



## HIT Standards Committee Final Transcript August 20, 2014

### Presentation

#### Operator

All lines are bridged with the public.

#### Attendance (See below)

#### **Michelle Consolazio, MPA – FACA Lead/Policy Analyst – Office of the National Coordinator for Health Information Technology**

Thank you. Good morning everyone, this is Michelle Consolazio with the Office of the National Coordinator. This is a meeting of the Health IT Standards Committee; this is the 60<sup>th</sup> meeting of the Standards Committee. This is a public call and there will be time for public comment at the end of the call. As reminder, please state your name before speaking as the meeting is being transcribed and recorded. Also as a reminder, we will have time for public comment at the end of the call and it will be limited to 3 minutes. If you are Tweeting today, the hashtag for today's meeting is #HITCS...I said that wrong, #HITSC, sorry. And I will now take roll. John Halamka?

#### **John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

I am here.

#### **Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, John. Jacob Reider?

#### **Jacob Reider, MD – Deputy National Coordinator, Chief Medical Officer – Office of the National Coordinator for Health Information Technology**

Here.

#### **Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, Jacob. Andy Wiesenthal?

#### **Andrew M. Wiesenthal, MD, SM – Director, Deloitte Consulting, LLP – International Health Terminology Standards Development (SNOMED)**

Here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, Andy. Anne Castro? Anne LeMaistre?

**Anne LeMaistre, MD – Senior Director Clinical Information Systems and CMIO – Ascension Health**

I'm here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, Anne. Arien Malec?

**Arien Malec – Vice President Strategy & Product Marketing – RelayHealth Corporation**

I'm here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, Arien. Marty Harris? Charles Romine? Cris Ross?

**Cris Ross, MBA – Chief Information Officer – Mayo Clinic**

I'm here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, Cris. David McCallie?

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

Here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, David. Dixie Baker?

**Dixie Baker, MS, PhD – Senior Partner, Martin, Blanck and Associates**

I'm here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, Dixie. Liz Johnson?

**Elizabeth Johnson, MS, FHIMS, CPHIMS, RN-BC – Vice President, Applied Clinical Informatics –Tenet Healthcare Corporation**

I'm here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, Liz. Eric Rose?

**Eric Rose, MD, FAAFP – Director of Clinical Terminology – Intelligent Medical Objects**

Eric's here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Good morning, Eric. Floyd Eisenberg? Jamie Ferguson?

**Jamie Ferguson – Vice President, Health Information Technology Strategy and Planning, Fellow, Institute for Health Policy – Kaiser Permanente, Institute for Health Policy**

Here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Good morning. Jeremy Delinsky? John Derr?

**John F. Derr, RPh – Health Information Technology Strategy Consultant – Golden Living, LLC**

Here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, John. Jon Perlin?

**Jonathan B. Perlin, MD, PhD, MSHA, FACP, FACMI – President & Chief Medical Officer – Hospital Corporation of America**

Good morning.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Good morning, Jon. Keith Figlioli? Kim Nolen?

**Kim Nolen, PharmD – Medical Outcomes Specialist – Pfizer, Inc.**

Hi Michelle, I'm here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, Kim. Leslie Kelly Hall?

**Leslie Kelly Hall – Senior Vice President of Policy – Healthwise**

I'm here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, Leslie. Lisa Gallagher?

**Lisa Gallagher, BSEE, CISM, CPHIMS - Vice President, Technology Solutions – Healthcare Information & Management Systems Society**

Here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi. Lorraine Doo?

**Lorraine Doo, MSWA, MPH – Senior Policy Advisor – Centers for Medicare & Medicaid Services – Health & Human Services**

Here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Nancy Orvis? Becky Kush?

**Rebecca D. Kush, PhD – Founder, Chief Executive Officer, President & Director – Clinical Data Interchange Standards Consortium (CDISC)**

Here. This is Becky.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Good morning, Becky. Sharon Terry?

**Sharon Terry, MA – President and Chief Executive Officer – Genetic Alliance**

Here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Good morning.

**Sharon Terry, MA – President and Chief Executive Officer – Genetic Alliance**

Good morning.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Stanley Huff?

**Stanley M. Huff, MD, FACMI – Chief Medical Informatics Officer – Intermountain Healthcare**

Here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Hi, Stan. Steve Brown? And, Wes Rishel?

**Wes Rishel – Independent Consultant**

Here.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Good morning, Wes. Okay, and with that I am going to turn it over to Jacob Reider.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Thank you, Michelle. I'll be quick as usual and I'll just welcome everybody to the 60<sup>th</sup> meeting. And as I prepared for today, thinking about the time of year and number 60 as a milestone in the maturity of this group. I started to think about what we're doing and what we're trying to achieve with this committee. I am going to reiterate something that I said last time, and I will probably say next time so that we all get it into our cultural thinking about the mission of this group. And as I said last time, the mission of this group spans well beyond the Meaningful Use Incentive Program and although that has been a primary focus of this group's activity for the last several years, I think it's important for us to remember that it's our responsibility to think about standards and certification criteria for health IT in general.

And we're always navigating the difficult balance between rigidity where standards are very clear and very clean and will be very explicit about exactly what folks need to do in order to align with what we recommend. And flexibility where we encourage innovation and creative thinking; too flexible and we don't have standardized way of doing things and we can't connect systems or concepts to each other, too rigid and innovation is constrained. And so I've been privileged to be working with this group of incredible people who know that balance deep in their soul and navigate it every day.

And so once again, I thank you all for coming and lending us your time and providing guidance to the nation on how to navigate this challenging balance. So that's my summertime reflection. I hope all of you have either had some time to take some time off and reflect or will do that in the next few weeks, because I think it's always important, as the cubby fans will say, sharpen the saw. So with that, I think we now move to review of minutes and ask if anybody has any corrections to the minutes from last time.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

And Michelle, my understanding is that Dixie Baker had a revision?

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Yes, Dixie sent the revision. But besides that, hopefully we can still approve them.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Do we have a movement to approve the minutes from our last meeting?

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

So moved.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Okay. Any seconds?

**Andrew M. Wiesenthal, MD, SM – Director, Deloitte Consulting, LLP – International Health Terminology Standards Development (SNOMED)**

This is Andy, I'll second.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Okay. Our first success of the day. With that, I'll pass the baton to John Halamka for his review of the agenda and opening remarks.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Well thanks very much, Jacob. So one of the things you could do to make your comments more clear is change the Office of the National Coordinator, ONC to the Office of Not Meaningful Use, ONMU, what do you think? Because as you point out, it's funny that as we get together sometimes we think about, oh well, what is Stage 3? What is Stage 4? What is beyond and what are those things that are constraining our agenda in the interoperability world? But as today's agenda illustrates, we're going to be focusing on interoperability and this is interoperability of enabling use cases, which are those highest value use cases. It isn't necessarily that it's a Meaningful Use Stage 3 or other constraint.

So when we look at what it is we can do to get transactions to flow through push, pull and view there are such things as provenance and data segmentation for privacy and making sure C-CDA is appropriately constrained. And thinking about the role of FHIR and transport mechanisms like REST and OAuth, etcetera. So, there's a set of agenda items that as you've said Jacob, is truly not just a Meaningful Use driven agenda, but those that are going to ensure transactional volume, flow that's going to ensure care coordination, population health and care management. So, today's agenda is completely aligned with your remarks.

As folks I think may know, that we've realigned the agenda slightly because Cris Ross is traveling so we will cover his items last. So, we will begin with a, I believe Michelle, with a Standards and Technology update from Steve Posnack, talking about where we are with our CMS designated test EHR, our standards implementation and testing environment and making sure we have the tooling that is available to really rigorously test a C-CDA. And sounds to me, looking at Steve Posnack's slides that he's been listening to Wes Rishel and making sure that we as a test bed and a set of functions have the capacity to deal with multiple versions and multiple implementations at various stages in the standards maturity cycle. So it's not requiring that the sender and receiver are recent using the precise same version of C-CDA at any moment in time. So, some very important test bed items he's going to be talking about.

Erica is going to tell some things about the interoperability vision. And as I was alluding to with provenance and data segmentation for privacy and issues of thinking about clarity on content and transport, there are going to be some core building blocks that we are going to need. And some of those are technological and standards, but some are workflow and environmental issues, rules of engagement and governance. So, we'll hear about that important vision.

And then ONC, being a convening organization that is going to make sure that we get a consensus across multiple stakeholders in academia, industry, government, etcetera, on the things we should be working on. We will talk about some of the inputs they're gathering on constraining our priorities. And if I were to look at the S&I framework, one of the things that I think all of us have felt is that there are so many activities there it is sometimes hard to look at every one of those issues in great depth. And hopefully this priority...activity that we'll hear about will constrain the number of different projects so we can work on fewer initiatives at greater depth.

And then we are going to hear, I believe, a data review and looking at the growth of HIE activity as it is interesting as I watch the numbers, I think that we are approaching the what I'll call "ATM" for

healthcare. The idea that a content summary can be achieved by patient and providers in a push pull model from many EHRs and PHRs and third-party products. And the standards that have been baked into Meaningful Use Stage 2 although imperfect are good enough to enable massive increases in data flow volume, so our trajectory on that is looking really good.

And then, as I mentioned, we will hear from Liz Ross...Liz Johnson and Cris Ross about their Implementation Workgroup evaluation of the C-CDA and where it is not appropriately constrained enough. And like the CCD, it is easy to generate and hard to parse and what are some of the areas where we have to tighten it up a bit or evolve it to something that is a little bit different in both content and architecture, like FHIR.

So, interoperability is the theme and you can hear we're going to be approaching that from many technology and policy angles today. So I look for to the meeting and with that, turn it back to Jacob and Michelle.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Thank you, John. Michelle, do you want to take it from here or do you want me to introduce the next slide?

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Up to you, Jacob, whatever you want to do.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Okay. So here we have our FACA work plan. FACA for those in the know is Federal Advisory Committee, of which we are one. And what we had ONC wanted to do was be, as usual, very transparent about what it is that we're thinking would be most helpful and how this group is going to interact with both the organization that it provides advice to, which is HHS as a whole and with the Policy Committee.

And so Michelle and team cooked up this work plan to provide you folks with a bit of a roadmap of what it is that we think we're working on, so that you all can see it explicitly and perhaps provide feedback if you have comments or questions. And so you see on the screen right now, if you're watching on TV that there is a set of activities that cascade and some of them are interdependent, so there may be dependencies on earlier processes or some of them may actually be independent.

And I want to especially draw attention to the MU3 NPRM and the certification NPRM, whereas everybody here I think knows, we, HHS, have described that those proposed rules are likely to land sometime in the fall. And therefore, we have put a placeholder here for where the Policy Committee and the Standards Committee would receive them and review them. And although both John and I talked about how a primary focus is not is Meaningful Use and the certification for Meaningful Use, obviously these are important components of the work that this committee does and we will absolutely want this committee's review and critique and comments on those proposed rules.

Having said that, there are other activities that will inform the work of the Department of Health and Human Services and you see that work above. So the joint Policy Committee/Standards Committee JASON governance recommendations are very important and are components of the work that we will address in November. The ONC/HHS Health IT Strategic Plan will be posted. So, this is a strategic plan that we are coordinating. We, ONC, are coordinating and will release and will obviously then request that this group review it and offer us feedback.

The final Interoperability Roadmap recommendations will come from the Advisory Committee to ONC and then we hope will be incorporated into work that we are doing that we will then announce and release and request this group's feedback sometime later in the Interoperability Roadmap when it's posted for comment. So you see that there's a cascade, but there are also things that may not explicitly depend on each other. So, can we look at the next slide?

This is a little bit more of a detailed view of specific activities that we see either in-flight, and many of you have experienced these activities in-flight now. So the task force...the JASON Task Force, the first line on this document has been charged and has been doing work. And I'm not going to walk through all of these, but we wanted to expose these activities to you to make sure that you understand where each of these puzzle pieces fits into the big picture and how it is that we see them as being related to each other. So I'll close their and Michelle, Steve and I will take any questions, if anyone has any questions about this. Primarily we wanted to just lay it out there so you all and the public can understand what it is that we are thinking about the trajectory here.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Wow, we have a quiet group today.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

I think they're processing, that was a little bit of a heavy download.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

While people process, just a reminder that if you do have questions or comments, if you could use the hand-raising feature in Adobe and it will put you in the queue. But nobody has raised their hand right now. Oh, no, Anne LeMaistre has a question.

**Anne LeMaistre, MD – Senior Director Clinical Information Systems and CMIO – Ascension Health**

Well, I thought I'd just have to break the silence since I'm kind of stunned that nobody else is. Jacob, I was just curious on, it looks very well laid out and compliments to the team that put it together. Question on reporting back to this group. So if I take something like the JASON TF with the final draft coming out I guess in October, would we then expect to hear something in October or November?

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

So this is Michelle. So in October we have a joint Standards Committee and Policy meeting and that is where hopefully their final recommendations will be approved.

**Anne LeMaistre, MD – Senior Director Clinical Information Systems and CMIO – Ascension Health**

Thank you, that's what I was assuming; I just wanted to make sure I was correct.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Leslie Kelly Hall has a question.

**Leslie Kelly Hall – Senior Vice President of Policy – Healthwise**

Hi, thanks Michelle and I was looking at that in terms of impact to Meaningful Use 3, even though we are not a Committee of Meaningful Use solely, I imagine this has some impact for opportunity to influence. Is that correct?

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Since there's silence, I'll try to break that one Kelly...Leslie. Because of the lifecycle of how regulations pass through the federal government, I can't really comment on what piece has impact on what piece. So, the important thing is that that is pivotal feedback for how HHS views those activities, but I can't say either yes or no about whether that work in October is going to influence the policies of what would be subsequent regulations that have yet to be published. How's that for a Washington answer?

