

Health Information Technology Standards Committee

Final Summary of the November 16, 2011, Meeting

KEY TOPICS

1. Call to Order

Mary Jo Deering, Office of the National Coordinator (ONC), welcomed participants to the 31st meeting of the HIT Standards Committee (HITSC). She reminded participants that this was a Federal Advisory Committee meeting, with an opportunity for the public to make comments, and that a summary of the meeting would be available on the Web site. She conducted roll call, and turned the meeting over to HITSC Chair Jonathan Perlin.

2. Opening Remarks

Perlin informed the Committee that this would be a meeting in which they change their trajectory from looking retrospectively at what standards are ready to be applied for Meaningful Use Stage 2, to looking across the horizon at how to move to model-driven health tools that support high-performance health care. He recognized the new Deputy National Coordinator Judy Murphy. Murphy said she is excited to be engaged in public service for this portion of her career, and acknowledged her colleagues on this Committee and at Aurora Healthcare, where she has worked for 36 years. Perlin also acknowledged the retirement of Cita Furlani, and indicated that Charles Romaine will be taking Furlani's seat on the HITSC.

The Committee approved the minutes from the October 21st meeting by consensus.

Action Item #1: The Committee approved by consensus the minutes from the October 21st meeting.

3. Review of the Agenda

Perlin noted that this is an important meeting for Committee members to work with ONC colleagues to scan the horizon and look holistically at the ecosystem of health care and health information, and the linkages between the models and specifications and certifications. He made reference to model-driven health tools, saying that they will discuss implications for maximum effectiveness and parsimony. They will look at the segue between theoretical models and practical models.

Co-Chair John Halamka noted that he keeps a tally of some of the big issues that come up in discussions as needing more work. These include:

- Transfer of care summaries.
- The continuum of moving from CDA through CCD to C32 and now to a templated consolidated CDA approach. Doug Fridsma will lead this discussion.

- Quality measures—Halamka referred to the kinds of terms that should be used in quality measures as the ones that are actually used in electronic health records (EHRs).
- Content—radiology reports and images. This has huge economic value, eliminating redundancy and waste, yet there is no implementation guidance available for radiology tests.
- Vocabularies—Halamka acknowledged the deliverables from Jamie Ferguson’s work, but asked whether they can extend that beyond quality measures to the EHR itself. What are the necessary mappings?
- Lab ordering compendium. Halamka looks forward to a lab ordering data set that everyone in the country will use, so that the cost of lab ordering interfaces will go from \$10,000 apiece to \$500. That will come up in future discussion.

Regarding transport, Halamka said that Dixie Baker has modified a slide that she presented at the last meeting to further clarify that this was not a “bake-off” between Direct and Exchange. The language has been clarified to show that this was not meant to be a comparison between the two.

Halamka also reported that the ONC seeks testimony on a blog from those who have implemented the Nationwide Health Information Network (NwHIN) Exchange in the field. ONC is also working on polishing implementation guidance on Direct, and is looking at the modularization of the NwHIN Exchange activity. He commented that one can imagine that as certification criteria are written, it could be a lowest common denominator of modular components.

With regard to lab compendiums, Wes Rishel noted that e-Links at the California Healthcare Foundation has spent a significant amount of money, convened meetings about lab ordering, and has produced a competed specification. The Center for Health Care Strategies (CHCS) is funding approximately 12 different implementations of this specification around the country, not specific to California, and is working with HL7 to address it for trial use. He said he would not want to see this Committee embark down this path without using this relatively mature input to go forward.

Rishel also suggested that *ad hoc* information exchanges in production that are running on XBS and XCA that are not necessarily under the NwHIN governance be identified, and he would like a specific goal of looking at the full suite of NwHIN specifications and understanding which ones are used often, which are used as token implementations, and which are not being used. If a core of specifications being widely used can be identified, it should be promoted as quickly as possible.

Dixie Baker noted that a series of questions were developed in response to this Committee’s input regarding which exchange specifications are being used, how, and for what purpose, as well as what alternative stacks are being used. Those questions were posted last week on the Standards Committee blog and public comment is being solicited for 30 days.

