CDS Connect Work Group
Meeting Summary
December 20, 2018
3:00-4:00 PM EST

Attendees

AHRQ Sponsors	Ed Lomotan, Shafa Al-Showk, Robert McNellis
Work Group Members	Andrey Soares, Apurva Desai, Bijal Shah, Bob Badgett, Crystal Snare, Dan Pardock, Danny van Leeuwen, Dave DeCaprio, David Foley, Edna Boone, Frank Sonnenberg, India Duncan, James Ryan, Janet Hui, Jeremy Michel, John Kefelas, John Poikonen, Joshua Richardson, Julia Skapik, Kevin Larsen, Maria Michaels, Michael Wittie, Molly McCoy, Noam Artz, Patrick O'Connor, Preston Lee, Raajiv Ravi, Randolph Barrows, Ronilda Lacson, Ryan Mullins, Shaun Campbell, Stephen Loureiro, Steve Hasley, Vojtech Huser
MITRE CDS Connect Project Members	Ginny Meadows, Chris Moesel, Dave Winters, Dylan Mahalingam, Howard Kong, Julia Afeltra, Noranda Brown, Sharon Pacchiana, Sharon Sebastian

The MITRE Corporation operates the Centers for Medicare & Medicaid Services (CMS) Alliance to Modernize Healthcare (CAMH), a federally funded research and development center (FFRDC) dedicated to strengthening the nation's health care system. MITRE operates CAMH in partnership with CMS and the Department of Health and Human Services.

Agenda

- Welcome and brief review of meeting objectives and the agenda
- CDS Connect artifact discovery with demonstration
- CDS Connect artifact versioning and discussion
- Option Year (OY) 2 Prototype development with demonstration
- OY2 artifact development and pilot update
- Closing

Action Items

- Let Lacy Fabian (lacy.fabian@mitre.org) know if interested in any future discussions on the CDS Connect Feasibility Project.

Meeting Summary

Welcome

MITRE started the meeting by welcoming participants and reviewing the names of work group members participating in the call. Maria Michaels then reviewed the agenda and facilitated the rest of the discussion.

Overall:

The meeting included a demonstration and discussion on new functionality currently in development for searching for CDS Connect artifacts. In addition, MITRE facilitated a presentation and discussion on options for artifact versioning, as well as the ability to comment on artifacts. MITRE also demonstrated the CDS Connect OY2 prototype for clinical quality language (CQL) testing. An update and information was shared about this year's artifact development and pilot outreach. During each presentation, work group member ideas, suggestions and concerns were encouraged.

CDS Connect Demonstration of Artifact Discovery, Howard Kong and Noranda Brown (MITRE)

Noranda Brown and Howard Kong provided a demonstration of the new Artifact Discovery capabilities in development, used for searching for and finding artifacts of interest. Noranda provided an overview of the design. Some of the new functions include:

- Providing the ability to search by "topic", as well as to select the "topics" that you are interested in following. You can select multiple topics, and you will then see every artifact that is tagged with those topics.
- Providing the ability to search using the search icon and entering the term you wish to search by, which prompts the display of all items that match that term. The user can also specify which field to search on, such as artifact title only.

Noranda mentioned that implementation has started on this design, and Howard went on to demonstrate several of these capabilities.

Questions and additional comments were invited from work group members:

a. A work group member posted a question in the chat box, asking if the topics are derived from something like a Systematized Nomenclature of Medicine - Clinical Terms (SNOMED CT) term. Noranda commented that currently, topics are pre-defined and based on tagging of the artifacts, but eventually we hope to have more complex capabilities for searching.

b. A work group member asked if artifacts could be tagged in multiple domains today. Sharon Sebastian commented that today, each artifact can be tagged to one topic, but multiple key words and clinical domains.

c. A work group member inquired about plans to allow the ability to search on other metadata properties. Noranda responded that this has been discussed, but currently the topic, title, description, keywords and clinical domain are the allowable metadata fields. Howard added that you can also search on authors.

    i. Howard explained that the implementation was based on something called faceting, similar to how Amazon allows you to select metadata like manufacturer, etc.

d. A work group member asked if any of this work included concepts on conveying trust defined in the Trust Framework Work Group's white paper. Sharon Sebastian mentioned a meeting was held earlier today with our Agency for Healthcare Research and Quality (AHRQ) sponsors to discuss our analysis of the recommendations provided in the white paper, and areas of potential enhancements to CDS Connect systems and processes to better align with the recommendations.