**Leslie Kelly Hall – Senior Vice President of Policy – Healthwise**

That's a Washington answer, thank you, Jacob.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

David McCallie has a question.

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

Yeah, Jacob this might be the same question and get the same noncommittal answer but, the Interoperability Roadmap will contain what kind of markers on the road and how do those markers...how might those markers might or might not align with the certification roadmap or the certification timetables? Are they connected just by influence or will there be dates for certification phases beyond the 2017 edition -- how will that play out?

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

So that one's a little bit easier to answer. The Interoperability Roadmap will...I don't expect that that's going to be an explicit statement of when something would be required for certification for some phase of the certification program in the future. So I wouldn't expect that to say, in 2017 this would be required, in 2018 that will be required, in 2019 such and such will be required. It will be a roadmap that is a proposal for how it is that the health IT ecosystem is going to evolve. How that maps into a regulation I think is going to need to be determined after we release the roadmap, get input on the roadmap, and then it would become incorporated into the policies of ONC and perhaps other HHS agencies.

**Jodi G. Daniel, JD, MPH – Director, Office of Policy – Office of the National Coordinator for Health Information Technology**

And this is Jodi Daniel, if I can just add. If you look at the white paper that we put out, we did sort of highlight the things that we will be fleshing out in more detail, particularly the building blocks that would be addressed in the Interoperability Roadmap. So just as a kind of the outline of what may be coming forward, that's a good thing to look back so that you have a sense of where we might be headed.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

And this is Michelle. I'd just like to add, Erica is going to be doing a presentation later on today, so hopefully she'll be able to answer some questions about the Interoperability Roadmap as well. Dixie Baker?

**Dixie Baker, MS, PhD – Senior Partner, Martin, Blanck and Associates**

Yeah, thank you. I noticed that on the first slide it has one bullet for the HIT Strategic Plan posted for comment, which suggest to me that the ONC will be developing it, maybe that's wrong. And on the second slide, it has that the Policy Committee will be asked to comment on it and I don't see anything about the s...will the Standards Committee have an opportunity to comment on it? The Standards Committee isn't mentioned on the second slide as reviewing that or having any input into it.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

We will...

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

This is Michelle.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Go ahead, Michelle.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

So, on the policy side we have Strategic Planning and Innovation Workgroup, who has one of their first tasks will be to provide comment to the Federal Health IT Strategic Plan. So that will be their main focus, but it doesn't mean that Standards Committee workgroups may not be asked...the Standards Committee workgroups may also be asked to comment, but that will certainly be their main focus, which is why the Policy Committee was specifically identified.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

And let me, Dixie, this is Jacob, let me answer your first question. Yes that is a document that ONC will produce, so the ONC produced the Health IT Strategic Plan five years ago if I'm correct, is that right Jodi?

**Jodi G. Daniel, JD, MPH – Director, Office of Policy – Office of the National Coordinator for Health Information Technology**

Ah yes, just about.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Almost 5 years ago and so it's time for us to revisit that and revise it if necessary because 5 years ago was a long time. And so that document will focus much more on the "what" and much less on the "how." Now of course in general this committee has been a group of folks focused on the how and yet "how" can influence "what" because if some of the things that the "what" people recommend isn't

possible because the...and the “how” people know it’s not possible. Or maybe there is something that is possible that “what” people haven’t considered, obviously that’s valuable input. So I would agree with what Michelle said for the second half of your question, there will be opportunities for the Standards Committee to weigh in on that document.

**Dixie Baker, MS, PhD – Senior Partner, Martin, Blanck and Associates**

Thank you.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Last question to Arien.

**Arien Malec – Vice President Strategy & Product Marketing – RelayHealth Corporation**

Thank you. Most...much of this may go in the category of cannot respond. So, I love the first part of this diagram, it’s very logical; very well laid out and gives us the opportunity to think about a true going forward strategic plan. It’s the overlap of that with the Meaningful Use Stage 2 timeline where I’m going to state this as a declarative rather than an interrogative because of clearance process and other kinds of...we need to actually to write the damn document.

ONC needs to be writing the NPRM in the same timeline as we are thinking through our Interoperability Roadmap, the overall Strategic Plan and these other kind of strategic activities that theoretically should be influencing both the timeline for Stage 3 Meaningful Use, as well as the shape and nature of at least one of the levers that ONC and HHS in general have. So I guess just as a comment, I’m...I’ve got a level of concern about the overlap and ability to influence both the nature and the timeline of the Stage 3 activities as laid out in this work plan, but generally very favorable for the overall thrust and intention of the plan.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

This is Jacob, is there a question in there Arien or is that just a comment and expression of concern?

**Arien Malec – Vice President Strategy & Product Marketing – RelayHealth Corporation**

There’s an invitation for a question and as I said, it probably goes into the...I guess I’m trying to figure out how we deal with the overlap and interplay between the strategic activities and the timeline for Stage 3. And you may not be able to comment on it, but if you have any thoughts for how we would handle any overlap or interface between those two, I would love to hear.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

So I think one of the reasons that we put this together is...and one of the reasons that I said what I said at the beginning of our meeting today, is that the input of this group and some of these overlapping activities. So you see the work on interoperability and you see the work that the JASON Task Force has taken on and the very important thinking that is going on may or may not be timed appropriately to be incorporated into current rulemaking. I think that’s what we implicitly and perhaps now I have said more explicitly, is the point of this conversation. And it is not to say that it’s not important work, it’s very important work.

And so as you describe, and I think most folks on the phone and perhaps in the public understand, the rulemaking process is a lengthy one. The clearance process for...if we...those watch Jabberwocky and can recite that song about how a bill becomes law, unfortunately there wasn’t one that said how a reg

becomes a reg. But that bouncing ball is a lengthy process and you are correct Ariens, there is work that is ongoing and needs to be continuing through the fall where documents are being written. And the input of this group and the Policy Committee obviously over the course of the past 15 months have been incredibly valuable toward the shaping of those documents. But if we are going to get them out this fall, as we have committed, then some of this activity that is ongoing with this group and the Policy Committee may or may not influence the final shape of these things. So...

**Jodi G. Daniel, JD, MPH – Director, Office of Policy – Office of the National Coordinator for Health Information Technology**

And...

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Go ahead.

**Jodi G. Daniel, JD, MPH – Director, Office of Policy – Office of the National Coordinator for Health Information Technology**

This is Jodi. I'll just add a couple of points to what Jacob is saying so eloquently. Some of this...a lot of this work that you see here, the JASON work, the Interoperability Roadmap, the Strategic Plan, these are strate...I mean, this is a lot of strategic thinking going on and we are doing both simultaneously. We are doing work on implementing the next stage of our regulatory process, as well as thinking ahead to strategically through our Strategic Plan and Interoperability Roadmap.

To the extent that there some things that we are able to consider in the short-term and at least put out in a proposal that we can get comment on, it does buy us a little time to get feedback and get input if we are already hearing something that could be done in the short-term. But really a lot of this, we are trying to lay the groundwork for some of our strategic thinking and longer-term plans. So we're kind of doing both at the same time, which is, I think, where there's a little bit of confusion. We are looking immediately ahead at our next regulatory cycle, and as Jacob said, working diligently on that in the present as well as thinking ahead at our next steps and we are trying to walk and run at the same time.

So there will be many things that are reflected in strategic documents that are not in regulation in the fall. And yet there may be some things where there are some immediate steps that we can take that are consistent with what we've heard from the Policy and Standards Committees over the course of the last year and that we can at least seek comment on or move forward on...or propose in our rulemaking. So to Jacob's point, we can't say what will be in rules and what won't be in rules, but we are doing sort of short and long-term thinking and getting input on both the same time. And that's, I think, where there might be a little bit of confusion.

And Ariens, you're right, there...we are juggling a lot of things at the same time and I think that might be where you're seeing some of our thinking for strategic planning and Interoperability Roadmap, which may be now to 5 years out and some of the rulemaking thinking, which is in a shorter timeframe.

**Ariens Malec – Vice President Strategy & Product Marketing – RelayHealth Corporation**

Thank you, I'll...I've got some other thoughts, but I'll save them for a little bit later.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Okay let's, in the interest of time, let's move on to Steve Posnack's presentation.

**Steven Posnack, MHS, MS, CISSP – Director, Office of Standards and Technology – Office of the National Coordinator for Health Information Technology**

All right, thanks everyone. I am challenged by Jacob, as usual, to have some new data and information to present to you all. So I have been working with the team to get some material that I think you would be interested in both having an update on and perhaps learning a new. You can go to the next slide.

So, agenda wise I am going to talk a little bit about the one statistic that we have on the CMS designated test EHR part of the EHR Incentive Program, the Standards and Implementation and Testing Environment, which we call SITE and then some additional information as per my previous presentations on some additional S&I Framework activities. Next slide.

So context, as part of Meaningful Use Stage 2, so keep that in your mind as the working denominator, the transitions of care objective has three measures. The third measure required that an eligible provider satisfy either one or more successful electronic exchanges of a summary care record with a recipient using technology that was designed by a different EHR technology developer or conduct one or more successful tests with the CMS-designated test EHR during the EHR reporting period.

So we have worked, both ONC and CMS, with our colleagues at NIST. We kind of stood up an electronic matchmaker and recruited some EHR developer companies to participate as the "designated test EHRs," they are listed there as well. I want to thank the folks from McKesson because they have indicated to us they're going to be retiring after a year of service in the test EHR role, this October. They also happen to be the one DirectTrust accredited test EHR, so if anyone else out there is listening that is interested in participating as a designated test EHR that also happens to have DirectTrust accreditation, please contact us. We'd very much be interested in your participation as part of the test EHR process.

So to date, between January, which is when this kicked off, the matchmaking and the date of that NIST cut for me from mid-August here, we've had approximately 2000 unique pairings of test EHRs by eligible providers. The important thing to reference here is that this includes providers that have asked for a match, not that they've successfully created the test. So, all we have are statistics on who has gone to the test EHR website and selected a match for conducting a test. We don't have any visibility into when they conducted that test or if they have successfully conducted that test yet. But the other statistic that we were able to draw out of this that of the people that have requested pairings and matches, they are using the 58 developer products that have been matched to the 3 designated test EHRs.

So it's just interesting, for your information. But that's where we are in the process to date. As I mentioned earlier, with the context in terms of the Meaningful Use measure, providers don't need to pursue this approach because they can equally just do it as part of their normal day-to-day operations. I'm assuming many of which will have the ability to have one exchange with a provider that is using a different EHR technology developer system than they have. So, they don't necessarily need to go through this, but there is a good amount of interest in going through the test and I think a lot of variability and pleased to see the number of different developer products that have been matched at this point. Next slide

So, as John Halamka mentioned earlier, we have something called the Standards Implementation and Testing Environment. It's a web environment had implementers can go to test out their products and functionality for a variety of different types of capabilities. The motivation, which I think can potentially be attributed to Wes Rishel in part, was kicked off in December 2012 forecasting the need for additional testing capabilities for the proposed and adopted standards for the 2014 edition. The audience again is for health IT developers and even once the systems get implemented, this environment can be used as well as part of testing.

There are a few current capabilities, I'm going to dive into the C-CDA one in a little bit more detail, focusing on Direct, the C-CDA QRDA and provider directory. And then we have an anticipated focus looking additionally at the Consolidated CDA, the Direct Edge Protocol Implementation Guide, which was recently produced by the community. Everybody has an interest in FHIR, so as we have the opportunity to look at how this environment can be used to support the testing of different FHIR resources and profiles, that is also something that we are considering. And then a number of areas in security, obviously the Data Segmentation for Privacy Initiative has gone forward and other such activities that we could potentially include in this as well. So that's kind of...as part of our overall analysis and evaluation at this point and places we're looking to potentially provide some additional testing resources for the industry. Next slide

So there's a timeline at the top, but essentially there are kind of four components of site test suite where we have sandboxes. We have an issue tracker for implementers as they engage with these various sandboxes, knowledge base and forum, typically available resources for folks as they go through this type of this resource. Next slide.

So here's just the main page screenshot. If you were to go to that today, the URL to access it is at the top left corner there. And just a view of the various different sandboxes that we have available for implementers to test their implementations. Next slide.

So again, somewhat repetitive of the main pie chart diagram that I showed earlier but the sandbox, as you click in for the consolidated CDA has a knowledge base, forum, issue tracker. We also have a sample repository, so that repository includes 53 sample consolidated CDAs from 13 developers that have contributed those C-CDA samples. And we've had, as far as statistics go, more than 7600 consolidated CDAs validated through the C-CDA validator. And so if you go and you click through the site and into the sandbox, there are a variety of different tools that can be used through the C-CCDA validator and comparison to the different Meaningful Use certify...well, the certification criteria that we've adopted in 2014 edition that are relevant to different Meaningful Use objectives. You can also access the smart C-CDA scorecard and other resources through this. Next slide.

So, statistics related to Direct. A lot of messages sent and received, the number of unique direct addresses used to send and receive messages is there and then the number of unique domains successfully tested and exchanged messages with SITE. So, we essentially have a HISP functionality that is set up for sites and...let's see what else here. So, we have trust bundles that are used, this includes the Blue Button Plus patient's bundle, which is available, the Blue Button Plus provider's bundle. And there is a California HIE trust bundle that is also loaded in, as well as the SITE trust bundle, which is a trust anchor for all the HISP testing with SITE itself as the HISP functionality. Next.