4. Implementation Workgroup

Implementation Workgroup Co-Chair Liz Johnson reminded Committee members that they have seen these recommendations before—at this meeting, she was presenting the recommendations with further clarifications:

1. Create a grid that shows the standards, certification criteria, testing methodology, and implementation guidance for each of the Stage 2 Meaningful Use measures, including the quality measures.
2. Launch a unified HHS Web site that serves as the “single source of truth” for Centers for Medicare and Medicaid Services’ (CMS) Meaningful Use and ONC’s certification programs.
3. Establish a clear process to manage updates to specifications for Meaningful Use measures and quality measures.
 - Include version numbers and release notes for all updates so users can easily identify the most recent info and clearly understand what has changed since the last update.
 - Indicate whether updates are mandatory or optional.

Johnson then presented the scope of future work for the Workgroup, which will include: (1) continuing to populate the “grid” to include test procedures (TPs), (2) providing the perspective of the provider and vendor/developer on the expected changes in TPs related to Stage 2 Meaningful Use, (3) considering the implications of transitioning from TPs that currently use visual inspection testing and attestations to formalized testing for product certifications, and (4) presenting a formal timeline of activities and description deliverables at the December HITSC meeting.

Discussion

- Chris Chute said that the second recommendation, relating to the unified HHS Web site that would be the “single source of truth” could bear some clarification and expansion. He suggested there should be some type of repository including value sets associated with elements, and the specific data elements in a machine-interpretable form. All too often, a Web site indicates what to do in a narrative, prescriptive form rather than having the technical content that implementers need. Perlin remarked that he thought Chute might be referring to the complexity of a shared inter-agency workspace on such a Web site. Murphy said that they were thinking of exactly this, and could add some specificity to the language.
- Rishel said that he would like to see more attention paid to the certification of systems for semantic interoperability in these recommendations. In reviewing the experiences of NwHIN and other implementers based on the C32, there is much to be learned, and other efforts are going to incorporate that knowledge. An important principle is that it is not sufficient for certification to simply be acceptance of the C32; it needs to be acceptance of the C32 such

that a user can now use the system to find whatever data points are being tested for, in the right place. Surescripts and major labs do this to certify devices into their systems.

- Rishel continued that the second part applies to both incoming and outgoing interfaces. If an EHR is cast with producing a C32, or a consolidated CDA, etc., there should be a benchmark system that will simply display selected contents in a way that perhaps is not user-friendly to a clinician, but is tester-friendly to a certification person, to make sure data is represented properly.
- Finally, Rishel commented that it is critical to make the material that would be used in testing available free on the Internet for all developers before they come to testing. Obviously, as with any test, one may change the data, but fundamentally there is no reason why any of the 200+ vendors and developers that have already been certified should not be able to send a test document and see it interpreted, or receive a standard test document and see onscreen how it is supposed to be interpreted. Judy Murphy said they could specifically call out the exchange standards and make sure that what is expected is very clearly presented.
- Dixie Baker asked about the Privacy and Security Workgroup's recommendations for changing certifications against the security criteria. At the last meeting, the Privacy and Security Workgroup recommended that in order to encourage sound security architecture engineering and integration, that each security criterion be treated as addressable, and a vendor would need to meet the criteria or assign it to an external service. Johnson indicated that this could be added to the Workgroup's recommendations.
- Arien Malec asked about the timeline, trying to pin down a realistic expectation for developing and upgrading software, plus the training necessary to achieve Meaningful Use. Johnson said that this is where the 18 month time period comes in, but she acknowledged Malec's point that the recommendations raise the question, 18 months from when? They recognize that even as they are moving towards the Notice of Proposed Rulemaking (NPRM) from Meaningful Use Stage 2, they probably do not have 18 months to complete the all of the work. However, they have to take into consideration the burden they are putting on the implementers.
- Jamie Ferguson supported Chute and Rishel's comments about materials being available on the Web site. He also reflected that this is not the first time they have forwarded that recommendation to the ONC. They had a series of recommendations passed by this Committee around vocabulary for the standards themselves, for the value sets used in the measures, the convenient subsets used in specialties, and the required cross-maps all to be made available in one place. It was suggested that those previous recommendations be added to this set of recommendations.

