

Submitter Data Element Use Case

Please note: your name and organization will be visible and associated with your submission. Email

Name ofSubmitter Required

Email Address ofSubmitter Required

Secondary Email Address

Organization ofSubmitter

Save Draft Next
Submit a New Data Class or Select an Existing One **Required**

*New Data Class*

New data class

**Data Element Name** **Required**

**Data Element Description** **Required**

Are there similar or related data elements in USCDI? **Required**
- Yes
- No
- Unknown

Submit an additional data element within this data class
- Add additional data element

[Buttons: Save Draft, Back, Next]
Briefly describe the main use cases to support adoption of the data element into the USCDI.

Estimate the number of stakeholders who would capture, access, use or exchange this data element or data class.

Link to use case project page.

Attachment(s) describing this use case. (Max: 8MB)

Please add if there are additional use cases for this data element that could affect significant numbers of other stakeholders.

Does this data element support the following aims in healthcare? (check all that apply)

- Improving patient experience of care (quality and/or satisfaction)
- Improving the health of populations
- Reducing the cost of care
- Improving provider experience of care
- None of the above
Does a vocabulary, terminology, content, or structural standard exist for this data element? (e.g., SNOMED CT, LOINC, RxNorm)  
- Yes  
- No  
- Unknown

Are there additional technical specifications such as an implementation guide (IG) or profile using this data element? (e.g., HL7® FHIR® US Core Implementation Guide v3.1.0 based on FHIR R4)  
- Yes  
- No  
- Unknown

Which of the following best describes the use of this data element?  
- Not currently captured or accessed with an organization  
- In limited use in test environments only  
- In limited use in production environments  
- Extensively used in production environments  
- This data element has been used at scale between multiple different production environments to support the majority of anticipated stakeholders

Has this data element been electronically exchanged with external organizations or individuals (including patients)?  
- Yes  
- No
Describe any restrictions on the standardization of this data element (e.g., proprietary code).

Describe any restrictions on the use of this data element (e.g., licensing, user fees).

Describe any privacy and security concerns with the use and exchange of this data element.

Please provide an estimate of overall burden to implement. Overall estimate of burden to implement, including those not affected by the primary use case(s) (i.e., impact to broader healthcare community for specialty-specific data element submission.)

Please provide information on other challenges to implementation.
2015 Edition adoption is high among acute care hospitals

- Small difference between percent of hospitals that officially reported 2015 Edition technology through 2019 PI participation and the estimated rate based on 2019 AHA survey.
- The following tables used PI participation data. PI data closely matches results from AHA surveys.

2015 Edition CEHRT adoption among non-federal acute care hospitals, 2019

- 86% from Promoting Interoperability Participation
- 91% from AHA Survey
### Variation among PI participants

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
<th>% 2015 Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All</strong></td>
<td>4,579</td>
<td>100%</td>
<td>85.6</td>
</tr>
<tr>
<td><strong>Size/Geography</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large urban</td>
<td>1,938</td>
<td>42.3%</td>
<td>92.6</td>
</tr>
<tr>
<td>Large rural</td>
<td>298</td>
<td>6.5%</td>
<td>91.6</td>
</tr>
<tr>
<td>Small rural</td>
<td>459</td>
<td>10.0%</td>
<td>81.5</td>
</tr>
<tr>
<td>Critical access</td>
<td>1,344</td>
<td>29.4%</td>
<td>79.3</td>
</tr>
<tr>
<td>Small urban</td>
<td>540</td>
<td>11.8%</td>
<td>76.5</td>
</tr>
<tr>
<td><strong>Ownership</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent</td>
<td>1,017</td>
<td>22.2%</td>
<td>75.3</td>
</tr>
<tr>
<td>System-owned</td>
<td>3,447</td>
<td>75.3%</td>
<td>91.5</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large (&gt;100 beds)</td>
<td>2,211</td>
<td>48.3%</td>
<td>93.5</td>
</tr>
<tr>
<td>Small (&lt;100 beds)</td>
<td>2,253</td>
<td>49.2%</td>
<td>82.2</td>
</tr>
<tr>
<td><strong>Geography</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>1,808</td>
<td>39.5%</td>
<td>82.7</td>
</tr>
<tr>
<td>Urban</td>
<td>2,656</td>
<td>58.0%</td>
<td>91.3</td>
</tr>
</tbody>
</table>

#### 2015 Edition adoption varies among hospital characteristics

- Large hospitals, regardless of geography, have higher rates of 2015 Edition adoption.
- System-owned hospitals also have higher rates of 2015 Edition adoption.
Variation among EHR developers

<table>
<thead>
<tr>
<th>EHR Developer</th>
<th>N</th>
<th>%</th>
<th>% 2015 Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epic Systems Corporation</td>
<td>1,433</td>
<td>31.3%</td>
<td>99.4%</td>
</tr>
<tr>
<td>Cerner Corporation</td>
<td>964</td>
<td>21.1%</td>
<td>94.4%</td>
</tr>
<tr>
<td>MEDHOST</td>
<td>170</td>
<td>3.7%</td>
<td>91.8%</td>
</tr>
<tr>
<td>Allscripts</td>
<td>253</td>
<td>5.5%</td>
<td>90.1%</td>
</tr>
<tr>
<td>Medical Information Technology, Inc. (MEDITECH)</td>
<td>785</td>
<td>17.1%</td>
<td>87.9%</td>
</tr>
<tr>
<td>athenahealth, Inc.</td>
<td>82</td>
<td>1.8%</td>
<td>84.1%</td>
</tr>
<tr>
<td>CPSI (Computer Programs and Systems), Inc.</td>
<td>508</td>
<td>11.1%</td>
<td>71.9%</td>
</tr>
<tr>
<td>Other</td>
<td>269</td>
<td>5.9%</td>
<td>29.4%</td>
</tr>
</tbody>
</table>

Hospitals with Epic and Cerner technology have highest rates of 2015 Edition adoption

- Epic and Cerner hospitals also tend to be large, urban and system-owned – all characteristics associated with higher 2015 Edition adoption rates.
- Hospitals with “Other” EHRs have lowest rates of 2015 Edition adoption.
  - Some of these developers did not have 2015 Edition technology certified in 2019.
  - 3 in 5 hospitals with Other EHRs did not have 2015 Edition technology available from their developer in 2019.
  - Of the remaining 2 in 5 hospitals with Other EHRs, 75% reported 2015 Edition in 2019.