So moving on to the S&I Framework update here, continuing...may be hate to use the analogy of peeling the onion here, but another layer of the S&I work I wanted to show as well is, many of you have seen from the past presentations that we have active initiatives, community-led initiatives. But there is also another dimension where ONC in a lot of cases has really collaborated with other federal stakeholders toward the resources to fund many of these initiatives. And I wanted to give an overview for all of the active initiatives that are both kind of ONC-initiated or supported, as well as those that are community-led and initiated what the main funding streams or the resource support is that we give to them. So for Blue Button Plus, the VA and ONC kicked off that funding. For Clinical Quality Framework, ONC and CMS both have investments made in supporting the work being done there. For Data Access Framework, ONC has provided resources as well as through the Patient Centered Outcomes Research Trust Fund, which is that acronym there, if you're not familiar with that, which is administered by our colleagues at Assistant Secretary for Planning and Evaluation. We also have funding through the PCORTF that's supporting the Data Access Framework.

For Data Provenance, that's ONC supported at this point. For the EU-US Coordination, that's ONC-supported. For the Prescription Drug Monitoring Plan and Health IT Integration, Standards Interoperability Framework Initiative, that's both funding and resources from ONC and SAMHSA. For Structured Data Capture, there are a lot of agencies involved in terms of the work there, as well as resource is provided, so again through the PCORTF, ONC, AHRQ. And then our other colleagues there that are providing other types of kind of co-sponsorship to the initiative as well. For the Electronic Submission of Medical Documentation that initiative alone is sponsored and supported by CMS with ONC involvement.

And then we've got the community led initiatives underneath, the last row here, whereby we provide kind of minimal with our colleagues at CDC for the Public Health Tiger Team, minimal resources to help just administer the general logistics and any other needs that the community may have to keep doing their work. So that's an overview of where the funding is coming from to support these initiatives. And I wanted to show, as we talk about the S&I Framework and initiatives at large, how there are...there's a broader coordination that we are a part of inside the federal government to make sure that these initiatives are supported, as well as the interest and other federal agencies in their success. Next slide I've been working with the team on visuals, because in part I'm a visual guy and for those of you that know me, I will never pass up an opportunity to go to the whiteboard. So, some of these images have been kicking around in my head and I thought it would be helpful to show how at least reasonable views of the world in terms of the starts and ends of some of these Standards & Interoperability Framework Initiatives. So, they have...there have been some that have ended and concluded and fed into other initiatives. So for Data Provenance, this kind of shows the bigger picture of how prior initiatives have evolved into their next iteration or started up. And how they may feed into and inform the overall Data Provenance activity that's recently kicked off, as well as how that work once it reaches its end, will help inform back out the other work that is ongoing. Next slide.

For Public Health, there's a lot of activity on this slide, a lot of relationship. What the main kind of trunk of this slide in the middle there it has to do with the Public Health Tiger Teams and they have taken a kind of distributed approach instead of having their own initiative. So that they can crosscut into the different S&I Framework activities that may have a relationship or a need or a solution that could be attributable to the public health use case of context. And I just wanted to show that these were crosscutting in terms of the work that the public health folks will be doing. Next slide.

So I think this one is going to be my last, just related to Laboratory Services. So, originally there was what we call LRI, which is the Laboratory Results Interface work that got kicked off that then set into and beget the work on the Laboratory Orders Interface. And both of those have focused a LOINC order code, which is an initiative that is looking at the focus and enhancement and expansion of a standardized list of LOINC codes for the most commonly ordered laboratory tests in the ambulatory setting. So, that's a quick rundown, another view and dimension of the world toward the agenda that I laid out earlier. I know I'm probably trying to help make up some time so that you have additional opportunity for dialogue with Erica as well, as she does her presentation. But that is all that I prepared for today.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Steve, this is Michelle, you have questions in the queue.

**Steven Posnack, MHS, MS, CISSP – Director, Office of Standards and Technology – Office of the National Coordinator for Health Information Technology**

Okay.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Wes Rishel?

**Wes Rishel – Independent Consultant**

Hi, Steve, thanks for this the presentation and I think the graphics have been very helpful. The SITE, all caps, SITE bundle of services that you provide, who operates that and if in the process of testing it turns out that there...reasonable people disagree on whether the testing facility is correct or whether the person who is being...the system that is being tested is correct, is there a process for working reconciliation of those issues?

**Steven Posnack, MHS, MS, CISSP – Director, Office of Standards and Technology – Office of the National Coordinator for Health Information Technology**

Yes, so to your first question, this is something that ONC supports in terms of the resources engaged. There is some collaboration with our colleagues at NIST as well. To the second question, I think that would be something that would be raised in the discussion board that is available for each of the tools that we also...all the implementers that participate in a particular sandbox and its community. I understand that there's a lot of activity depending on the particular work. So with the consolidated CDA there is a pretty active discussion board and we also have experts that are available through ONC resources as well as, I think I may not have put this...slide, we can refer things over to a standards development organization as well in terms of issues that may need to be clarified. So, there is some feedback that we can also provide out of this.

**Wes Rishel – Independent Consultant**

Thank you.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Leslie Kelly Hall?

**Leslie Kelly Hall – Senior Vice President of Policy – Healthwise**

Thanks. Steve, I wanted to add to your numbers on the messaging and Direct testing you talked about, that DirectTrust membership reported that right now they have gone from a year ago, 660 organizations using Direct exchange services to about 28,000 this year, and from 8000 direct accounts and addresses to over 425,000 this year. And from 122,000 messages approximately last year to now over 7,750,000 messages passed already. So there is considerable hockey stick going on in direct messaging. I thought I would add that to your numbers. Thanks.

**Steven Posnack, MHS, MS, CISSP – Director, Office of Standards and Technology – Office of the National Coordinator for Health Information Technology**

Thanks

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

David McCallie?

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

Yeah, this is David. Steve, thanks for the huge amount of information, some of it went by faster than I could assimilate. And so just one question about where we stand with the degree of validation that is possible today and in the future with the C-CDA. And the context is obviously the growing criticisms that we've heard from those who have actually gone out and measured CDAs in the wild and found that there are sometimes poorly implemented or inconsistent interpretation of the standards and calls to do better. And it looks like you've got a roadmap that would get us there, but I was unclear on kind of where we stand today. What is the current CDA testing capability and where will it go and when do we get there?

**Steven Posnack, MHS, MS, CISSP – Director, Office of Standards and Technology – Office of the National Coordinator for Health Information Technology**

So I think...that's a good question. The current tools that are available have really been the NIST tool that was developed as part of the 2014 edition testing certification process. There's the validator that SITE uses that builds on that and there are different warnings and errors that can be produced using the validator that's on SITE. It also links to the work that Josh Mandel has done on the SMART C-CDA because that was developed through SHARP Projects. So people can also, through SITE, go through that as well.

Future roadmap, that...this is also an area where because it has a regulatory connection, certainly an opportunity for us to look at how our certification criteria are structured. And whether there is sufficient specificity in the certification criteria to focus on perhaps the criticism, the critique that we have seen published and how to best address that to give the certification program the foundation and for lack of a better word, kind of the regulatory stubs from which more detailed testing can be expressed.

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

So, let me ask...that is helpful and I understand the constraints on what you can talk about with respect regulation. So let me ask it a different way around which is, are you rela...given that how much hinges on the successful movement of data and CDAs, are you comfortable that we have adequate strategies in place to ensure that that works? Or is there need, for example, outside private activity in this space, or new frameworks to be pushed forward? I mean, are we going to get there or are we falling short?

**Steven Posnack, MHS, MS, CISSP – Director, Office of Standards and Technology – Office of the National Coordinator for Health Information Technology**

I definitely think that there is more work that everyone can do. I would certainly welcome any public-private, private sector work that could be done and I know that there are activities underway and I think various areas to enhance the validation of the consolidated CDA. That...it is the standard of the land for now and I think, it's a quick digression, but for those of you that may remember and Wes has always talked about bilateral asynchronous cutoff. I don't think I can have a meeting without saying that, he gives me a nickel every time I say it during a public meeting.

So, just in terms of how much has changed in the past few years, up until 2014 where the 2014 edition cutoff came into play as part of the and EHR Incentive Program, the CCDP32 implementation the CCR and the consolidated CDA release 1.1 were still being used and available and permitted in 2013. And so now, we've kind of shifted into that environment where consolidated CDA is as part of the 2014 edition, the standard for transmission. But there are a variety of different distinctions in terms of which document templates are used, how they are followed.

As you and Wes have brought up, particular interpretations of how to implement, where you put data in particular section templates that may be variable based on different implementer's decisions. And that's, I think, an area where additional consistency could certainly be found. Our certification program is one avenue and lever, if there are other testing processes out there that would certainly be, I think, welcome. I think it's going to take a little bit more of a tribe type of approach and a village than one particular tool like we would have.

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

Thanks, that's extremely helpful.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

John Halamka?

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

So Steve, on slide 6 you talk about a provider directory test bed and I'm curious, looking through the website it looks like it's testing HPD Plus. And HPD Plus, which uses some standards like DSML, the Directory Services Markup Language 2001 and LDAP and other things that Dixie's group evaluated as probably not the best go forward plan for provider directories, that we probably need a new approach that's a bit more modern and streamlined. So I'm sort of curious, given that I think it's going to be on our roadmap over the next year to make sure we have a robust provider directory approach, if you've learned anything from that particular test bed?

**Steven Posnack, MHS, MS, CISSP – Director, Office of Standards and Technology – Office of the National Coordinator for Health Information Technology**

I think, so that's certainly something I can get back to you on this testing sandbox has been developed over the past you know few months as the work on the HPD Plus Specification has been developed. So that it's an ongoing process that's available to that community that has been working on that HPD Plus Specification.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Great. Because yeah, I mean, certainly my experience is if we had a thin, RESTful, JSON-based query response provider directory, it would solve a whole lot of problems. So, I'd love to hear any lessons learned.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Steve, you have no more questions in the queue.

**Steven Posnack, MHS, MS, CISSP – Director, Office of Standards and Technology – Office of the National Coordinator for Health Information Technology**

Does that mean I'm off the hot seat?

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

I think you are.

**Steven Posnack, MHS, MS, CISSP – Director, Office of Standards and Technology – Office of the National Coordinator for Health Information Technology**

All right, well I enjoyed it, as always.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Okay, so I think we are ready to move on to Erica.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

Hi there Michelle and folks, can you hear me okay?

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

We can hear you.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

Okay, excellent. I'm Erica Galvez, I'm the Interoperability Portfolio Manager at ONC and was invited today to talk a little bit about the 10-year interoperability vision paper that we put out a few months ago and the National Interoperability Roadmap activity that we committed to carrying out in that paper. And some of the activities that we have underway, plus what I think you can anticipate coming down the road. So, next slide.

I think it's usually helpful to start the conversation about interoperability with a revisit of our definition, in part because a lot of folks use the term to mean different things. I think you all know ONC has formally adopted the Institute for Electr...Electrical and Electronics Engineering definition, IEEE, which is the ability of two or more systems or components to exchange and to use the information that has been exchanged. In the vision paper, we tried to describe, perhaps in simple terms, what that means.

It first and foremost I think, means that interoperability is a means to accomplish important tasks and import outcomes but interoperability in and of itself is not the end. We have a vision of interoperability where all it individuals, their families, their care providers have appropriate access to the health information that they need when and where they need it. And they have that access in order to accomplish important tasks, like coordinated health management, active participation in decision-making, advancing population health, etcetera. So with that, as a foundation, on the next slide I pulled out just a few points from the concept paper that I think are probably worth grounding our conversation in today.

I think you probably all have heard Dr. DeSalvo wax poetic about these things, so I won't go into great detail, but a couple of things that we note. We talk about leveraging health IT to support evidence-based decision-making. Decision-making that advances the quality of healthcare, that helps us pinpoint and reduce waste, to lower cost and that supports a broad population health. We also talk about supporting health broadly as part of that, supporting advancement and improvement of the care delivery system. But also...should mention that so many determinants of health actually sit outside of the care delivery system that we need to start thinking about and thinking about leveraging the interoperability of our health IT systems to support.

We also explicitly talk about building incrementally over time and that multiple methods of exchange will be critical to achieving the vision that we described. There are a couple of points perhaps worth

emphasizing there. One, that Meaningful Use and HITECH established a really important foundation from which we should build, but that in order to achieve the vision that we describe, we will in fact have to move beyond Meaningful Use. That will continue to be an important lever. Our Certification Program will continue to be an important lever, but we do have to expand our thinking and some of our activities.

We also talk about establishing what I think Steve and I have often talked about as a best minimum possible interoperability. By that we really mean making sure that no one is left on the wrong side of the digital divide, right, so that there is a common foundation across which everyone can participate and that creates room for innovation beyond that common foundation. We certainly don't want to articulate or put in motion anything that would hamper innovation or reduce the imagination and possibilities to build beyond that common best minimum possible.

And last but certainly not least, we tried to maintain a very keen focus on individuals. In the paper we describe individuals as not only recipients of health information, but contributors of health information and over time, actually very active managers of their health information. And I think there are certain implications of that concept for some of the roadmap conversations that we will have in the future. Next slide.

So two large constructs that are described in the concept paper, one is a construct of time and the other is a construct of building blocks, building blocks that actually run through those timeframes. So in a general sense, we've carved out the vision into a 3, 6 and 10-year timeframe. Starting in 3 years with a vision that providers, individuals and their caregivers would be able to send, receive, find and use a basic set of essential health information. And we suggest in the vision paper that that essential set of health information could be common Meaningful Use data sets, that that may be a logical and good starting point. And then expanding over time...sources of information that are interoperable and the users of information and the purpose for...purposes for which they are able to use that information.

