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

Meeting Summary

June 16, 2022

3:00 – 4:00 pm ET

Attendees: 40 people, including 3 phone dial-ins

Organization	Attendees
AHRQ Sponsors	Edwin Lomotan, Mario Teran, Roland Gamache, James Swiger, Mary Nix (5)
WG Members	Alex Goel, Alison Kemp, Jeremy Michel, Jerry Osheroff, Laura Marcial, Lisa Lang, Maria Michaels, Michelle Dardis, Nitu Kashyap, Paul Seville, Preston Lee, Raajiv Ravi, Peter Muir, Randolph Barrows, Ryan Mullins, Danny van Leuwan, Tien Thai, Bryn Rhodes, Dan Malone, Andrey Soares, Rina Dhopeshwarkar (21)
MITRE CDS Connect Team	Julia Afeltra, Lacy Fabian, Allie Rabinowitz, Matt Coarr, Chris Moesel, Michelle Lenox, Robert Truhn, Susan Haas, Robert Truhn, Sam Carrillo, Mandeep Singh (11)

MEETING OBJECTIVES

- Welcome
- CDS Connect Past, Present, and Future
- Celebrating CDS Connect and Clinical Decision Support (CDS)
- Open Discussion
- Close

ACTION ITEMS

- None

MEETING SUMMARY

Presenters reviewed the project's accomplishments over the last six years, from proof of concept to the development of a platform meeting Fast Healthcare Interoperability Resources (FHIR) standards and hosting 65 artifacts. Although this session was the final CDS Connect WG meeting, Agency for Healthcare Research and Quality (AHRQ) assured the community that it will not be the end of CDS Connect, instead promising to offer future partnerships and opportunities.

Welcome

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

CDS Connect Past, Present, and Future

Lacy Fabian (MITRE) began the session recognizing that CDS Connect has been in development for six years. Her review of CDS Connect's accomplishments was broken into three phases of progress: the proof of concept and initial development period (2016 – 2019), the enhancement period (2019 – 2022), and the future development period (2022 and beyond).

During its first phase, the CDS Connect team created the first prototype and first public-facing iteration of the website, Repository, and Authoring Tool. Also, during this time, the team established the CDS Connect WG, tested processes for moving work from development to production, capitalized on opportunities to create and promote standards, piloted the CDS Connect infrastructure and artifact development process with third parties, and defined the CDS Connect artifact development cycle.

Matt Coarr (MITRE) summarized the evolution of the CDS Connect website and Repository during the enhancement period. The CDS Connect team continued to update the website and innovate the functioning of CDS Connect. Examples of expanded features include deciding how artifacts would be stored on the platform, aligning artifacts with CPG-on-FHIR specifications, implementing advanced search abilities in the Repository, simplifying the user interface of the website, publishing eight artifacts, and managing a total of 65 artifacts. The CDS Connect team also established a process for annually reviewing all artifacts, updating website graphics, promoting WG participation, and streamlining the process to sign up for a CDS Connect account.

Chris Moesel (MITRE) described the CDS Connect team's progress during the enhancement phase regarding the Authoring Tool. Over the past two years, the CDS Connect team supported FHIR R4-based clinical quality language (CQL), improved support for CQL versions 1.4 and 1.5, integrated FHIR Clinical Guidelines, aligned more closely to CDS Hooks, and added support for additional FHIR resource types. The team updated the Authoring Tool to enhance usability, applicability, and expressiveness for authors, including the introduction of new features such as the query builder and summary view. The CDS Connect team also improved the maintainability and reusability of source code to lessen the burden for developers and implemented new code to allow tracking of GitHub

views and downloads of CDS Connect tools. As a result, developers have found success in reusing information in the Authoring Tool to build new artifacts, along with incorporating CDS Connect in the curriculum of higher-educational institutions.

Michelle Lennox (MITRE) discussed CDS Connect's engagement activities in the enhancement phase. The CDS Connect team involved more than 130 community members of the WG in prioritizing next steps for CDS. Website administrators created and maintained user accounts and compiled a list of more than 600 community stakeholders, who in turn received periodic emails about CDS Connect updates. A Patient Partnering Panel formed and developed a patient-involvement campaign titled "One More Step." Finally, CDS Connect representatives attended conferences and submitted publications to publicize and promote the platform.