Action Item #2: The Committee approved by consensus the recommendations of the Implementation Workgroup, with several amendments and additions.

5. Updates From ONC

ONC's Doug Fridsma introduced the next series of discussions, saying that the ONC needs the Committee's feedback in terms of future directions. Specific topics included transitions of care and how they relate to green CDA, quality measures (ensuring that the value chain around quality measure is maintained and there is consistency), and modular specification work. Fridsma noted that the ONC is working with the National Institute of Standards and Technology (NIST) to make sure there are testable specifications, and they are looking at NwHIN specifications at the transport layer to see how comparable they are.

Consolidated CDA

The Standards and Interoperability (S&I) Framework identified three primary areas of concern regarding CDA (CCD/C32) implementation and interoperability. For each, solutions/potential solutions have been identified, as follows:

- Issue 1: Inadequate and confusing documentation
 - Solution: CDA consolidation
- Issue 2: Lack of implementer tools and resources
 - Solution: express CDA as a computable model
- Issue 3: Overly complicated XML schema
 - Potential solution: green CDA

Discussion

- Halamka noted that if they create a model so complex that it is hard to put into code, then they have done the community a disservice. How can they get to the simplest, most parsimonious approach that is based on good informatics principles?
- David McCallie drilled into the notion of transformable to canonical CDA. He sees that green CDA has been characterized only as a potential solution, but he asked if Fridsma sees that transformation as one way or two way, and whether it is required? Is it a one-time process, or something that must be maintained? Is green just a service layer to make it easier for certain people to understand while maintaining its complexity, or is it truly simpler? Fridsma explained that there is no template to map canonical CDA. He hopes they can discuss the tradeoffs. A tremendous amount of work has gone been done on the CDA architecture, and there are some very successful early adopters. They want to make sure that these early adopters do not have to retool their infrastructure. If an organization decides to adopt green CDA, they should not have to translate into a full CDA, and the receiver of their green CDA should be able to read it.
- McCallie noted that the term “or” means “and” for implementers. If a system is required to support both on-the-wire green and-on-the wire full complexity, then they have only added work. It must be something that could be used in lieu of the complex CDA, not in addition to

it. Also, just because something is complex does not mean it is powerful. Malec agreed that either green-on-the-wire or consolidated CDA should be called for—indicating both does not work. He votes for green. That said, he is concerned that it is November, and they must give implementation advice to people. Assuming they decided to recommend green-on-the wire, he asked whether it is realistic within the given timeframe.

- Fridsma said that getting the standardized templates will require close work with HL7. It is difficult to determine whether this would be available for the next stage. It is late in the game to include significant changes such as these, and it would require about 9 months to do a green CDA. Malec commented that if 9 months are required, then it will not happen. He suggested that it would be better to focus on consolidated CDA and set that as the goal. His preference is to get it done as green on-the-wire, but his ultimate preference is to make it as simple as possible for the implementers, and it is better to give a clear direction now, so that programmers, analysts, etc. can start internalizing the documents.
- Fridsma explained that mappings are a way of bridging one way of doing things to another. This approach could be used, once templates are available that allow a transition from consolidated CDA to green-on-the-wire, then over time, people can make that transition. One of the things that will be helpful would be to provide tools to implementers to trace the change that might be required.
- Stan Huff suggested that these models can be used in more than one context. Green CDA is focused on message and data exchange, but the models can be used to describe measures, or payloads for services instead of messages, or for extracting data. The idea is to start thinking about them as models described independent of a particular use case, and then reusing them in even a broader context. In the end, it is the knowledge of medicine that is implied by those models that will be lasting. The descriptions of decision support logic and other things will outlive the particular technology.
- Huff pointed out that the Committee has made recommendations about terminologies, models, and other things that have not been acted on. There are some important activities whose timeframes for accomplishment are greater than allowed by mandated legislative timelines. He expressed hope that realistic timeframes for these activities can be developed to improve the likelihood of having a positive, lasting effect on the nation.
- Wes Rishel said that it is important for XML representation to be intuitive and effective for presenting examples. Most programmers look at examples to understand general cases. In addition, it is important for the non-technology business experts on the insurance side and on the clinical side to have examples so that they can understand how to indicate what is needed. The importance of having simplified XML is fundamental to the rate at which they can develop new intellectual property, standardize new ideas, and be interoperable on the clinical plane.
- Rishel said consolidated CDA is one of the best efforts and best collaborations he has seen in standards in a long time. He walked away from the January HL7 meeting thinking that between their leadership and the people on this Committee and in ONC, they had established