2020, that 6-year timeframe is kind of a stepping stone thinking about increasing automation, scaling interoperability broadly working though in service to this broader vision in 2024 of a learning health system where we advance toward things like precision medicine. Really an ongoing cycle of information that is transformed into usable knowledge to support health. It is a virtuous cycle and it certainly involves the use of health information not only for care delivery but for things like research that can then feedback into the care delivery system and help improve our decision-making. The five building blocks that we describe we think cover the...fairly comprehensively the categories of work that will be the did to be done over these timeframes, in order to accomplish the vision.

The first is...the first building block is focused on core technical standards and functions. We describe at a high level, not specific standards, but standards towards terminology and vocabulary, content and format, transport, security and a number, I won't read the list you can go back to the papers to look at these. But a number of functions in addition to those standards that we will have to pay attention to and advance. Things like accurately matching information for individuals and providers across systems, resource locating, which I think manifests in our conversations today many times as provider directories, but thinking broadly about locating resources and doing so accurately.

The second building block is focused on certification to support adoption and the optimization of health IT products and services, in many respects a companion to that first building block. The third building block focuses on privacy and security protections. This is an interesting building block in the sense that it certainly warrants a standalone category, but also spans across several of the other building blocks, certainly the technical building block and certainly the governance building block.

The fourth building block is focused on supportive business, clinical, cultural and regulatory environments. This is the category where we intend to focus on not only some of the cultural aspects of care delivery and some of our...the uses of our technical system, but we also recognize that there has to be teeth, if you will, to advance a lot of what we want to advance in our interoperability vision. That may require some regulatory actions that may require some additional business and other clinical actions and so building block four really accounts for that. And the fifth building block is focused on rules of engagement and governance. Certainly a significant category and I think an early conversation about how can we...the roadmap is proving to be a very critical component. Next slide.

So as I mentioned, and I'm sure all of you in reading the 10-year vision paper, recognize that we committed the leading development of a National Interoperability Roadmap. We committed to that being a shared roadmap and to the process being collaborative. It will be a companion document to the vision paper that focuses on chartering a course toward the vision. So this...we anticipate this document being a lot about "how," at least a proposed path to how we accomplish the milestones in the vision that we describe in the concept paper. It will certainly reflect a role for ONC, a role for federal government in terms of our companion federal agencies, but will not be limited to ONC, HHS or federal government. We really intend it to look at across the ecosystem and describe potential actions and approaches that a number of stakeholder groups could take to advance the vision.

We describe a set of guiding principles in the vision paper, I'll talk just very briefly about those on an upcoming slide. We are committed to adhering to those guiding principles that create some challenges and I think that will be something that will be worth teasing up through the course of conversation, I think, with the Standards Committee in October and maybe as you deliberate on the draft that we put forward at that point. And then the structure will be based on those two constructs I just described from the vision paper. So we will plot things out across 3, 6 and 10-year timeframes and we will use those five building blocks also as an organizing structure to describe actions and proposed approaches. Next slide.

Why a National Roadmap? It seems obvious to some of us, but I thought perhaps it's worth calling out explicitly here. The roadmap is intended to provide a potential path forward, something that everyone can rally behind and perhaps most importantly, something that can be collectively updated over time. We anticipate the roadmap addressing things like critical technologies and policies, who needs to do what by when, I mentioned different stakeholder groups beyond federal government. And as I just mentioned, how to collectively, as an industry and as an ecosystem, update that roadmap over time recognizing that so many things in our environment will change it really is impossible today to predict what that roadmap should look like 10 years from now or perhaps even just a few years from now.

On the next slide, a quick note about guiding principles. I mentioned we have committed to adhering to a set of guiding principles that we do describe in the vision paper, there are nine of them. In my personal opinion, they are very good guiding principles. There are some guiding principles that create tension, in fact between each other, between guiding principles and this comes through, I think, fairly clearly for some of us as we are starting to think about what could some of those fundamental pieces of the roadmap look like? I will call out just a couple as examples for all of you and perhaps this is something you can think about.

One of the guiding principles focuses on building on existing health IT infrastructure. I mentioned Meaningful Use and our existing certification approach and the HITECH program have created a very important foundation from which we can build. One of our other guiding principles is maintain modularity. Some of our existing infrastructure, as many of you know, is not particularly modular and so thinking about how we maintain a focus on modularity while building from existing health IT infrastructure, in some respects, may create some challenges and some tensions that we'll have to resolve.

Another that I think is surfacing very early on in some of our conversations is identified in green on the slide, consider the current environment and support multiple levels of advancement. The healthcare environment and health IT ecosystem, as you all know, is complex and varied. And we have healthcare providers for example who don't have EHRs yet and we need to think about them. We need to think about how we maintain them as part of the ecosystem and bring them along. This is part of what I mean when I say, don't leave anyone on the wrong side of the digital divide, that creates some inherent complexity. And so thinking about a guiding principle around simplification and not introducing unnecessary complexity into our approach, there is a little bit of tension that we have to wrestle with there and some balance that I think we will have to arrive at. So, some food for thought on guiding principles.

In terms of...on the next slide, Roadmap Process and Timeline, this will be an iterative process. It is an open process. Right now, we are trying to pull together what is a very, very, very early draft of the roadmap. We have launched an online community forum, I think I've got the slide on the next...or the link on the next slide to gather input from anyone who would like to provide input. It is a general solicitation and I am...a couple of pieces of feedback have been posted already. I know several organizations have their teams working on pulling together responses to submit.

We have contracted with Audacious Inquiry to gather input from subject matter experts and provide a report to us. Based on that input, that's something that we do anticipate making public and using to inform our early drafting process. There are a couple workgroups under the Federal Advisory Committee's underway, particularly the JASON Task Force and the Governance Sub-Workgroup whose work we anticipate informing and feeding into the roadmap. There's a little bit of a timing challenge, but I will explain in a minute with those, but we certainly anticipate accounting for that feedback. We have engaged states, state governments, and will be convening them back actually next week to gather input from them and it looks like the FACA Workgroups on here again, that's...sorry, that is a duplication.

In mid-October, at the joint HIT Standards and Policy Committee meeting, we will bring forward a draft for all of you to react to and reflect on. We will be asking formally for your feedback on it. We will also be asking for help in thinking about how to address the recommendations that come forward from the JASON Task Force and the Governance Sub-Workgroup, recognizing those won't be final prior to the time when we want to bring forward a draft for all of you.

So, we follow those groups closely, we will work to the best of our ability to make sure those deliberations are part of the draft that we bring forward. But not having the final recommendations, that is something we will actually ask for help incorporating into the roadmap at the October meeting. And then have some work underway with MITRE to also give some input on...feedback then based on the time that we give all of you to reflect on the draft and give recommendations back to us. In January, we will put forward an updated version of the roadmap for public comment, synthesize and update the roadmap then based on that public input and we anticipate by about March of 2015, having a version 1.0 ready to share and ready to post. So, last slide.

A quick plug, and I think unfortunately this is perhaps a repeat of an old slide, we did not launch the forum this week, we actually launched it a couple of weeks ago, and the link is here. There is a buzz blog about it. We have asked for input in three specific areas in the general solicitation, one on priorities for the roadmap, use cases that we would like to use to identify...both identify and validate requirements and then critical actions within each of the building blocks that folks think need to be taken to advance the vision.

So, to the extent that you can encourage submission of comments and feedback through the online forum, we certainly appreciate that. And I think that's all I have got for you today. Happy to take

questions, happy to take comments, we are very early on in the process so questions about specific details of the roadmap, I apologize in advance, I probably will not be able to answer.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Thank you, Erica. We have a couple people already in the queue.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

Great.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Wes Rishel?

**Wes Rishel – Independent Consultant**

Thank you. I just wanted to say, this was a terrific presentation and really managed to both work at a high level and a value-oriented a point of view and create some foundations for more specific and detailed thinking. Could you go back to the slide that had sort of the three major 2017, 2020, 2024 deadlines on it and the stripes across the bottom that represented the processes or building blocks or something? One of the early slides? That one, yes.

So, one of the issues that comes up economically often is the ability to exchange structured data, that is, data that could be used to feed a computer decision support algorithm or could be aggregated in order to look at population health issues or...well, those two use cases enough are sufficiently important. The IEEE definition of interoperability is very convenient because it leaves open how much you need in order to for the data to be used, it doesn't specify whether it's going to be used by a person reading text or by a computer performing an algorithm.

I want to sort of confirm my interpretation of...on how to interpret these major milestones with respect to structured data. At the earliest, I would say that we would really be expecting to count on being able to drive decision-support algorithms and do aggregate population at about the 2020 timeframe. Is that a reasonable interpretation of what this says?

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

That's...perhaps. I think we have discussed...there is a possibility for that type of activity earlier than 2020, but thinking about the ability to scale and advance automation of those functions is something we do describing the concept paper in the 2020 timeframe.

**Wes Rishel – Independent Consultant**

Okay. So I guess the best answer is actually read the paper, okay, I can do that. I think that's really my main question so thank you.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

Certainly.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Eric Rose?

**Eric Rose, MD, FAAFP – Director of Clinical Terminology – Intelligent Medical Objects**

Hi, can you hear me?

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

We can hear you.

**Eric Rose, MD, FAAFP – Director of Clinical Terminology – Intelligent Medical Objects**

Well, thank you for this, I thought this was really a very thoughtful presentation and it makes a lot of sense. I had a quick comment and a question. My comment...or my suggestion is, to add to your guiding principles, to be mindful of the unintended ill effects of interoperability in particular with structured data. Unfortunately, despite the best efforts of many of us who are involved in trying to make structured data make sense in EHRs, a lot of it is just either outright inaccurate or just very, very hard for end-users to comprehend because of the way it's presented and superfluity and redundance...and redundancy and so forth so forth.

And when you open the floodgates for that stuff to get aggregated across multiple care environments and multiple systems, you add some pretty scary combinatorics. I'm talking about problem lists that have 30 items on them, some of which the patient may not have, some of which are irrelevant like their temporary minor illnesses like a throat infection and some are just repetitive or at various levels of granularity. When you open the floodgates to that you actually may wreck unintentionally the ability to use structured data to achieve the important goals that we all hope for. So I think that is may be another guiding principle to add.

The question that I had, had to do with that fifth building block, the rules of engagement and governance and I was wondering if you could maybe expand on that a little bit. Because reading the vision paper, I was left not quite understanding sort of where the...what does that involve that isn't already part of the two building blocks above it, the privacy and security protections and the supportive...in particular, supportive of regulatory environment. What else would be an actual deliverable for building block five?

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

So I can give you my take on it and invite any other colleagues from ONC to give their perspective. Building block five I would say differs in the sense that we typically thought of it as the operationalization of several of the concepts that might be described for example in building block three and perhaps to a certain extent, building block four. Although I think some of the components of the building block four actually sit kind of squarely outside of the notion of the need to come around a common set of rules of engagement that do relate to privacy, security, perhaps business practices and the like. So I would...in my mind it is perhaps the operational aspect of what might be described in the two other building blocks that you noted.

**Eric Rose, MD, FAAFP – Director of Clinical Terminology – Intelligent Medical Objects**

So, it might for...

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

Oh, go ahead

**Eric Rose, MD, FAAFP – Director of Clinical Terminology – Intelligent Medical Objects**

Sorry, so it might, for instance, consist of things like maybe model user agreements that an HIE could use as a basis for their own internal governance, that sort of thing?

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

Certainly could, certainly could.

**Eric Rose, MD, FAAFP – Director of Clinical Terminology – Intelligent Medical Objects**

Uh huh.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

One thing that we have tried to be very mindful of, and I will certainly ask the Standards Committee to think about in October when we bring forward a draft is...thinking about our goals and our objectives. And from a systems level, the requirement to achieve those goals and objectives and then the action and by whom those actions need to be taken, kind of working back from there. And so what exactly populates in that fifth building block in a draft roadmap I think is largely dependent on what we identify as we work backward from our goals, objectives and requirements. I don't want to...so we're not going into this in any preconceived notion or pre-assumptions about what that necessarily has to be.

**Eric Rose, MD, FAAFP – Director of Clinical Terminology – Intelligent Medical Objects**

Thank you.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

You bet.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

John Halamka?

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

So what I really liked about this presentation is the laying out of expectations and a timeline where results are achievable. Because remember, as this group has talked about in our last 60 meetings, we in effect sort of judge our progress by adoption in the marketplace. And of course it's somewhat frustrating when some stakeholders say, well wait, that standard came out of ballot last month how come all problems in every workflow aren't already solved? And so to say, oh you know, we actually expect by 2017 that we're going to have an ATM for healthcare where any patient or provider can get a copy of a content summary and then, oh by 2020, those will be incorporated in decision-support systems and then beyond is clinical trial.

You suddenly start laying out a timeline, which you hope will have stakeholders understanding, oh by 2014, you won't have solved all problems? So this is very refreshing and some may criticize us not

moving fast enough, but I think as your presentation points out, there are cultural issues, policy issues, behavioral and workflow issues, going far beyond the technology. So no question, just a comment and encouraging you to set realistic timelines and be honest about all the nontechnology stuff, as you've done.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

That's really helpful, thank you that.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

David McCallie?

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

Yes, I have sort of a vague question, but would be curious to know, there have been many roadmaps in the past, in fact some focused on interoperability or a Nationwide Health Information Network and other similar topics. And I'm wondering if your team has looked back at prior roadmaps to figure out what worked and what did not work as motivators and movers, particularly of the private sector. Just, can you comment on kind of what have you learned from the past that you will try to address in this next generation roadmap?

