June 2019 Roundtable Q&A
C-CDA Documents on FHIR®

Below is a list of panelist responses to questions that could not be answered within the time allotted during our recent Health Story Project Roundtable. To review the full recording of the presentation, please visit the Health Story Project Roundtable Archives. If you have additional questions, please feel free to email healthstory@himss.org.

Responses from the following panelists are included below:

> Lisa Nelson, MS, MBA, Principal Informaticist, MaxMD
> Matt Lord, Senior Consultant, MDIX, Inc.
> Rick Geimer, Chief Innovation Officer, Lantana Consulting Group

Q: If I can get both C-CDA and FHIR® JSON for a patient from the portal and FHIR® API, should I expect the FHIR data to have at least the same amount of information as the C-CDA? If not, why not? Are the EHR vendors slow to add all the information from C-CDA?

> **Rick:** FHIR® data models tend to be richer than C-CDA data models. Our mapping work is showing that mapping from C-CDA to FHIR® works better because, as you point out, the FHIR® data models are more robust. The whole industry is aiming to sync up for consensus building around US Core Data for Interoperability (USCDI) data elements. That is the "common data denominator". It will be possible to expect synchronization on these data elements, and as the USCDI expands so will the number of data elements that are commonly defined between C-CDA and FHIR®.

Q: Does FHIR®/CDA make it more possible than scripting or HL7 to push patient data back into the EHR?

> **Rick:** Yes. Most EHRs today have FHIR® endpoints, currently using FHIR® DSTU2 (aka Argonaut). These APIs are typically read/write, so you can push data into the EHR, provided that the data you need to write maps to the resources supported under one of the Argonaut implementation guides, which can be viewed at https://www.fhir.org/guides/argonaut/.

Q: Is there a plan to harmonize C-CDA with the International Patient Summary (IPS) work effort? They are similar and it seems a crosswalk could be readily developed. There is both a CDA IPS profile and a FHIR® IPS Implementation Guide.

> **Matt:** Transformation of the International Patient Summary from CDA to FHIR® is a use case that the Model-Based Transformation Service is considering for our guide. We would welcome your participation

in explicating the business need for the crosswalk and in developing a narrative that is appropriate. Please visit: https://confluence.hl7.org/display/SOA/Model-Based+Transformation+Service for more information on how to get involved.

Q: Do SNOMED codes work better than LOINC codes?

Matt: SNOMED vs. LOINC efficacy is not the framework we are pursuing for C-CDA and C-CDA on FHIR® implementation. Rather, we are looking to harmonize value sets, as possible, between the two standards, whether the set is SNOMED or LOINC. The usage of SNOMED or LOINC for a value set is determined in the development of the underlying standard, CDA or FHIR®.

Q: Are there any tools available to convert existing C-CDA examples to C-CDA on FHIR® profiles (ex: C-CDA on FHIR® Continuity of Care Document profile) so we can test out the profiles in our environments without having to write examples by hand?

Rick: There are open source transforms available on GitHub. These were done for the C-CDA Care Plan Document type for the Pharmacist use case, but they have since been extended to cover other document types as well, though the coverage is not 100%. Also, the transforms currently target FHIR® STU3, but will be updated for FHIR® R4 later this year.

Q: Does C-CDA on FHIR®, or FHIR® in general, support data pushing, similar to HL7v2? Or are we constrained to relying on querying/polling for CCDs via FHIR®?

Matt: Yes, more information on RESTful API functions is available at https://www.hl7.org/fhir/http.html.

Q: Is Java API available for C-CDA on FHIR®? HAPI FHIR®?

Rick: Yes, you can use the HAPI FHIR API to create C-CDA on FHIR® documents, without any special requirements.

Q: Based on your experience, should interoperability focus on the pragmatic utility of health information management as it relates to clinicians having the most accurate provenance information at the point-of-care?

Lisa: If our systems recorded and distinguished new observations/information from information sourced from somewhere or someone else, it would provide a more accurate picture of the information and that would improve interoperability.

Q: Based on your experience, should navigational effort to find clinically contextual information be a consideration for interoperability as a clinician captures a patient's story?

Lisa: Yes, a clinician's navigational effort should be considered when accessing contextually relevant information. Context is very important for making sense of the data. Information context always needs to be a consideration when sharing information between systems.

Q: Is the spreadsheet of CCDA to C-CDA on FHIR® mappings also available in the FHIR® Mapping Language? Are there open-source software tools that use the FHIR® mapping language to convert documents?

Matt: The C-CDA to C-CDA on FHIR® mapping spreadsheet is not yet available in the FHIR® mapping language. One of the mid-term goals for the project is to provide a tool-neutral spreadsheet to enable tooling to create FHIR® mapping language artifacts.

Q: I appreciate the effort to map the C-CDA standard to FHIR®. Is any work underway to map HL7 v2 message standards to FHIR to support transition of messaging to FHIR®?

Matt: Yes, there is significant effort in this area. Please see https://confluence.hl7.org/display/OO/2-To-FHIR+Project for more information.

Q: Is CDA on FHIR® being used internationally?

Rick: There has been interest, but I don't have links to specific implementations.

Q: When is FHIR® support going to be mandatory for all certified EHRs?

Matt: Those tea leaves are too fine for me to read.

Q: Do you think the IHE MHD profile will move from using DocumentReference resource to Composition once C-CDA on FHIR® mature?

Lisa and Rick: MHD (Mobile access to Health Documents) might use DocumentReference for indexing and finding documents, but the documents themselves might start making use of Composition.

Q: How widespread is the use of the C-CDA on FHIR® and where?

Rick: The C-CDA on FHIR® Care Plan document type has been implemented in production in many pharmacy systems. We expect the R4 version of C-CDA on FHIR® to be more widely adopted though, since many EHR vendors skipped FHIR® STU3, on which C-CDA on FHIR® is currently based.

Q: At the beginning of this presentation, Lisa mentioned an ecosystem that included IHE. How can IHE help support the adoption of C-CDA on FHIR®?

Rick: IHE specifications such as Mobile access to Health Documents (MHD) can be used for indexing and retrieval of C-CDA on FHIR® documents.

Q: How do I view a FHIR® Document? The C-CDA is a nicely presented document. FHIR®, I have not seen anything yet that does that.

> **Rick:** There is a FHIR® document rendering stylesheet in the XML Tools download, found at http://hl7.org/fhir/downloads.html

Q: What about FHIR® StructureDefinition in the CDA context?

> **Rick:** The C-CDA on FHIR® implementation guide contains profiles, which are implemented using the FHIR® StructureDefinition resource.

Q: Can a C-CDA translated to FHIR® still be considered "Attested to" if the Attester has not been able to view the new FHIR document?

> **Matt:** This is one of the goals of the Model-Based Transformation Service: to facilitate a set of standards such that a tool meeting standard functional requirements and using standard mappings would produce a transformed document that maintains integrity sufficient to meet the "Attested to" designation.

> **Lisa:** As we evolve toward utilizing the HL7 Digital Signature standard to sign attested artifacts, we will be able to have "preserved" digital artifacts. The digital signatures can be applied to CDA documents or FHIR® documents. Converting content from a signed C-CDA document to make a new FHIR® document produces an artifact that is not signed. To support attestation, you really need a two-part function that involves review and a digital signature. The digital signature provides the assurance of the attestation.