a substantially better working relationship than he has seen before. However, consolidated CDA is not green on-the-wire. He sees the potential to allow green on-the-wire to be very nearly computable from a consolidated CDA. But at the end of it, consolidated CDA is built on clinical statements, and clinical statements themselves have some of the generalities that make it difficult to understand the XML. Meanwhile, there is an open but not public ongoing effort the called Clinical Information Modeling Initiative (CIMI). CIMI is an attempt to start with just those clinical statements in as clear a way as possible, with very little assumptions about how they fit into the overall picture. In that way, those same models could be used in many different ways.

- Rishel noted that from what he has seen, CIMI is likely to move from methodology to results very quickly, primarily because the work is already done and in the public domain. Rishel sees CIMI as having no value for Meaningful Use Stage 2 whatsoever. Similarly, Malec helped them to understand that green on-the-wire has no value for Stage 2 whatsoever. But he would like to see them be in the position where whatever follows Stage 2 could be green on-the-wire, or CIMI, or because this Committee is looking at choosing between them, they could come together.
- Chris Chute said that in his 20 years of international standards collaboration and activity, he has never seen an initiative that has the buy-in, the enthusiasm, the output and energy of the CIMI activity. He admitted to being part of it, and so is not completely unbiased. However, the litany of people participating, collaborating, and agreeing on material ways of moving forward on modeling is without precedent in terms of speed and effectiveness.
- Kush commented that she would like to reinforce the prior comments by Rishel, Huff and Chute in that the CIMI initiative is bringing together stakeholders and standards developers from the medical research community, along with those from healthcare, to ensure convergence of these efforts. This will in turn help pave the way for MU2 and especially MU3.

Action Item #3: The Committee agreed by consensus to offer a directional recommendation to go forward with green CDA over-the-wire, weaving in the CIMI model and other projects.

Demonstrations: Model Driven Health Tools and S&I Repository

Fridsma introduced Dave Carlson of the Department of Veterans Affairs (VA) and John Timm of IBM Research to discuss and demonstrate Model Driven Health Tools (MDHT). Timm said that MDHT was a joint project started in 2008 led by VA and IBM, and in 2011, the ONC has come on board with resources and contributors to the work. It is an open source project within a community known as Open Health Tools to facilitate the adoption of standards by making it easier to implement those standards.

IBM got involved with MDHT out of frustration. IBM was trying to implement HL7 standards and looked at the resources available for implementers, finding few examples. With Timm's background in model-driven software engineering, he thought he would see where he could take

CDA with this project, and it has snowballed. He explained that the field can do better than standards on paper, if they can create computable models, starting with CDA. These models can be reused to generate artifacts that are relevant and valuable to implementers.

Currently, MDHT is in its 1.0 release. They have developed methodology and a set of tools to express CDA in UML. It is an open source application built on an Eclipse platform, and it enables an object-oriented approach, which is familiar to software engineers. They have also created models with the tools, and artifacts, and resources to hand off to implementers so they can get up to speed quickly.

Carlson explained that reusable modules are being created. They assemble reusable sections from document types, so all of these are reusable components. From the beginning, the project's purpose was to produce fully automated software components from this model. There are fully executable JAVA libraries, and they test the entire development life cycle from the beginning. Most think of the UML model as boxes and arrow diagrams. They created a table-like editor. Carlson presented a spreadsheet-like table with expandable rows, with terminology incorporated. There are value sets, a model for problem sections and code, and the code is restricted to LOINC. Built into the model, from the software tools, they generate the validation process. A complete, fully compliant UML model underlies this.