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

Yeah, it's actually an excellent point and something that we are taking up right now, looking back at several of those former documents that describe...and a potential approach. But also looking at things like lessons and recommendations from our Beacon Communities, from some of our HITECH Programs, talking to folks in the field who have tried to advance interoperability previously and have either had success or stumbled and failed for particular reasons. One of the things I think would be very helpful for us to describe in the actual roadmap document, without making it a 300-page document or more, is what are some of those critical lessons that we need to apply going forward. If we have already learned that something works or something doesn't work, let us apply that in the roadmap and go forward. So, I don't have details to share now, but I can assure you that that's part of our process currently and is actually something I would invite all of you to perhaps think about and share feedback with us on. All of that input is very, very helpful.

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

That is good to hear that you are taking that perspective and I...just my second thought, just to say even though 2020 is only 6 years out, which is in and of itself a scary thought, because everybody uses 2020 to represent the nebulous future, it's only 6 years away. But nonetheless, I think that private industry will have moved very far in the next 6 years, we'll be moving very fast and very far in the next 6 years. As the demand for interoperable data from a business driver point of view, most notably for population health and ACO-type delivery settings, where there is now clear value in the data moving around, will maybe outstrip what your kind of appropriately cautious roadmap is. And the challenge I see will be how to stay in sync with what private industry is doing, given the limited number of lever arms that you have. So, that's just an observation, not really a question. But thanks.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

Yeah, thank you for that.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Dixie Baker?

**Dixie Baker, MS, PhD – Senior Partner, Martin, Blanck and Associates**

Thank you. My comment kind of builds on what David just said. I agree with what everybody else has said about your presentation, Erica, it was just a terrific presentation. It was very clear and at the right levels and realistic and so, congratulations on that.

I had two question...well, one question and one suggestion regarding the guiding principles on slide 6. The question is, it is not completely clear to me what the differences between the principles of building on existing IT infrastructure and considering the current environment. Those are very...certainly very, very similar. And the second, the comment I had is, I think that there's a need, and this relates to what David just said. I think there's a need for a guiding principle regarding the tension between the need for stability and predictability to achieve interoperability and the fact that both technology and what you refer to as the business, clinical, cultural and regulatory environments you mention in building block 4, are continually evolving. And to all of those continually evolving environments, I would most certainly add the evolving security threat environment as health data becomes increasingly monetized.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

It's an excellent point and I...your comments are adding to my list of the tensions that we are going to have to wrestle with. And in some cases, one side may take more weight than another, and we'll have to think very carefully about the rationale for that and those...why we take that approach and then document that.

Just to go back to your first, I think it was a question or perhaps I'll think of it as a question, the difference between the guiding principle around building from current infrastructure and consider the current environment and support multiple levels of advancement. You are right, they are very similar. We intended with the first guiding principle to simply state that there is a lot of IT health infrastructure that currently exists, we're not starting from scratch and we should not enter the roadmap process or our vision process from a place of zero. But rather recognize that a lot exists and then with the other...and that's just really it with that guiding principle.

That's the addition of the other one to recognize that, for example, we still have information users...or folks who need information, who are not part of the health IT community in a technical sense yet, right? We still have a lot of clinical practices on paper and so one of our guiding principles we wanted to make sure reflected this notion of accounting for everyone, not leaving anyone behind, thinking about the broad ecosystem and some...the different layers of advancement that are going to have to occur. I don't know if that helps, but...

**Dixie Baker, MS, PhD – Senior Partner, Martin, Blanck and Associates**

Yeah, it does help. I think that in the timeframes you're looking at, most people will be using electronic records. But I do see the slight difference, yeah, one is more technology-oriented and the other is more practice...common practice oriented.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

I think that's right, yup, that's probably a good way of looking at it.

**Dixie Baker, MS, PhD – Senior Partner, Martin, Blanck and Associates**

Yeah, thank you.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Leslie?

**Leslie Kelly Hall – Senior Vice President of Policy – Healthwise**

Thank you. First of all, I would like to congratulate you on this definition of interoperability being so patient-centered, including their families, discussing informed decision making and being active partners in care. So, thank you so much for that. I'd like to also build on both David's and Dixie's comments on leveraging the market building block. Could that be considered leveraging the market? Because as we have patients engaged and participating as digital equals in HIT, that brings us a whole new market opportunity for consumerism, for integration of technology that has largely sat outside health information technology, but can inform and drive market...both markets. So, I wonder if that's some consideration as we go forward?

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

Yeah, absolutely, thanks for calling that out. And that reflection is helpful. Part of what we were thinking about with that building block is demand, right? And demand aside from any governmental levers to advance interoperability, really serving as a driver to advance...and I think related to that, making sure that as we think about any regulatory drivers, making sure that those don't, in fact, impede the market or the evolution or innovation that could organically occur. So, I think it sounds like we're in sync on that and I just thank you for your comments because it is a good reinforcement and a reminder for us.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Andy Wiesenthal?

**Andrew M. Wiesenthal, MD, SM – Director, Deloitte Consulting, LLP – International Health Terminology Standards Development (SNOMED)**

Yes, thank you. And again, my congratulations as well. I want to, as several have said, build on David's comments about the business drivers and their importance, in addition to the technical or technology drivers here. Speaking as a pediatrician, I may be the only person on the call who is familiar with an Act before Congress called ACE Kids.

And just to elaborate, it is a proposal which actually has some potential for passing, strangely, that binds more than 60 of the Children's Hospital in the United States together in a transparent coalition to provide care for all of the kids in the US with a roster of complex conditions. And this will impose strategies and data requirements and reporting requirements and cost accounting requirements on these hospitals heretofore unprecedented. And in fact it will be fully transparent to the parents of those children so that one of the promises is that the kids...the parents will be able to take their children to any of those hospitals in the country, if they wish to do that. And they'll have that ability from a technology standpoint.

So I wonder if...here's my question and this is...that's just sort of adding contextual information to what others have said. Is it reasonable for ONC to act as a convener of some of the organizations who are at the cutting edge of trying to deliver on integrated care across a population and building their strategy to do that, to see...to make sure that what we're doing here, what you're doing isn't actually at cross purposes with them, but complementary? So you don't want the business strategies to be impeded by a tech...a national technology strategy that isn't actually supporting them?

Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology

Yeah, yeah, it's an excellent point and I think you're pointing to an ongoing convening and coordination role that we need to be thinking about.

**Andrew M. Wiesenthal, MD, SM – Director, Deloitte Consulting, LLP – International Health Terminology Standards Development (SNOMED)**

Yup.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

And building that in, in I think an ongoing manner, into the roadmap. It makes a lot of sense.

**Andrew M. Wiesenthal, MD, SM – Director, Deloitte Consulting, LLP – International Health Terminology Standards Development (SNOMED)**

Thank you.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

And perhaps we can follow up on the ACE Kids, I...it would actually be very helpful to learn a little bit more about that, so perhaps offline.

**Andrew M. Wiesenthal, MD, SM – Director, Deloitte Consulting, LLP – International Health Terminology Standards Development (SNOMED)**

Yeah. Believe it or not, there are almost 300 representatives signed on as sponsors, which gives it a majority, so it could actually pass this session if it comes to the floor. And the Children's Hospital have promised to save the country 13 billion dollars over 10 years.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

Wow.

**Andrew M. Wiesenthal, MD, SM – Director, Deloitte Consulting, LLP – International Health Terminology Standards Development (SNOMED)**

A big deal if it passes.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

Incredible, yeah. Yeah.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Thanks, Andy. Wes?

**Wes Rishel – Independent Consultant**

Thank you. It's...I think in some sense, it is also building on David's comment. Early on in the presentation, there was a discussion about balancing off the need for rigidity in order to achieve interoperability at scale versus allowing the market to evolve. And at that time, it was presented as if there were a sweet spot, so that is, if we just balance the scales properly, we could do exactly that. I think it's better to think categorically in terms of maturity of standards or maturity of use cases, if you will.

And what I mean by that is, the market for electronic health record at large, that is a lot of different systems, not all of which are covered by any particular federal program, includes a number of agencies that produce software, individual organizations, user organizations, vendors. And both the customer and the creator of the software vary in terms of how...their ability to adopt new technologies. As such, there will be some of those agencies, we can certainly talk about the work John Halamka has done and the work that several vendors that are involved have done, that will be leading the industry in the sense of going beyond. And there are others that will have to be dragged into achieving some specific underlying technical capability in order to be interoperable.

And I think the right way to describe that trade-off is in terms of market timing as opposed to finding some compromise between rigidity and, I mean, nobody likes to say they're rigid. But in fact, if you want to achieve the scale of rolling out some kind of interoperability across the industry, there has to be this body of knowledge, bodies of experience implementing it, that has allowed the creation of rather rigid standards and all of the testing and supporting material, which are beginning to develop through the S&I Framework. On the other hand, overdoing that would kill some of the great efforts that are going on right now driven by the market need. So I would just...I just am concerned that we talk about that trade-off in terms of timing against a use case as opposed to in terms of striking a compromise. Thanks.

**Erica Galvez, MA – Interoperability Portfolio Manager – Office of the National Coordinator for Health Information Technology**

That's helpful feedback and helpful framing. Thank you. I jotted down a few notes about market timing and we'll noodle on that and may have a couple of follow up questions for you offline.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Well, thank you Wes and thank you Erica, I think that was our last question. So I think we're now ready to switch over to Vaishali.

**Vaishali Patel, MPH, PhD – Senior Advisor, Office of Planning, Evaluation and Analysis – Office of the National Coordinator for Health Information Technology**

Great, thank you. So, my name is Vaishali Patel and I'm in the Office of Policy Evaluation and Analysis and today I'll be providing an update on National Health Information Exchange and Interoperability landscape. And I'll be primarily providing a portrait of where we were in 2013 prior to Stage 2, which will serve as a baseline for kind of measuring progress going forward and also provide a sense of where providers and where our infrastructure is at for enabling exchange. Next slide, please.

So first, I'll be describing the infrastructure and services to enable health information exchange capability as reported by the State HIE Program grantees. And then following that, I'll be spending most of the presentation describing the health information exchange capability and activity across a number of key stakeholders including office-based physicians and hospitals, as well as individuals. And as we go through the update, you'll notice that most of our measurement activities and what I report on, primarily focuses on exchange rather than interoperability specifically. But at the end of the presentation, I'll also discuss how we seek to address that and align our future measurement activities around interoperability and specifically the roadmap, which Erica just described. Next slide, please.

So to describe health information exchange capability and activity, I'll largely be drawing on nationally representative survey data from 2013 including physician surveys conducted by the National Center for Health Statistics, a hospital-based survey conducted by the American Hospital Association that focuses on health IT and health information exchange. As well as a survey of individuals that ONC has conducted, which in addition to privacy and security attitudes, also focuses on consumer access. And as I mentioned, I'll be reporting data from the State HIE Program grantees and also be drawing on some early Stage 2 Meaningful Use attestation data, which many of you have probably seen before. But I'll be just mentioning a few points from the data. Next slide, please.

So first I'll be starting off with a brief update on the role of the State HIE Program in enabling capability to exchange. Next slide. So as you can see here on this map, in the orange, as of the fourth quarter of 2013, so prior to Stage 2 Meaningful Use really gearing up, there were 28 states and Washington, DC, reporting that directed and query-based exchange were broadly available. And just to give you a sense of context, in the second quarter of 2012, there were 9 states that had reported that they had both query and directed exchange broadly available, so that's within a year or so that grew from 9 states to about 28 states and Washington, DC.

And what broadly available means is that there's like...there is a regional and/or state health information exchange organization that enables exchange between unaffiliated providers and its operational and can be subscribed to for directed and/or query-based exchange. This doesn't include what might be available in terms of private...privately enabled exchange, enterprise exchange, so overall this probably under-represents the infrastructure that is available, but it does provide information on infrastructure that's being...that was supported and enabled through the State HIE Program. Next slide, please.

So correspondingly, you can see that here from this graphic that there was substantial growth in some of the key services that enable exchange between the second quarter of 2012 and the fourth quarter of 2014, as reported by the States HIE grantees across the 50 states and Washington DC. So for example, you can see in the upper left quadrant, about 59% of the states in 2012, second quarter, reported that there was an operational HISP within their state and this grew to about 90%.

And in the second quarter of 2013, about 3 in 10 states reported that they had an operational provider directory and that grew too close to 70% as of the fourth quarter of 2013. So overall, prior to Stage 2, the State HIE Program grantees reported that the infrastructure and services to enable query and directed exchange grew. However, the impact on health information exchange activity is likely to be uneven given that states began at very different starting points. Next slide, please.

So, we've touched on the infrastructure and services that enable exchange capability and now I'll be describing more specifically health information exchange capability and activity first across office-based physicians and then among hospitals, including overall trends and patterns, as well as variation in exchange activity by type of data and specifically, during transition. Next slide, please.

So in 2013 prior to Stage 2 being fully under way, 4 in 10 physicians reported that they electronically exchanged data, it's that red bar that you see on the left. However, outside exchange with unaffiliated hospitals and with ambulatory care physicians outside their practice was much more limited, only about 14% of physicians nationwide reported that they had exchanged data with other ambulatory care providers outside their practice or with unaffiliated hospitals. Next slide, please.

With regards to how this might vary by type of data, amongst physicians, there wasn't a lot of variation in exchange activity by type of data. As you can see, about 1/3 of physicians exchanged lab results, imaging reports, problem list, medication list, med allergy lists. And specifically during transitions, exchange was more limited, as you can see with the graphic at the bottom. So data from 2012 shows that about 5 in 10 physicians reported that they had received discharge summaries routinely from hospitals, and this includes either paper or electronic. And then half of those, so about 25%, received the discharge summary electronically. So this...the low rates of just sharing data during a transition, paper or electronically, suggests that there are other factors besides the adoption of technology that are going to be important to changing practice patterns and to really enabling exchange. As Erica mentioned in one of the ro...in the roadmap, one of the key building blocks relates to the business, cultural, regulatory kind of context. In the discussion that we just had, we talked about how important that might be as a driver to enable exchange. And I think some of this data really does highlight that. Next slide, please.

