Clinical Decision Support (CDS) Connect Work Group (WG)

Meeting Summary

March 17, 2022

3:00 – 4:00 pm ET

Attendees: 37 people, including 4 phone dial-ins

Organization	Attendees
AHRQ Sponsors	Mario Teran; Roland Gamache; Steve Bernstein (3)
WG Members	Andrey Soares; Bryan Bagdasian; Bryan Kim; Bryn Rhodes; Dan Malone; Danny Van Leeuwen; Edna Boone; Emre Sezgin; Jerry Osheroff; Kerri Patterson; Majid Afshar; Maria Michaels; Maya Gerstein; Michelle Dardis; Peter Muir; Raajiv Ravi; Randolph Barrows; Ryan Mullins; Sandra Zelman Lewis; Tien Thai; Yvette Apura (21)
MITRE CDS Connect Members	Allie Rabinowitz; Chris Moesel; Julia Afeltra; Lacy Fabian; Matt Coarr; Michelle Lenox; Robert Truhn; Sam Carrillo; Susan Haas (9)

MEETING OBJECTIVES

- Welcome; brief review of meeting objectives and agenda
- CDS artifact versioning
- Panel discussion on sample versioning choices
- What's new with CDS Connect
- Close

ACTION ITEMS

- None.

MEETING SUMMARY

Following roll call and review of agenda, MITRE began the meeting with an overview of CDS artifact versioning. A panel presented three instances when creators were faced with choosing how to capture an update to an artifact. The WG discussed what they considered to be best practices in incorporating the needed changes, and what goes into making the best choices in maintaining a new version or creating an altogether new artifact to replace it.

Welcome

MITRE started the meeting by welcoming participants and reviewing the names of WG members participating in the call. Maria Michaels (Centers for Disease Control and Prevention) then reviewed the agenda and facilitated the rest of the discussion.

CDS Artifact Versioning: Introduction

Allie Rabinowitz (MITRE) presented background information on CDS artifact versioning. Versioning tracks changes to artifacts over time, while also informing end users of updates that may be critical in the artifact's implementation. Developers specify an artifact's versions using a semantic version number in the artifact metadata; they record major, minor, and revision changes based on the impact of the version update. MITRE works with CDS artifact authors to determine the impact of an update. A separate technical artifact version history tracked within the Drupal database that stores artifacts. Nevertheless, Ms. Rabinowitz focused this WG discussion specifically on the versioning practices associated with an update to an artifact's metadata.

A fundamental change to an artifact is best captured by creating a new artifact. The decision to create a new artifact, instead of advancing to the next version, is often a subjective choice made by the author, but general best practices recommend creating a new artifact if the update alters the purpose or intent of the last version, if an artifact owned by another author is modified by another user, or if the underlying evidence grounding the artifact undergoes a fundamental change. Ms. Rabinowitz noted the discussion will ask WG members their opinions on how to handle certain changes to artifacts, such as the knowledge level or implementation method involved.

CDS Connect promotes collaboration and encourages users to build upon existing contributions within the Repository. If an individual believes an artifact may benefit from an update, either by added information or incorporation of user feedback, then they may contact author to suggest changes. Alternatively, the author can grant the individual permissions within CDS Connect to modify the artifact directly. If the author chooses not to incorporate a change and if the artifact licensing permits, then a potential end user can create a new artifact and document its relationship to the original artifact under the "Related Artifacts" metadata field.

CDS Connect is an active—rather than static—platform. Because many benefits result from keeping artifacts updated with the current evidence and best practices, it is important to encourage ongoing updates to artifacts with documentation in the dates, versioning numbering, and related artifacts sections.

Panel discussion on versioning choices

Susan Haas (MITRE) reviewed an ongoing decision MITRE is facing about creating a new version or new artifact. The artifact entitled "Aspirin Therapy for Primary Prevention of CVD and Colorectal Cancer" requires significant updates to reflect anticipated changes to the United States Preventative Services Task Force (USPSTF) aspirin prescribing guidelines for preventing colorectal cancer and cardiovascular disease. The age range for the target population is anticipated to change and a

positive (Grade C) recommendation for individuals aged 60 and older to consider an aspirin prescription will be changed to discouraged use (Grade D). Dr. Haas asked the WG member for their opinions on how to handle this situation.