All of this is produced algorithmically from the models, and they are able to produce published implementation guides. For example, from those models in a fully automated way they can produce a number of different formats of developer implementation guides.

Carlson said that the UML model is not the end game; rather, it is a beginning. Over the past 2 years, they have been producing the software components from these models, distributing them, and obtaining active feedback from companies who embed this work into their product to read, write, and validate C32. They can see when something does not work right, and fix the model—which fixes everything else down the line.

In producing the library, one objective they discussed is simplifying the interface in more clinician-friendly terms, using business names. They can apply those into the model as alternative business names for classes or attributes. From that, they have already produced JAVA and other interfaces, using business naming on a programming library that reads full CDA. Greening must be methodical, Carlson said, and should be algorithmic wherever possible. They are testing some ideas to analyze and walk through these models and produce green XML schemas.

Carlson pointed to the importance of engaging implementers early and often. That should be a principle for producing green CDA. They get feedback from implementers, and provide that same approach to the software development library as well.

It was noted that the Committee was unable to view the slide presentation—Doug Fridsma noted that he would make sure that Committee members receive copies of the slides and the URL so that they can review this information in greater detail.

Discussion

- David McCallie commented that these tools could be very helpful in their current state. The notion of fusing models to develop instances is not new; HL7 has been doing this for more than a decade. The important question is not whether there should be tools like this, but rather, is the underlying model the right one?
- Carlson explained that UML is designed to be extensible, so one approach is to ask, how does one specialize the UML design? Alternatively, underlying the UML is something called Eclipse Modeling Framework. This is fairly technical, but they use those same underlying meta-modeling tools that could potentially be applied to alternatives. The first approach, though, is to use UML as a generalized language and see how it can be specified.
- Wes Rishel expressed interest in the validating code out of the model. It has long been recognized that a scheme of parsing reveals a lot of things that might be wrong, and leaves a lot undetermined in the validity of an XML for some purpose. The specification is ambiguous in terms of where it might be sent, and typically all of those places are optional. He asked if there is anything in the way they generate validation that would automatically validate where things get sent.
- It was explained that they do not look at paths so much as they model the CDA templates as first-class citizens, use UML specialization, and when they formulate constraints they do so in terms of those domain-generated classes. It is whether or not a particular object of this type exists. It is expressed more in terms of type, which is more natural way to think about it.
- Arien Malec connected this discussion to where the Committee started with the Implementation Workgroup, with the notion that one must go all the way from what is clinically represented on the screen in one system and what is clinically received on the second. This is important, and they try to do this in transition of care work as well. With regard to the tactical work for Stage 2 for NIST certification, he is hearing that there is a gap that they need to address with regard to getting the clinical intent married to the interoperable representation. Fridsma agreed, noting that this work represents incremental progress towards that goal.

Quality Measures

Fridsma introduced ONC's Avinash Shambagh to provide an introduction to some of ONC's work on quality measures, which will be discussed more fully at next month's HITSC meeting. Shambagh presented slides showing ONC's goals related to a strong Meaningful Use eMeasure ecosystem. These include providing clear and platform-independent specifications that: (1) are simple to implement and comply with quality reporting requirements, (2) use curated value sets based on HITSC recommendations, and (3) integrate easily into vendor EHRs.

Shambagh also discussed ONC's analysis of CQM standards and listed next steps. These include completing the analysis and identifying future directions in terms of QDM, HQMF, and MAT. The ONC is also looking to determine a transition/implementation strategy for using

recommended value sets. The Office will focus on Stage 2 Meaningful Use quality measures while ensuring that long-term improvements are made to the eMeasure ecosystem. Guiding this work is the following key question: How can the ONC best leverage input from the HITSC in this process?

Discussion

- Halamka suggested that perhaps it would be appropriate for the Quality Workgroup to hear testimony on standards and identify a path for moving forward.
- David McCallie noted that there are a number of ONC grants in place for groups working on defining standards for interoperability for quality measures. Is the work that those groups have done feeding into this process? How is that coordinated?
- Fridsma noted that some of that work predates his arrival at ONC, and noted that he likes the idea of reinvigorating the Quality Workgroup to review this work. There is a need to ensure that these efforts align with where clinical decision support is going, and with how data collection is being carried out.
- Malec indicated that a consolidated list of value sets for quality measures for clinical decision support and for transition of care is needed.