So the National Survey findings are also reflected in some of the early Stage 2 data, and this is data as of May 2014, so pretty early on in the program, shows that the lower performance of...there is lower performance among eligible professionals on the summary of care measure, compared to other Stage 2 measures. So, as you can see, I mean the very small letters, the font, that amongst these early attestors, almost 7 in 10 reported that they provided a summary of care record for a very small proportion of their transitions, roughly 30%. And we'll be continuing to monitor this pattern, and again, this may reflect a variety of factors some that relate to some of the cultural, business environment issues that...what's going to drive changing practice patterns in addition to issues that relate to technology and gaps in interoperability. Next slide, please.

So among physicians who do exchange, over 8 in 10 report efficiency and quality of care benefits from exchanging, those are the green bars at the bottom of this figure. However, a sizeable proportion also report that exchange is complex, so that requires the use of multiple systems and portals and that their costs have increased as a result of exchanging data, with regards specifically to vendor costs. Next slide, please.

So I'll be moving on now, talking about hospital's exchange. So in contrast to physicians, exchange activity amongst hospitals is...the outlook is more positive. Hospital exchange with outside providers and specifically with ambulatory care providers outside their system and unaffiliated hospitals has grown significantly since 2008, so since HITECH. In 2008, as you can see here, about 4 in 10 hospitals exchanged either laboratory results, radiology reports, clinical care summaries or medication lists with outside providers. And in 2013, that grew to about 6 in 10 hospitals. Next slide, please.

With regards to capabilities prior to Stage 2 in 2013, half of hospitals reported that they had the capability to query patient health information from outside sources and about 4 in 10 reported that they had the capability to send and receive secure messages. This again, just to reinforce, this is about capability that we don't have data as of right now on usage of query-based exchange or directed exchange specifically via secure messaging. Next slide, please.

Unlike physicians, hospital exchange does vary by the type of data that is exchanged. So, as you can see in this graphic, exchange activity across these four types of data, lab results, radiology reports, clinical

care summaries, med history, has significantly increased since 2008. But care summary exchange still lags behind lab results...exchange of lab results and radiology reports. And interestingly, although 70% of hospitals report that they have the capability to send care summaries in a structured format, and about half of hospitals reported they had the capability to send care summaries to an outside organization using a different EHR, only 4 in 10 reported that they exchanged care summaries with outside providers. Next slide, please.

And again, the lower performance on...around care summary exchange and exchange during transitions is...we can see that in some of the data from the early attestors of Stage 2, the hospital performance on the summary of care measure is lower compared to some of the other stage measures. And again, this is very early data, from May 2014, that I'm laying out here. And similar to the data from eligible professionals, there...a good proportion of hospitals, about three quarters report that they are electronically providing a summary of care record for a relatively small proportion of their transitions, about 25%.

This is something that we'll continue to monitor as Stage 2 evolves and there are more attestors. This particular one is only based on 8 hospitals, this data here, so, this is something that we're going to have to continue monitoring. But I did want to draw this to the committee's attention that some of the survey data is also suggesting that care exchange is behind some other types of data exchange on both the physician and the hospital side. Next slide, please.

Another area that we are monitoring with regards to transitions, are ED visits and communication between hospitals and primary care physicians around this specifically. And about half of hospitals report that they provide an electronic notification to primary care physicians regarding emergency room entry. However...and this has increased from 2012 to 2013, as you can see in the graphic here. However, most of the notifications are still primarily sent to affiliated primary care providers. Next slide, please.

So now I'm going to move on to discussing the role of individuals in health information exchange capability and activity across individuals specifically. Next slide, please. So the gap in information exchange between providers and among individuals and providers does have a tangible impact. About 1 in 3 individuals report that they experienced at least one gap in health information within the last 12 months when receiving care for a medical problem. And this included gaps such as having to provide their medical history again, because the provider hadn't received records from another provider, having to bring tests or medical exam test results to a doctor, having to wait longer than reasonable for the results of a test. And to a lesser extent, having to redo a test or procedure because the results were no longer available or having to provide their medical history again because their chart could not be found.

And among the 1 in 3 individuals who reported experiencing these gaps in health information, these individuals were more likely to have a chronic health condition or to have seen 3 or more healthcare providers within the last year. So, not surprising there are more opportunities for gaps in exchange to occur, given that these individuals are seeing multiple providers and having to manage a seri...potentially a serious health condition. Next slide, please.

So individuals can play...certainly play a role in addressing some of the information gaps that I just described. In 2013, 28% of the US adult population was given access to their online health record by a healthcare provider or insurer, and this is based on the nationally representative survey data that I described earlier in the presentation. And you can see in the figure on the right, the bar graph, many did take advantage of having online access, a little bit under half viewed...logged in and viewed their online health record at least once. About 40% downloaded their data from their online record and another 44% shared their online health information with someone else, whether that was a family member or

healthcare provider. A much smaller proportion, about 1 in 10, sent their data to an online...from their online record to an app or a PHR. Next slide, please.

The individual's ability to take advantage of these features and serve as intermediaries of exchange does certainly hinge on their provider's capabilities, view, download, transmit capabilities specifically. And based on national survey data in 2013, all office-based physicians and hospitals capabilities are not as robust as their capabilities to do some other activities. So the top graphic shows that across office-based physician's nationwide, about 4 in 10 report having the computerized capability, the view, download, transmit...capability. However, only a quarter report that they are actually using that capability.

On the hospital side in that table on the bottom, you can see that about 4 in 10 hospitals were able to provide patients with the ability to view information from their online record. A little bit over a quarter had the ability to down...patients can download the information and much fewer, about 11-12% can electronically transmit the data. And I think this pattern is reflected in the data that...from the previous slide where we saw that much fewer individuals reported that they actually sent data from their online record to an app or PHR, probably in part because the provider's capability with regards to sending data may be lower. There may be other reasons as well as to why individuals may not be sending data and as high a rates as compared to downloading the data and sharing the data. Next slide.

So, as you...as I noted earlier, the measurement that I've talked about today was largely focused on exchange rather than interoperability. However, we are trying to align our future measurement strategy to link directly to ONC's Strategic Vision going forward. And specifically, the roadmap that Erica just described. We want to be able to monitor progress that we're making on the roadmap. And we also realize that we want to include other types of information that will complement the survey data that I just reported on, including more closely monitoring the volume of transactions, potentially adoption of standards, and the ability to use services more broadly. So, these are things that are under development right now and we're hoping to be able to more robustly measure exchange and interoperability and provide a much richer picture of where we will be going as we move forward with the roadmap. Next slide, please.

So some of the key takeaways overall, prior to Stage 2, the data show that there is growth in exchange capability and activity, but that there is also substantial room for improvement. The infrastructure and services to support query-based and directed exchange has increased as reported by the State HIE Program grantees, though the impact on the exchange activity is likely to be unevenly distributed among states. Data from 2013 and early 2014 indicate that exchange activity and capability varies across key stakeholders along the continuum, including providers, hospitals and individuals and particularly during transitions.

As I described, physician exchange activity with outside providers is limited, about 14% reported that they exchange data with either ambulatory care providers outside their practice or with unaffiliated hospitals. In contrast, hospital exchange activity with outside providers has grown substantially since 2008 with about 6 in 10 hospitals reporting that they exchange with outside ambulatory care providers or unaffiliated hospitals in 2013. Exchange of data during transitions is limited for both hospitals and physicians, and a significant number of individuals report experiencing gaps in information sharing.

And finally, data prior to Stage 2 show that physician and hospital view, download, transmit capabilities are somewhat more limited as compared to other capabilities. However, among individuals who do obtain online access to their health information, there is some early evidence to suggest that a sizable proportion are taking advantage of these capabilities. And again, just want to reinforce that as we move forward with the roadmap, interoperability measurement will be a key focus going forward. Next slide.

So, if there are any questions, be happy to take those questions? And I also want to make folks aware that there are some additional updates that are in the next couple of slides that relate to lab exchange interoperability and capabilities across the continuum, but I'll stop for now and take some questions and if folks want to discuss some of the other slides, I can do so as well.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Thank you. David McCallie has a question or a comment?

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

Yes, hi. First, thanks for doing that work and pulling this together. It's really important to get a measure of how we're doing and I applaud your use of some of the outside resources that are doing independent assessments of the space, that's really nice to see that data merged in. I'm struck by the sense that the...when you look at the map of the US, it looks like we're doing better than you'd think if you based your assumptions of how we're doing on the news and complaints from Congress and others.

And my suspicion is that what you've uncovered is kind of a patchwork quilt effect where some providers can connect to some other providers with some of their patients some of the time. And for that you might get a checkmark that you have some kind of interoperability present. But what's missing is some measure of the degree to which that connectivity is approaching the notion of universal connectivity, meaning that regardless of who the patient is or who the payer is or where the provider sits, on which side of state line, connectivity is possible.

And so I'm...more of a comment than a question but, would urge the development of some kind of measure or statistic that would capture that notion of universality rather just a check mark that some of the people, some of the time can do some things. Any comment you have is welcome, but it's really more of an observation. Thank you.

**Vaishali Patel, MPH, PhD – Senior Advisor, Office of Planning, Evaluation and Analysis – Office of the National Coordinator for Health Information Technology**

So thanks, I appreciate the comment and I think just to respond specifically to the map there. That map is meant to show the potential capability for providers to connect and that there is a source available for them to connect to and that is broadly available across their state. Obviously that doesn't necessarily mean that, as you were saying, in...across all situations that that works. And so measuring...in addition to measuring capability, it is also important to understand and measure exchange activity and...in order to monitor how well our infrastructure is working to support that.

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

Yes, thank you.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Thank you, so just looking at our time, we have time for one more question. Dixie Baker?

**Dixie Baker, MS, PhD – Senior Partner, Martin, Blanck and Associates**

Thank you, I'll speak quickly. Thank you for your presentation, Vaishali, it was very, very informative. My...both my questions relates to the slide 11, those top two measures that both relate to security. And my questions are, I was wondering whether these opinions or these statements that you have on the chart there, were further defined for the respondents or were they just given these statements? And for example, this perceived liability risk that's reflected in the first bar across there, were...I am wondering

whether these concerns were related to security risks perceived to be within the organizations, like individual employees having access to data they...authorized for? Or whether they perceived liability associated with the exchange itself? And with respect to the second measure, we generally use the term sensitive to refer to behavioral health information, since that's the only type of sensitive information that is regulatory required to be separated and protected as sensitive. I am wondering how that term was defined in this survey?

**Vaishali Patel, MPH, PhD – Senior Advisor, Office of Planning, Evaluation and Analysis – Office of the National Coordinator for Health Information Technology**

Good questions. What you see here is what was written on the survey. We tried to pack a lot of questions into the surveys and so we don't typically have a ton of room to really flesh out necessarily all the terms. But I would say with your first point, I think the emphasis of the question was not as much on internal, what's going on within...liability that might relate to the internal aspects that you mentioned, but more exchange with the outside providers, so who they are exchanging with. And beyond that, as I said, this...what was written is what you see here and this is among...again, just to emphasize, this is amongst physicians who reported that they do exchange. So we were...the goal was to gather information from individuals who have some experience with exchange and potentially a little bit more understanding of some of the issues that might come up.

**Dixie Baker, MS, PhD – Senior Partner, Martin, Blanck and Associates**

Yeah, I knew these were all with external providers, I was really talking about with that first bar, employer...employees of these external providers. But it sounds like if this was all they were given, that's probably...well...

**Vaishali Patel, MPH, PhD – Senior Advisor, Office of Planning, Evaluation and Analysis – Office of the National Coordinator for Health Information Technology**

Yeah, we didn't have like a follow-up question that might get at some of the more nuances that you...

**Dixie Baker, MS, PhD – Senior Partner, Martin, Blanck and Associates**

Well, thank you. Thank you.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Thank you Dixie and thank you Vaishali. I think we're now ready for the Implementation Workgroup presentation from Cris and Liz.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

And Michelle, Jacob agreed that I could serve as moderator for this one, so a very quick preamble, which is, we recognize that the Implementation Workgroup is the conscience of this Committee. And that is, they ensure we get feedback from the trenches on the reality of standards adoption and challenges as they are deployed and used in the real world. And so today, of course, we'll hear from Cris and Liz on what are the aspects of the C-CDA that are good and what could be improved and might it even be displaced with something like FHIR, to some...to address some of these interesting implementation concerns.

We know the history of our summary of care document has gone from CCR, CDA, C-CD to C-CDA with the interest of applying constraints and reducing optionality and creating templates and reusability and enhancing the capacity to parse. But I think, though we've made great progress, we'll hear from Liz and

Cris we're not quite where we need to be. Now as you listen to their presentation, also please keep in mind, and this is, of course, a John Halamka comment, not an ONC comment. So Michelle, I may be totally wrong, but in my looking at all the presentations today, it seems to me that ONC is in the regulatory writing phase right now, and probably for the next oh 10 weeks or so, as we are, a Standards Committee, getting guidance, having meetings, setting new agenda.

It's probably unlikely that the things we do over the next 10 weeks are actually going to be baked into the first NPRM that's in process right now. So let's also keep in mind that we will have an opportunity after the NPRM is written to offer important written feedback to that NPRM as its just a proposal. But also working in the context of standards development organizations and the other mechanisms we all have for adoption, to incorporate some of the suggestions that Liz and Cris will make today. So, just want to make sure I set that tone, our work over the next 10 weeks really important, but probably, I'm guessing, ONC is in its sort of quiet period right now off writing regulation that we will be responding to, not necessarily giving input to over the next 10 weeks. So with that, Liz and Cris, please go ahead.