Howard mentioned that he is still in the process of implementing the features that Noranda demonstrated, and displayed the current implementation of the searching capabilities.

CDS Connect Artifact Versioning and Comments, Dave Winters (MITRE)

Dave Winters presented an overview of the current state of artifact versioning, along with a discussion on potential future options to enhance the capabilities. This might include the ability to enforce or encourage versioning rules whenever artifacts are updated, and he gave several examples of when that might be needed. He explained the difference between major, minor and patch version increments. He commented that this would also apply to any attachments to artifacts, such as white papers or other documents. Currently artifact contributors can see their versions. If prioritized and implemented, each published version would be provided to the general public for viewing. Dave brought up a few questions for discussion:

- How to enforce and/or encourage use of semantic versioning?
- What value is added by making past revisions of an artifact visible to the public?
    - Is a change log sufficient?

Dave also asked for general thoughts on the approach, and invited comments from the work group members:

a. A work group member posted two questions in the chat box:
    i. Can there be a way for people to subscribe to an artifact (to see updates) and
    ii. Can we have the ability to specify patch numbers (occasionally we have an internal patch that we don't push to CDS Connect, and the patch we upload would include several bug fixes).
    iii. Dave mentioned we do have a version field that could be used, but there may be other ways to implement. He also responded that we have looked into subscription options in the past, possibly notifying people using a digest-type capability. If there was consensus for people to be able to subscribe to individual artifact updates, that could be explored.
b. A work group member asked if there were any plans to support discovery and comparison of forks make by contributors other than the original authors?
    i. Dave commented that this touches on the next topic, allowing comments. Commenting would allow someone other than the artifact author to provide additional information and feedback. The consideration of a new artifact "fork" as a new version is an interesting concept.
c. A work group member commented that a 'digest' option would work for some things, but there would need to be another process in the case of an urgent or major update (e.g., something discovered that may cause harm).
    i. Dave mentioned that if that happened, CDS Connect would notify all affected users with authenticated accounts, which would depend upon people having subscribed to the artifact.
    ii. Maria Michaels added that there should be some sort of notification of the injury or issue itself, so that any person reviewing the artifact would know about this.

iii. A work group member asked through the chat box about other ways artifacts would be visible to the public if not through a change log. In addition, what legal requirements exist, or considerations for tracking CDS versions?
    1. In reference to legal requirements, Sharon commented that one of the mandatory fields in the artifact is the intellectual property (IP) attestation checkbox, to attest that the contributor has permission from the evidence-based source to express the logic and share it.

d. A work group member posted a question in the chat box: What mechanisms are in pace to accept feedback from users on errors or things that need to be de-bugged? These are 100% sure to occur and it is important to accept the information, identify if there is a real problem, communicate back to the one who raised the issue, and edit the code.
    i. Maria commented that this will probably be covered in the next topic on comments, and Dave agreed.
e. A work group member commented in the chat box that it would be great to allow subscriptions. He also mentioned the importance of reconciling with the health level 7 (HL7) marketplace model.
f. A work group member commented in the chat box that semantic versioning (SemVer) is a great idea - just be aware that upstream content may use different versioning.

Dave then discussed the possibility of supporting commenting or rating of artifacts, which would allow artifact consumers to add either comments or a rating factor. This could include an opportunity for a question and answer session between the artifact author and the consumer, as well as allowing the consumer to provide feedback based upon their implementation experiences. Dave commented that providing visible ratings on artifacts would add trust. He also commented that adding comments and/or ratings raises several important questions:

- Who can comment and/or rate?
    - Most likely only authenticated users?
- What is the process for reviewing comments before they are published?
- What privacy concerns are there if users are allowed to post comments?
- How should published comments be presented to the public?