Developing Modular Specifications for Transport Standards: Update and Discussion

Shambagh explained that work on this project started at the beginning of the Summer Camp activities. The challenge they faced was examining the core set of building blocks that are used in most implementations and determining how to simplify them across Direct and Exchange. Overarching approaches to reaching these goals include: (1) enabling stakeholders to develop simple, shared solutions to common information exchange challenges; (2) curating a portfolio of standards, services, and policies that accelerate information exchange; and (3) enforcing compliance with validated information exchange standards, services, and policies to assure interoperability between validated systems.

Shambagh presented a slide illustrating modular specifications for building blocks. The diagram showed Direct specifications on the left, moving through the modular specification process, over to the modular specifications: secure transport on the right. He reviewed the current work, explaining that SOAP-based secure transport has been completed, and that work on direct transport specifications is in progress. In the future, additional modules will be included based on HITSC/NwHIN Power Team criteria.

The ONC is working to reduce the “onion” problem for complex specifications in a number of ways. Shambagh showed a snippet of refactored specification, explaining that the concept is to link examples to underlying specifications, and also link to the example an XML snippet. The ONC also is developing clear and verifiable conformance criteria, with vendor neutral test cases and test implementation that conforms to the specification and can be used for validation testing.

Public review has been woven through this process. The deliverables have been available online throughout the project lifecycle at <http://modularspecs.siframework.org/>. Also, public calls have been held to gather input from the stakeholder community. There will be a formal review period for 90 days after the conclusion of each phase.

Doug Fridsma commented that the ONC is not rewriting the Direct specifications. The notion is to ensure there are clear specifications that are linked to testing and conformance, to confirm that there are testing harnesses, and to make sure the specifications are cleaned up and can be certified to. He emphasized the notion of a portfolio. The ONC wants to have the kinds of tools people will need to implement and demonstrate exchange.

Discussion

- Dixie Baker explained that in her Direct assessment, one of the recommendations was that XDR/XDM be extracted from the Direct specification. Because XDR is SOAP based, the “little guy” may not be up to it. She suggested putting the XDR specification from Direct into the Exchange specification, so it would share the SOAP transport on both of them, and place the burden on the “big guy” instead of the “little guy.”
- Tim Cromwell commented that the ONC is on the right path with respect to tooling and specifications. There is one more missing puzzle piece that will show up in both Exchange and Direct, and that is the notion of payload validation. The payload validation that occurs now when information is received from NHIN through Exchange is being done by clinicians. He would like to see them extend the tooling in MDHT or in some other way get to the point where they validate the payload as someone ready to become an Exchange partner or sending Direct information, so that clinicians do not have to be doing that work.
- Kevin Hutchinson commended ONC’s work, and explained that at this meeting they are starting to see evidence of the components that are going to make this implementable. In the early days, they did not always comply with the National Council for Prescription Drug Programs (NCPDP) standard, because as they implemented they realized there were certain things that were optional in the standard that they actually needed to require in order to make it a workable solution in the industry. He thinks they will come across similar scenarios as work progresses on the implementation tools.
- Kevin Hutchinson pointed to the need to develop recommendations and real solutions that can be implemented in various ways to move real data. Taking what has been discussed at this meeting and driving it into those processes is not just going to be informative as to what is working, but it is going to prove out how scalable this actually is. He commented that it is starting to feel like there is substance to how this is going to work.
- Baker noted that the Metadata Power Team recommended language to go on the metadata “wrapper.” The receiver enterprise, not NwHIN, would then look at that “wrapper” and determine who should see it, using its own role-based access.

- Jamie Ferguson spoke in favor of clinician validation. However, he recalled that the California Privacy and Security Advisory Board, in its early recommendations, thought it would be reasonable for clinicians to spend half an hour per year with each patient in their panel explaining their privacy rights. That amount of time represents more than all of their working hours. He cautioned the group about making a similar assumption and placing a burden on clinicians.
- Halamka indicated that a health care knowledge navigator could be a potential future health care team member.