**Elizabeth Johnson, MS, FHIMS, CPHIMS, RN-BC – Vice President, Applied Clinical Informatics –Tenet Healthcare Corporation**

Great, Cris, have you joined us? I haven't heard from him yet, John, so I'm going to go ahead and get started. Now I want to certainly give Cris the full credit, he did the lion's share on this, I was out for some issues I needed to deal with. And so I want to...oh he just...Cris just said he just landed, he's on approach, he'll be joining us soon. So, we'll get started and then we will...hopefully he will be able to join us before the end. So, if you'll go to the next slide, please.

So as always, we want to thank these participants. I can tell you this is a very lively group, it was...as John did a great job in introducing the topic, we are certainly dealing with a lot of input around the C-CDA, it's usability, how it's working out truly in the field. As John said, it's often Cris and I's job along with this workgroup to really query the field and ask them, how are you working with the particular standard that we're talking about? This is not one that required query, the information is out there and the responses were great. But again, thank you to this group for all of your help. Next slide, please.

So in essence what we did was...I'm going to go over with you the charge that we were given, the work that we did and some of our recommendations as far as how we should move forward. And really the recommendations that we want you and certainly other Chairs to consider going forward. So, next slide.

In essence...hang on a second, I'm sorry. In essence, what we were asked to do was to determine whether there was a usability challenge with C-CDA version 1.1 and the implementation guidance. And if there were challenges, how could ONC most effectively address these issues including future versions? So that's what we did. Next slide, please.

So we did it in several meetings, but the two that are, I think, important to you were on July 9 we had a meeting where we really talked about the...where was ONC? Could they...they did some education with us in terms of way all the standard was written, where constraints were, where constraints were not available. And so that began to serve as the foundation of the work that we did. And then that was followed by another meeting on July 29, and you can see here that we really had a vast array of people that came and spoke with us about their specific experience. And although there are certainly vendors included, most of these persons that spoke really gave us the perspective from the users of the C-CDA in conjunction with their either application or service. So, it was very, very helpful in terms of really getting a broad, effective look at what's going on in the market. And then certainly as members of the Implementation Group, we were able to bring our own perspective as well. And I think came to some pretty clear consensus as where we might want to go from here. So, next slide please.

So I think there were two types of overall challenges that were identified. The first was the transport of structured data due to the vagueness in standards or testing procedures. And the second one had to do with actual usability difficulties related to the actual transfer data. Was the physician on the...who was the recipient of the data actually using the data? And I can preface further information to tell you what we found. Often was they did receive the data, they are able to receive the data, but many were not using it. So I want to go on to the next slide and I'm going to give you the summary of the challenges as they were presented to us. So, next slide, please.

Okay, there we go, thank you. So what we found was there was wide implementation variation across EHR vendors. And I think that Steve did a nice job earlier when he talked about his work and talked about a repository that included 53 sample C-CDAs from 13 developers and the number of C-CDAs that were validated. We know for a fact that C-CDAs are going across and their being used widely for the purposes of either meeting the standard, which was the, I think, initial thought but I think as has been spoken many times in the Standards Committee as of late, this is really about exchanging data and doing better care of our patients. So the variation is certainly playing into that whole scenario.

Interestingly enough, and this is something we've talked about a lot, about the challenge between allowing innovation and entrepreneurship and then having variability. But what we've really found in this particular review was that there is so much variability that it appears that there may be too much variability, because the standards and the implementation guidelines are not restrictive enough. Summary documents are really left up to the EHR vendor discretion, so many times there is information shared that is not relevant to clinical care.

So we really feel like there needs to be a pertinent clinical summary of a patient or the most relevant data. And interestingly, it was suggested that that might be up to the provider's discretion. In Stage 2, there's a requirement for 17 different data elements, but there are no instructions for when an element is not present. For example, the null fields are available, but how to use them is lacking in the implementation guide. Next slide, please.

So as you continue to move forward, do you realize that the certification focuses on the creation and the transport for C-CDA, but not really on the intake. So, it's suggested that we really need to do some testing around appropriate conformance to common vocabularies. We've talked a lot about SNOMED, LOINC, RxNorm, but it's not included. Variation in no known medication tolerances and no known environmental or substance allergies needs to be handled. Today the C-CDA does not handle data versioning, therefore as a data correction in case of errors requires manual intervention. And then many C-CDAs have more specificity in the narrative section than in the discrete section. And these again are very specific findings that we had going through the process. Next slide, please. Next slide, please, there you go.

So in essence, what the workgroup came to conclusion was that we needed more detailed and constrained specifications and we really needed to use clinical use cases. And we gave some common issues that could be addressed with this approach. Obviously handling current and non-active medications, problems, allergies, comingling of terms of medication intolerances and environmental substance allergies, use cases, and we gave some examples of the type of use cases that we think would ensure that the usability would be greater than it is today.

We believe there needs to be published conformance tools to optimize and validate real use of the C-CDA. And we talked about a site for public samples, I mean Steve talked about some of that earlier, that's a great concept and I think we can build on the work that's being done. We need to evaluate the standards and implementation guidance and really look at the fact that we've got more relevant

narrative data than discrete. Does that give us more opportunity for physician and patients to provide what will be included in the narrative? Next slide, please.

So, a lot of information, I...what we really felt like and I think again John did a really nice job coming into this. I think we have clearly recognized, and as we got into this and realized the complexity of the charge that we were given and we were able to clearly demonstrate there was an issue, we determined that we should come back to the Standards Committee and make these recommendations.

And the first one, and again, I do recognize the 10-week issue here, but is there a near-term practical action that we can take that's not disruptive and improves the interoperability? While FHIR may be our long-term aspiration, we still need to continue to transport data and if that's a year and a half away or whatever that magic timeline may be, what are we going to do in the meantime? Can we provide a more detailed and constrained specification and include clinical use cases to address the common issues that have been identified? Can we create conformance tools and optimize and validate real world instances? And the public samples, I mean again, Steve talked about earlier where it's already out there, is there a way to add to that? We need to evaluate the standards and implementation guidance that separates clinically relevant narrative from discrete data.

So, given the work that we did over the last few weeks and the conclusions that we drew and the criticality of the need for the C-CDA to be usable, we'd like to recommend to ONC and to the Steering Committee that we identify an appropriate mechanism to do a much more in depth. This is a very...when we got into the actual details of the C-CDA, it became very obvious that it is a very detailed set of specifications. And that it's going to require an in depth review with appropriate subject matter experts along with the Implementation Workgroup, looking from the perspective of real world, to make sure that what comes out of this while we wait for improvements and/or alternatives, we can continue to move forward.

So we're asking for a workgroup to be identified that can collaborate with other workgroups and form a joint group to conduct the review. So John and Jacob, fast and sweet, I can tell you that most of us on the workgroup, certainly I can speak for Cris and I, are very passionate about the need for the information, that it's the right thing to do and it needs to continue to be part of our future, while we're waiting for more interoperability tools. But we need some help. How's that?

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Well thanks very much. And so Michelle, my understanding is you're actually seeking formal recommendation of the committee's approval that a workgroup be formed to collaborate with other existent workgroups in a joint review of C-CDA, improvements, issues, implementation artifacts and tools? Is that correct?

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Yes, so we are looking for formal approval, but maybe that just that it goes to the Steering Committee to identify, that was suggested as a means to complete this work. But that might not be...once it's brought to the Steering Committee, that might not be the final decision.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

So the motion, so to speak, and of course, we'll open up for discussion in just a second, would be that the Steering Committee, as part of our new workgroup organization, would be given the charge of

assigning appropriate experts to review C-CDA, gaps, improvements, tooling and that sort of thing. And that may be the Implementation Workgroup and draw on other experts as needed, but to be determined.

And so, just as a comment, and thanks so much Liz and if Cris has landed, thanks so much to Cris. What I said in my preamble was that there are so many means by which we can be influential. And so one of the things that I believe Steve Posnack has talked about this in the past, is to create more of an agile approach to certification and testing. And that decoupling some of the processes like regulation writing, and the generation of test procedures and certification scripts and that sort of thing. And so Liz, as you think about some of these issues that you've identified, you wonder if by creating example artifacts, more tightly constrained implementation guidance, certification test scripts or procedures that ensure that we don't get 20,000 pages of unstructured text and call that a C-CDA would certainly help, even outside of the NPRM process.

**Elizabeth Johnson, MS, FHIMS, CPHIMS, RN-BC – Vice President, Applied Clinical Informatics –Tenet Healthcare Corporation**

Completely agree, and that, I think was, given like I said the timeframe we had and the clear acknowledgement that the NPRM was coming and yet we need to make movement. So I think you're exactly...have done a nice job as usual, of summing it up and what we're looking for to continue to move forward. And again, hoping that although the next 10 weeks may be somewhat constrained, that we can begin the business...because like we also identified, we will have an opportunity to make many comments before that process is complete.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Okay, well Michelle, I imagine we have comments from the group.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

David McCallie?

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

Ah yeah, first, Liz, to you and your workgroup, we owe you a huge debt of gratitude for the hard work of figuring this stuff out or figuring out where our issues are, this is incredibly valuable. And so my broad comment, or first comment is just to connect back to my question to Steve after his presentation is, we need a clear path forward to do a better job of ensuring that these CDA documents...C-CDA documents are appropriately formatted according to some standard, whichever one we all agree to settle on. So I trust that Liz' recommendation and your presentation will be locked together in some clear way that we can all figure out exactly what's happening and how we're going to solve the problem.

And then just toss out a notion that I wonder if there is some way that we can make the status of a vendor's ability to generate an appropriately formatted CDA into something of a transparent process. So that you could imagine, for example, a validator website that a provider could send test patients to and get back a score on how well the test patient was formatted according to the accepted standards. And that score would be kept in a transparent way so that people could understand which systems were, in fact, producing correct documents according to whatever we arrive on as the definition of correct. And then every 30 days you erase it and start over again so everybody has a chance to get better. We really need to think outside the box, so to speak, to figure out how to push this forward independently of the timetables for the regulatory process. So really more of a comment, thanks.

**Elizabeth Johnson, MS, FHIMS, CPHIMS, RN-BC – Vice President, Applied Clinical Informatics –Tenet Healthcare Corporation**

Yeah and I would, David, thank you for the comment. And I would say that as part of that concept, however it may come to fruition, not only does it meet the standard, but is it usable. And I think you inferred that, but that is what we're hearing consistently is if they're simply accepting the document because it's part of the process, but then going to other documents or paper or whatever may be available, then we haven't accomplished the goal. Which is, having a set of data that help them, helps our providers, our clinicians to do a better job of care.

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

Yeah, so Liz, thanks for that. Let me just respond to that because I think when we did our work with the vendors that are participating in CommonWell, we discovered quite a bit of variation in how each vendor had interpreted what should be in the CDA documents that are produced. For example, include everything in the encounter versus an on-demand summary of just the core clinical data in real time and so forth. And we discovered that we all came at that from different perspectives and I think it turns out that some kinds of CDAs work for certain use cases and other CDAs work for other use cases. And we may need more guidance on how to structure the right kind of CDA for the right kind of workflow and use case. And it may have less to do with the CDA and more to do with what are you asking for to be put in the CDA and for what use by the receiver?

**Elizabeth Johnson, MS, FHIMS, CPHIMS, RN-BC – Vice President, Applied Clinical Informatics –Tenet Healthcare Corporation**

Good point.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Yes and David, I will just applaud that comment. So I was asked yesterday, well, why not send a discharge summary via C-CDA? And I said, well it's the question of workflow because it is often the case that the formal edited, textual discharge summary may not be complete for one week or two weeks after the patient physically leaves the hospital. So what you really need are two documents with two sets of templates, one called a discharge worksheet, which includes medications, follow-up appointments, activity and diet restrictions and maybe a diagnosis or something like that. And the other, the more formal narrative of the story of your experience. But that's going to be weeks later and you've already probably had your follow-up appointment, you can't wait.

**Elizabeth Johnson, MS, FHIMS, CPHIMS, RN-BC – Vice President, Applied Clinical Informatics –Tenet Healthcare Corporation**

That's right.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

And so I wonder, Steve, if the C-CDA sandbox that you described in standards and implementation testing environment might be this place where there is a restricted set of templates that must be present for a kind of CDA that's used for transition of care, longitudinal medical record, a discharge worksheet, discharge summary, that sort of approach.

**Steven Posnack, MHS, MS, CISSP – Director, Office of Standards and Technology – Office of the National Coordinator for Health Information Technology**

I like David's suggestion and the thinking outside the box is certainly one of the things that I'd like to do, especially because the site infrastructure is available for pre- and post-implementation, which is one of the points I didn't really emphasize on my slides, but, it's certainly an area where we can be helpful. And I think with the SMART validator there is a score, if I'm not mistaken, that Josh had built into that tool.

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

Yeah, this is David, that's correct although I know Josh has some concerns that his process could be improved as well, if it is to become kind of a public record. But I think that's the direction to think about, absolutely.

**Leslie Kelly Hall – Senior Vice President of Policy – Healthwise**

I'm sorry, this is Leslie, I'm not on the website so I can't hold my hand, so I do have a question or a comment when we can.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Please, go ahead.

**Leslie Kelly Hall – Senior Vice President of Policy – Healthwise**

Thank you. So, I just wanted to make sure, Liz, this is really good work and I think the idea of usability is very important. I'd also like to take this opportunity to be preemptive, given the new definition or the confirmation of definition of interoperability being so patient-centered. As we look at the future and to have to use cases in Consolidated CDA now that it's been validated with patient-generated header information, as we do our due diligence and work in this effort, make sure that we're doing this with the patient's role in interoperability and patient-generated data in the future.