Edwin Lomotan (AHRQ) concluded the session by revealing AHRQ's plans for future development. The WG will no longer be meeting regularly; nevertheless, CDS Connect will continue to be available for public use with functioning support. The platform will continue to expand and to accept external contributions; AHRQ will solicit ongoing stakeholder input in continued support of the initiative.

CDS Connect achieved its goals of generating a systematic and replicable process for transforming patient-centered outcomes research into shareable health CDS based on and compatible with information-technology standards. CDS Connect promotes the transformation of research findings into actionable, relevant, and interoperable clinical capabilities.

Celebrating CDS Connect and CDS

Maria Michaels (Centers for Disease Control and Prevention) marveled that CDS Connect, beginning as a nebulous idea, is a tangible reality allowing the sharing of interoperable CDS. CDS Connect has been a forward-thinking project, establishing support for FHIR standards even prior to regulatory requirements.

She offered her thoughts on the future of CDS Connect, including its potential to further evolve our healthcare infrastructure, offer better support connecting information with technology, and link medical information and guideline derivatives. She shared a vision in which systems evolve to work together (e.g., labs, pathology reports, radiology results, billing information, and supply chain information). She also postulated on how the CDS community can reimagine upstream processes (e.g., guideline development) to improve the distribution of information. A virtuous Learning Health System is the "holy grail"—the goal where evidence informs knowledge, which in turn adds to the original evidence.

Danny van Leeuwen (HealthHats) looked back on his engagement as an activist for partnerships among patients and caregivers during the last five years of involvement with CDS Connect. His goal is to create an environment where an interested patient advocate is welcomed to listen, learn, and share opinions and experiences with industry professionals. He coaches and mentors patient advocates to create more professional partnerships that focus on the patient's perspective as the end

user. Ultimately, he aims to create a network of partnerships learning together to take the next step together.

He seldom sees partnerships with patients extend throughout the lifecycle of an effort, unlike what he has experienced with CDS Connect—evident by his inclusion as a speaker at this meeting. Often, researchers and technical professionals do not take the time or effort to listen or understand the patient end user. He also noted that such initiatives rarely establish longevity or consistency; research and development is interrupted with piecemeal work moving from grant to grant, failing to create a patient-supporting system over time. He advocated for true and meaningful work enabling a shift to consider the patient first, noting that these patient-first efforts often are insincere—where so-called "patient centered" research is nothing more than "patient scented." In conclusion, He called for financial support and a critical mass of stakeholder buy-in of patient partnering to successfully shift the current research paradigm.

Ed Lomotan concluded the session acknowledging Maria Michaels for chairing the WG throughout its duration, as well as Danny van Leeuwen for providing innovative approaches that greatly assisted the WG in focusing on patient centeredness. He offered his sincere thanks to members who consistently attend the WG meetings and are active members in the CDS community, often volunteering their own time. Finally, he acknowledged Bryn Rhodes (Alphora) and Chris Moesel (MITRE), who have pioneered the application of CQL.

Ed Lomotan invited WG members to submit a form to join the CDS Innovation Collaborative (CDSiC) or the CDSiC listserv, providing the following link in the chat feature of Zoom: https://digital.ahrq.gov/ahrq-funded-projects/clinical-decision-support-innovation-collaborative-cdsic. Moreover, he noted that WG members can contact AHRQ CDS representatives via email at clinicaldecisionsupport@ahrq.hhs.gov.

Open Discussion

Several WG members shared their support and appreciation of CDS Connect's progress over the past six years. One WG member urged AHRQ to focus more on outcomes when funding the Patient Centered Outcomes Research Trust Fund (PCORTF) in the future.

Bryn Rhodes reflected on the future of CDS, noting an opportunity for creating a cohort definition that itself would be an artifact. Several WG members agreed that this would be a useful development.

A WG member suggested expanding knowledge and acceptance of patient partnerships. Ed Lomotan is hopeful that the CDS community is embracing this concept—citing multiple patient-centered sessions at the American Medical Informatics Association (AMIA) annual conference in recent years as evidence of this trend—and agreed that such effort should continue. CDSiC will include a patient-centered CDS measurement framework that will begin to assess "value," in addition to pilot dashboards.

WG members supported the idea that CDS needs to be further linked to upstream and downstream factors alike so that it can respond swiftly and robustly respond to the circumstances. Examples of such factors include guidelines, clinical quality measures, and even sudden changes to the ecosystem—such as what was observed with COVID-19.

Closing

Ed Lomotan and Maria Michaels thanked the WG members for their participation and expressed enthusiasm for the next chapter in CDS development.