The Innovation Imperative Within HITECH and Health Reform

ONC's Wil Yu presented some of the perspectives the Office has developed to support a number of programs and initiatives. He asked the Committee for suggestions in terms of helping to further innovation in the public and private sector. Yu discussed supporting innovation from a federal perspective. The intent is to encourage innovations that will help enhance the health and well being of all Americans, through new products, services, and ideas that support Meaningful Use and health reform, and the achievement of a high-performance, learning health system.

Yu noted that a number of certified technologies and robust development have come from the Strategic Health IT Advanced Research Projects (SHARP) in recent years.

The ONC is in simultaneous pursuit of the triple aims of better care, better health, and lower cost through continuous quality improvement. This will occur through improving partnerships with individuals and families, redesigning primary care, population health management, financial management, and macro system integration, as well as new care delivery and payment models. Yu explained that this project's role at ONC is to help organizations, new developers, and innovators move through the pathway from concept and ideation through late adoption. He presented a diagram illustrating the continuum through concept to late adoption, where risk and cost decrease the further along one travels on the path. The same path was shown with various ONC programs and offices referenced that can support the various steps in the journey.

Discussion

- Perlin noted that there is always a tension associated with trying to optimize the rate at which IT is adopted and supported. There is also a healthy tension between goal direction and innovation. That is a point of convergence, as standards imply a goal direction. Innovation does not have to be amorphous; it can be goal-directed.
- Stan Huff said that the SHARP 3 group is trying to make standard APIs so that people can program an application that is vendor agnostic, and create the opportunity to make an application store environment for health care. The payload has to have a known logical structure in order for anyone to find that data useful. So, the platform that they are using in the SHARP 3 group is important in that it gets outside the usual box of thinking about data exchange, and instead considers how to transform health care entirely.

- It was noted that this focus on capturing the data in that format from the beginning and not just mapping to it is an important concept that warrants much more visibility and attention.
- Fridsma noted that the ONC is engaged in a programmatic review to make sure it is leveraging the tools they have in the best possible way.
- Malec characterized this is a classic innovation funnel. He suggested that the ONC could be doing a better job of helping the Committee to think through what is in the funnel, and in what stage. The ONC also could share interesting lessons of what was tried that did not work, what was successful, and informing the Committee about how it can access this information.
- It was noted that Cris Ross will replace Judy Murphy on the Implementation Workgroup.
- Doug Fridsma thanked the group for its input and reviewed major discussion points as follows:
 - Regarding transitions of care work, consolidated CDA is a step in right direction, and part of the transition from C32 to something more template-driven. Also, green CDA and CIMI are steps in the right direction.
 - Recommendations from the Implementation Workgroup included an integrated Web site that will affect the S&I repository that is in development.
 - With the demonstration, there is a need to make sure that there are models—not just the one associated with the MDHT project, but also others that are harmonized and constructed.
 - The Quality Measures Workgroup needs to be revitalized. The ONC and CMS need to develop a charter and guiding questions, and then convene that Workgroup.
 - In terms of modular specification, a portfolio representing a series of tools is in development. These tools must include transport standards, and ONC must also look at payload and vocabulary.
- Perlin announced that the December HITSC meeting will be virtual.

6. Public Comment

Gary Dickinson, representing Centri Health, was pleased to hear reference to the standards framework starting at the source of information. This issue has been a burden since he began work on the HL7 standards pool in 1989. He also works with the International Organization for Standardization (ISO). He looked yesterday on the ONC Web site and counted 553 certified EHR systems, with 116 for inpatient use. Those vendors who are U.S.-based would be particularly well served if the Meaningful Use requirements were tied to the ISO 10781/HL7 originated standard. That would provide a tremendous advantage to U.S. vendors on the international market.

SUMMARY OF ACTION ITEMS:

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Action Item #2: The Committee approved by consensus the recommendations of the Implementation Workgroup, with several amendments and additions.

Action Item #3: The Committee agreed by consensus to offer a directional recommendation to go forward with green CDA over-the-wire, weaving in the CIMI model and other projects.