**Elizabeth Johnson, MS, FHIMS, CPHIMS, RN-BC – Vice President, Applied Clinical Informatics –Tenet Healthcare Corporation**

Point well taken and I think, again, it's the synergies of the conversations that have been taking place today and the ability to take all the concepts that are out there and impact...influence the final work around the C-CDA is really important. And I think that the patient's consensus and involvement is really clearly needs to be part of it, so good point.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Michelle, other comments in queue?

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Yeah, Arien Malec?

**Arien Malec – Vice President Strategy & Product Marketing – RelayHealth Corporation**

So first of all, I again want to thank Cris and Liz for doing this, this has been very needed and their review was...I learned a ton during the working group meeting. I've got I guess two...so I completely endorse all of the recommendations that the Implementation Workgroup has brought to us. I've got two kind of meta-comments, things that we should be thinking about. Number one is, how do we put enough

timeline, and this is particularly relevant thinking about Stage 3 Meaningful Use as well as thinking about our overall work plan going forward? How do we put enough time and time lining into our work plans and our roadmaps to make sure that we have enough time and enough flexibility to think about use before standardization?

I think we've been operating under a mantra that first we define the need, then we create a standard, and then we certify against that standard and everything is great. And I think what we're learning is that you need to use something before you can actually create a workable and usable standard. So how do we make sure that we have enough time and timeline in our planning and enough flexibility in our planning to make sure that we get use and that we standardize based on use, as opposed to trying to use something that we standardize and discover the lessons post-talk?

And then the other is, as we're looking at a consolidated C-CDA and as we're looking at FHIR, one of the big learning, the big ah ha's that I had is that the CDA tries to conflate two things that are really orthogonal. One is, how do we capture and send data that's available machine...and is interoperable machine-to-machine? And the other is, how do we surface information that is human readable and narrative in format? And the Consolidated CDA tries to collapse both of those concerns by having a narrative section and a discrete data section. And I'm...I think we should be looking at approaches that separate those two concerns, that optimize narrative information for clinical, human readable inoperability that may not include all of the information that's available in the discrete data section. It may, in fact, contain subsets that are clinically relevant.

And it seems to me this concern is actually very parallel to one of the major EHR workflow lessons that the template that contains all of the data that's possible for the patient and provides that to the clinician actually isn't terribly useful. And what we need is a clinical summary of what's gone on for the patient with the ability to drill down and look at the patient. So, potentially something to look at for future phases of either the Meaningful Use Program or other kinds of roadmap programs. How do we separate the concerns of data from the concerns of clinical narrative. But again, I just want to applaud the work that the Implementation Workgroup has done and as I said, endorse the recommendations.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

So Arien, quick response. A fascinating issue, so, is FHIR a file format or an over the wire format? Is C-CDA a file format or an over the wire format? Might it be, to your point, that C-CDA becomes a file format for narrative download, but FHIR is the mechanism of machine-to-machine exchange over the wire, or something like that. Maybe there's a convergence that happens, I mean, it's a fascinating debate.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Floyd Eisenberg?

**Floyd Eisenberg, MD, MPH, FACP – President – iParsimony, LLC**

Hi, so I also want to applaud the work, I think it's terrific and gives us wonderful information that wasn't as easily available. I'd like to just reiterate that issue about data versus narrative and in moving forward. And looking at what is structured in a standard way, I am not advocating over-structuring, but I am suggesting we address data that can be used for secondary purpose, especially clinical decision support, for looking for in one EHR what may have occurred elsewhere, but still be very relevant. And where it's appropriate, to have structured data.

**Elizabeth Johnson, MS, FHIMS, CPHIMS, RN-BC – Vice President, Applied Clinical Informatics –Tenet Healthcare Corporation**

Good point.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Thank you.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

David McCallie?

**David McCallie, Jr., MD – Senior Vice President, Medical Informatics – Cerner Corporation**

I can't resist the opportunity to do a design in a live session here, so I just want to comment on John's point about FHIR. And point out that one of the nice thing about FHIR that I think is part of the potential that leads us to be so interested in it is that it is equally comfortable providing back discrete data as well as a list of documents which can then be fetched as document data, all with a simple, consistent API. So, the CDA over XDS doesn't give us that clean opportunity to be focused on a discrete element, if that's all you need or on the list of the narrative documents, if that's all you need. Or to fetch a discrete specific document if that's all you need. But FHIR, in general, does give us that capability, which is, I think, one of the reasons that we're excited about it.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Very good, and of course in my comments, I did not suggest an answer, just the issues. So David, thank you very much for that.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Wes Rishel?

**Wes Rishel – Independent Consultant**

Thanks. So, we want to keep in mind, and save Jacob from having to repeat it just one more time that we're dealing with more than just Meaningful Use in our discussions. And I think we, to a certain extent, have to be aware of the shadow we cast. In the sense that where things have at least hypothetically been treated as certification requirements, people would like to build outside the interfacing strategies on that for other use cases because in theory they have some basis of existing code in the EHRs to start with.

So, we see a lot of, several at least, situations where the C-CDA which is...technically it's a way of creating individual file format specifications, document specifications, but it becomes a wire protocol when it's combined with XDS or with some other IHE protocol and so forth. So there are IHE projects for passing data from an EHR into a form that can be built as a report in a clinical trial with all of the special requirements associated with authenticating that data and so forth.

We are lea...we leave industry right now in a tough situation where we're pointing out that the scalable implementation that they hoped they might get by using C-CDA as a wire format for structured data does not lead to uniform implementations as there's still a need to adapt to each different EHR. And we're not offering anything as an alternative in the following sense. We have a lot of enthusiasm for

FHIR and we expect and we hope that when FHIR goes through the same trials, pardon the expression, the trial by fire that we have put C-CDA to over the last couple of years.

We have hopes that our learning over the years will have created a simpler protocol and that will lead to less variability and so forth, but no proven capability that way and no reservoir of code required for certification to build upon. So recognizing that there are people that are trying to work faster than the strategy timeframe that we saw, the roadmap we saw today, I think we need to help them understand, can they adapt the CDA? What would be the cost of adapting the CDA so they can make a decision on continue down the old path or wait for a new path that's probably a couple of years away before FHIR is tested...undergoes trial by fire by really implementing it. Thanks.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

So as has been said, I mean we together need to define a roadmap of what to do over the next 5, 12, 18 months to make our lives better as the DSTU for FHIR evolves into real world experience. The kind of things that Arien talked about, and gets polished to the point where it's truly ready for prime time. I mean, I think the direction we have all talked about in many meetings is pretty clear, I mean, FHIR, REST, OAuth, these are sort of the directions we want to head toward, but we can get there really only at a fixed rate, given that this has got to be an iterative process. So, I think...Michelle, are there other comments?

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Yes, Nancy Orvis?

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Just to presage the question that we'll ask at the end of the comments, that I think we're hearing from every one of you that there's great interest in continuing this work and refining the C-CDA as a necessary step on the road to FHIR. And therefore getting the endorsement of the committee to continue that investigation is what we'll look for, at the end of the comments. So, Nancy Orvis?

**Nancy J. Orvis, MHA, CPHIMS – Director, Business Architecture & Interoperability – Department of Defense**

Yeah, thanks for doing this...the hearings on the C-CDA because as both an implementer for this as well, we've been getting a lot of internal queries and congressional queries about how well we're doing with C-CDA and why isn't it done, and why isn't it done right. And I think a lot of the issues that you are finding are what we were finding between our trading partners. There were different implementations and as Wes mentioned very clearly, the XDS is suffering. What the sending organization sends is the data, it's up to the receiving organization on how it's displays it in its own EHR and that's very hard for folks who are saying, well, why isn't it done? And why isn't everybody implementing it correctly?

So, I would just ask with this committee, if ONC wants the HIT Standards Committee to work in workgroups, that it's done one time with all the key players in it. Because trying to work this issue on three different prairies across on our Healtheway, on our Federal Health Consortium for Exchange and in public/private and in something else is difficult. So if we could...if we are going to do this, then we might want to also consider, does there need to be specific implementation guides for certain use cases? Or the C-CDA, that's another request that I would like want to put in here. Okay.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Very good.

**Nancy J. Orvis, MHA, CPHIMS – Director, Business Architecture & Interoperability – Department of Defense**

That's it.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

So Michelle, are there other comments?

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Nancy was the last one.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Okay. Well thanks again everybody for your comments. And so let us put the motion on the table that the Standards Committee will ask the Steering Committee in our new workgroup structure, to ensure that an appropriate workgroup is assembled to commence with the work that has been discussed by Liz and all the commenters to evaluate the C-CDA, tools, artifacts, implementation guides, use cases, etcetera. To make concrete recommendations on improving what we have available to all of us, so C-CDA implementation has less burden and easier parsability. Any comment on such a proposal or objections to it?

Okay, well none being heard, I think Jacob and Michelle, we have the committee's endorsement to go forward with forming such a workgroup.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Oh wait, caveat. I'm not sure, quoting you John, the workgroup wasn't necessarily the explicit direction here so much as consideration by the Steering Committee for next action. Right?

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Correct. I used the term workgroup as a small "w." A cluster of people who will discuss stuff.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Thank you. I just, and I'll be explicit about why I am being nit-picky about that. This group and others have expressed concern that we are overseeing hyper-workgrouposis, right, and so protecting ourselves against ourselves, we may not want to convene a separate workgroup so much as leverage teams that already exist to explicitly consider this topic.

**Elizabeth Johnson, MS, FHIMS, CPHIMS, RN-BC – Vice President, Applied Clinical Informatics –Tenet Healthcare Corporation**

Good point, Jacob. That works great.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Sure, completely fine. Okay, well, I think therefore we have finished this agenda item and I turn it back to Jacob and to Michelle, I think we are up to public comment at this point.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

We are. Jacob and John, do you have any final comments before we go to public comment?

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Well of course, just want to thank everybody for coming together in August, a time where there is normally vacation, free time and recharging. But I have yet to find that there is anyone who is actually taking time off this summer, so, thanks again and all input much appreciated.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

I will echo John's comments and pass the baton to you for public comment, Michelle.

**Public Comment**

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

Thank you, Jacob. Operator, can you please open the lines for public comment?

**Lonnie Moore – Meetings Coordinator – Altarum Institute**

Okay, if you are listening via your computer speakers, you may dial 1-877-705-6006 and press \*1 to be placed in the comment que. If you are on the phone and would like to make a public comment, please press \*1 at this time.

**Michelle Consolazio, MPA – Federal Advisory Committee Program Lead – Office of the National Coordinator for Health Information Technology**

It looks like we have no public comment at this time. Wait, oh, I'm sorry, it looks like we do have a public commenter, I think. Okay, no. So, no public comment at this time.

Just a reminder that for the September meeting, we did change the date of that meeting and it also will be a virtual meeting and it is on September 10. And then we'll get to see everyone again at the October 15<sup>th</sup> meeting, which is a joint meeting with Policy Committee and it will be in person. Also please plan that it will be a longer meeting than normal, so when arranging flights, it will likely go longer than our typical 3 o'clock timeframe. Thank you everyone and enjoy the rest of your summer.

**John Halamka, MD, MS – Chief Informatics Officer – Harvard Medical School/Beth Israel Deaconess Medical Center**

Thank you.

**Jacob Reider, MD – Deputy National Coordinator – Office of the National Coordinator for Health Information Technology**

Thank you, Michelle and thanks everyone.

**Public Comments Submitted:**

1. I appreciate your identification that this needs to be a useable and relevant document. At this time it seems all information including the kitchen sink is included because of the fear of audits and not providing enough information. Thank you.

Meeting Attendance								
Name	08/20/14	07/16/14	06/17/14	05/21/14	04/24/14	03/26/14	02/18/14	12/18/13
Andrew Wiesenthal	X	X		X	X	X	X	X
Anne Castro	X		X	X	X	X	X	X
Anne LeMaistre	X	X	X	X		X		
Arien Malec	X	X	X	X	X	X	X	X
C. Martin Harris		X	X			X		
Charles H. Romine		X				X	X	
Christopher Ross	X	X	X		X		X	
David McCallie, Jr.	X	X	X		X	X	X	X
Dixie B. Baker	X	X	X	X	X	X	X	X
Elizabeth Johnson	X	X	X	X	X	X	X	X
Eric Rose	X	X	X	X	X	X	X	X
Floyd Eisenberg	X	X	X	X	X	X	X	X
Jacob Reider	X	X	X	X				
James Ferguson	X	X	X	X	X	X		X
Jeremy Delinsky					X	X	X	
John Halamka	X	X	X	X	X	X	X	X
John F. Derr	X	X	X	X	X	X	X	X
Jonathan B. Perlin	X		X	X	X	X	X	X

<b>Keith J. Figlioli</b>				X		X		
<b>Kim Nolen</b>	X	X	X	X	X		X	X
<b>Leslie Kelly Hall</b>	X	X	X	X	X	X	X	X
<b>Lisa Gallagher</b>	X	X	X		X	X	X	X
<b>Lorraine Doo</b>	X	X	X		X		X	X
<b>Nancy J. Orvis</b>	X		X			X		
<b>Rebecca D. Kush</b>	X	X	X	X	X		X	X
<b>Sharon F. Terry</b>	X		X	X	X	X	X	X
<b>Stanley M. Huff</b>	X	X	X	X	X	X	X	X
<b>Steve Brown</b>				X	X	X	X	X
<b>Wes Rishel</b>	X	X	X	X	X	X	X	X
<b>Total Attendees</b>	<b>24</b>	<b>22</b>	<b>24</b>	<b>21</b>	<b>23</b>	<b>24</b>	<b>23</b>	<b>21</b>