Dave invited comments to these questions:

a. Maria Michaels asked if Dave could clarify what was meant by the last comment on publishing comments. For example, would this refer to things like whether someone can search for something in a comment, or only find them by going to the comment section?
    i. Dave agreed that the latter was correct.
b. A work group member member mentioned that the artifact author should be able to review the comment before it is published.
c. Ed Lomotan asked a question directed to federal colleagues in particular: Are there any examples of how commenting or a mechanism for feedback has been well done in a platform like this? He asked if work group members would please send any examples.
    i. Dave mentioned that Sharon Sebastian had done some research on this topic.
    ii. Sharon informed the WG that although we are still in the research and information gathering phase, we have spoken to the people responsible for the General Services Administration (GSA) blog, who are noted for their best practices in blogs. They mentioned that the trend in government-sponsored sites leans to not allowing

comments. There are many things we need to investigate including any privacy or legal concerns before moving forward.

iii. A work group member commented that they have a feedback mechanism and it takes a lot of time to respond to and investigate that feedback. He recommended caution in allowing comments, and that there may be a lot of errors in the user's implementation that may be interpreted as an issue and commented on. He recommended not releasing an artifact until it was pilot-tested.

iv. Sharon mentioned that as developers, members of the CDS Connect team have the ability to respond to comments while under contract with AHRQ, but other contributors may not have the bandwidth.

Maria Michaels then interjected that although the robust discussion was very informative, we were out of time on this agenda item and needed to move to the next presentation. Several work group members posted their remaining comments in the chat box, which follows:

a. Commenters are a small unique group that could include patient experts and advocacy organizations. I'll be interested in seeing those comments and who responds.

b. Might be worth checking what went wrong with PubMed comments at https://ncbiinsights.ncbi.nlm.nih.gov/2018/02/01/pubmed-commons-to-be-discontinued/

c. Currently the users cannot self-register at all.

d. Most general computing systems use authenticated commenting with heavy moderation and, for retail and new sites, usually some degree of meta-moderation. StackOverflow, Slashdot etc. Maybe use a trusted user meta moderator model as a starting point?

CDS Connect OY2 Prototype Tool Development, Chris Moesel (MITRE)

Chris Moesel presented information on the OY2 prototype tool, the CQL Testing Framework. This tool leverages an open source CQL execution engine to execute CQL-based tests, using synthetic patient test cases. The new prototype tool can also export test cases as Fast Healthcare Interoperability Resources (FHIR) patient bundles for integration testing. Future versions will support additional FHIR resource types and easy-to-read test reports. Chris then demonstrated the tool.

As we were out of time, Chris addressed two items that had been posted in the chat box and invited anyone with other questions or comments to send these in email.

a. The questions/comments posed in the chat box consisted of the following:

i. Does the prototype tool support FHIR standard for trial use (STU) 3 or only draft standard for trial use (DSTU) 2? Chris responded that it currently supports DSTU2 but adding support for STU3 would be fairly simple.

ii. For artifacts not expressed in CQL (e.g., the immunization entry in the Repository), this will not work. Chris confirmed that the CQL Testing Framework is only for artifact logic expressed using CQL.

Update on OY2 Artifact Development and Pilot, Ginny Meadows (MITRE)

Ginny Meadows provided an update on potential CDS options for this year. Creating CDS that is patient/consumer-facing is favored by some of the potential pilot site organizations that MITRE has held discussions with. In addition, developing CDS for one or more of the new or recently revised United

State Preventive Services Task Force (USPSTF) recommendations has also been mentioned. Ginny reviewed the other CDS options (see slides for more information). She then provided information on steps that MITRE is taking to perform early analysis of the "A" & "B" recommendations to identify existing value sets for concepts such as services performed, as well as investigation of options for patient-friendly language.

Ginny reported significant activity in the pilot site outreach arena, sharing that discussions were held with 14 organizations so far. These organizations have diverse settings and end user focus. Next steps include conducting more detailed discussions with organizations who expressed willingness to partner and continuing the analysis of the USPSTF recommendations.

Open Discussion and Closeout

No additional time was available for discussion. Maria Michaels mentioned she had posted one follow up in the chat box, and Chris Moesel added a comment there as well:

a. Maria Michaels reminded the Work Group members to contact Lucy Fabian, at lfabian@mitre.org (MITRE), if interested in the CDS Connect Sustainability Project.
b. Chris Moesel commented that related to difficulties with the user registration, AHRQ is aware of the issue there and has done some root cause analysis. They are actively involved in resolving the issues with user registration. In the meantime, if you're still having trouble resetting your password, please use the Contact Us or Feedback link in CDS Connect or the Authoring Tool to contact us for help.