One WG member offered her experience in informing clinical practice when an established practice is changed. She recommended having the option to display this evidence information for both patients and practitioners to ease the transition. Incorporating the recommendations into CDS will help transition from to the newer clinical practice.

Another WG member with guideline-writing experience noted the importance about how this recommendation does not apply to certain subpopulations, such as those at high risk of developing colorectal cancer. They suggested adding an explanation of why the recommendation changed and who it may or may not apply to.

MITRE noted that there are opportunities to communicate the new recommendation in two places in the clinical workflow: prior to the clinician prescribing (i.e., a proactive notification) or following it (i.e., a reactive notification).

A WG member inquired about the process for uploading artifacts to the Repository. MITRE responded that the process is coordinated with the CDS Connect team, who help ensure metadata and supporting materials are complete. A user guide, currently under development, will provide additional information on this process.

One WG member reflected that, in this instance, a version change might be appropriate. Only the parameters will need to be changed; all other functions of the artifact will remain the same.

Two other WG members noted that the polarity of the recommendation changed; it went from a positive recommendation to a negative one. If an artifact's update includes the identification of patients who will be specifically called out not to receive a treatment, then it warrants a new artifact.

MITRE postulated the possibility of creating two separate artifacts with different functions—one for positive prescribing considerations, and a supplementary one for the negative recommendation. This way, organizations can customize which information they want to implement in their systems. Many WG members agreed, noting that the artifact could be expanded to consider individual patient characteristics, and thus avoid an abundance of alerts.

One WG member noted that treatment recommendations are constantly evolving, creating the need for mechanisms to broadly deal with implications of the changes.

For the second example, Chris Moesel (MITRE) reviewed a decision to update a version of the *Abnormal Blood Glucose and Type 2 Diabetes Mellitus: Screening* artifact. The USPSTF recommendation upon which this artifact is based changed its title as well as the age range of the target population. MITRE considered renaming the artifact to align with the recommendation and resetting the version number, thereby creating a new artifact. Mr. Moesel acknowledged that the content of the new artifact would be largely the same as the previous version. With these

considerations, MITRE decided to rename the artifact, yet continue the previous version numbering. This practice of continuing the ongoing version updates under a different artifact title would preserve the lineage of the artifact and continue the record of updates.

Several WG members agreed with this approach, acknowledging that the intervention had not changed, and that the artifact was relatively similar between the two versions.

In the discussion's last example, Bryn Rhodes (Alphora) posed a versioning decision he made with *Pain Manager* artifact. This artifact is a provider-facing application based on an artifact entitled *Factors to Consider in Managing Chronic Pain: A Pain Management Summary*, complemented by components involving shared decision-making capabilities, system requirements, capabilities to fit in a larger workflow, and a different target audience. Alphora also refactored the core library of the original artifact to allow more reuse. The new artifact reuses the core components of the original artifact and expands its capabilities. Mr. Rhodes questioned whether an artifact with certain core components should somehow be included as a version of the original artifact and, if so, how that versioning should be captured.

A WG member recommended packaging similar information together, potentially within a library. This approach would require additional author effort to maintain a second library. Other methods may be available to select and combine the core data elements. For example, a data element of CQL could define the criteria for diabetes, which can be reused within multiple artifacts.

What's New with CDS Connect

Because the discussion session was robust, MITRE did not present recent CDS Connect advancements, but it encouraged WG members to consult the meeting slides for relevant details. The Authoring Tool now has added capabilities to support CQL based on FHIR 4.0.1. Further, MITRE prepared for CDS Connect's upcoming migration to a new server environment, and it continued refactoring efforts that will improve maintainability and reusability. The Repository's prototype tools have updated dependency libraries. MITRE performed security updates for the Repository, continued its partnership with Clinical Decision Support Innovation Collaborative (CDSiC) on website updates, added memory to the Drupal cloud environment, made elements of the system more memory-efficient, and addressed spam issues.

Closing