

**HIT Standards Committee
NwHIN Power Team
Transcript
May 22, 2013**

Presentation

MacKenzie Robertson – Office of the National Coordinator – Federal Advisory Committee Act Program Lead

Thank you. Good afternoon everybody. This is MacKenzie Robertson in the Office of the National Coordinator for Health IT. This is a meeting of the HIT Standards Committee's NwHIN Power Team. This is a public call and there is time for public comment on the agenda. The call is also being recorded so please make sure you identify yourself when speaking. I'll now take the roll call. Dixie Baker?

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

I'm here.

MacKenzie Robertson – Office of the National Coordinator – Federal Advisory Committee Act Program Lead

Thanks Dixie. David McCallie?

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

Here.

MacKenzie Robertson – Office of the National Coordinator – Federal Advisory Committee Act Program Lead

Thanks David. Floyd Eisenberg? Ollie Gray?

Ollie Gray – Department of Defense

Here.

MacKenzie Robertson – Office of the National Coordinator – Federal Advisory Committee Act Program Lead

Thanks Ollie. David Groves? Arien Malec?

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

I'm here.

MacKenzie Robertson – Office of the National Coordinator – Federal Advisory Committee Act Program Lead

Oh great. Thanks Arien. Marc Overhage? Wes Rishel? Cris Ross? Tim Cromwell? Nancy Orvis? And any ONC staff members on the line?

Avinash Shanbhag – Office of the National Coordinator – Director, National Health Information Network (NwHIN)

Yeah good morning, this is Avinash. I'm here.

MacKenzie Robertson – Office of the National Coordinator – Federal Advisory Committee Act Program Lead

Great. Thanks Avinash. Okay with that I'll turn the agenda back to you Dixie.

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

Okay. Thank you and thank you all for joining us today. This is the beginning – the first meeting of a series of three meetings that we're going to hold where we are looking at transport standards for sending data to and receiving data from consumers. Today we're going to focus on ABBI, and we have a guest speaker today, Josh Mandel and I assume it's Mandel –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

You got it.

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

Okay. And so I want to thank you for joining us. Next slide please; we’ll go over the agenda. Okay, David and I will briefly go through the task that’s been assigned to the Power Team. This is a short-term task and we should at least give an update by the next HIT Standards Committee meeting. After that we’ll spend about 45 minutes reviewing and discussing the Automated Blue Button Initiative (ABBI) that Doug Fridsma has briefly introduced this to the Standards Committee, but I don’t believe we’ve ever had an in-depth look at it on this Power Team. After that we’ll have a discussion about what we heard with respect to ABBI and we’ll look at the metrics – the criteria and metrics that we developed for assessing the readiness of a particular technology standard to become a national standard. And although we will not have time to do an in-depth review of any of these standards and specifications we’ll be looking at, we will try to come to agreement on whether they are deserving of an in-depth assessment for Stage 3 of Meaningful Use. And then we’ll close with public comment.

Okay. Next slide please. This is the – what you see at the top is just from Doug Fridsma’s briefing that he gave to the HIT Standards Committee, and then thanks to Avinash, we got a little bit more of a clearer definition of what is one, is being asked of us. What ONC wants us to do is to look at the standards that have been recommended for any kind of exchanges between consumers and providers and to recommend whether ONC should consider enhancing the current stand – transport standards in particular, to support consumer exchanges in Stage – for Stage 3. Or we might see a specification that should be considered for later. And the ones that they’ve specifically asked us to look at are the HL7 FHIR standard, which is a REST-based standard, relatively new, that seems to be catching fire, to use a – RHex is a REST health exchange. CommonWell is a collaboration among, well David can tell us, among a number of vendors and providers I think, and the one we’re looking for today is ABBI, Automated Blue Button. And if as we’re looking at these you know of other standards we should be looking at, please bring that up. And then we’ll just present where we are to the Standards Committee.

Okay. Next. With the materials that were distributed, I gave you – I sent you a copy of the whole consumer – or patient engagement section of the Stage 2 certification criteria and standards document. And this table just summarizes what’s in there. The certification criteria are on the left. This whole patient engagement area wasn’t even in the Stage 1, but it is Stage 2. So, as you can see, the kinds of certification criteria that were asked for on the left. There was view, download and send – transmit to third party, those were the key that we – three key capabilities that were called for by HITECH. Then there was the capability to generate enabled viewing of an activity history log, this is just an audit of these kind of exchanges, to create a customized clinical summary and to securely send messages to and receive messages from the patient.

On the right you’ll see that only two of these areas had transport standards specified, and you’ll see that those – that I extracted from the standards part of the document in the Word document that I sent you. The transmit to third party called for the use of the direct protocol, and securely sending and receiving messages it called for authentication of the patient and the EHR technology and the FIPS-140-2 Annex A, which is a document that lists the acceptable algorithms for encryption and integrity protection at any given time. So, those are the only standards that are currently in there, so we have a fairly open field. Next slide. Okay, we’re ready to hear – are there any questions about what I’ve put up there?

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

Dixie, this is David. Just a comment that we’ve had some discussion back and forth between the two of us and with ONC to try to clarify the scope of the standards that might be considered – or the areas where there might be considered gaps in the standards. And I think that there was clear, to me anyway, that there was an interest in the consumer space as a primary focus, but some of the things that ONC actually listed as for examples are really not about consumers necessarily. So I think we probably will need to get more clarity from ONC as we dive into this. We can start with the stuff that’s clearly consumer-related, but bringing CommonWell to the table, for example, as something to think about and talk about isn’t really a consumer question. So I think maybe they were thinking more broadly and they just want to make sure we cover consumer, which is where we’re going to start.

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

Avinash, would you like to –

Avinash Shanbhag – Director, National Health Information Network (NwHIN) – Office of the National Coordinator for Health Information Technology

Yeah. This is Avinash from ONC. I would kind of agree with David that really, I mean, this is – the examples that we listed were really things that came up, were highlighted in the previous few months or weeks, but really the scope is broad enough and as you rightly said, consumer engagement is a key part of it. So, if there are areas that this group feels are not considered, but should be considered, please, please feel free to let us know or engage in that discussion.

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

Yeah, I think it's clear some of these could be used for consumer, but could also be used for providers. So –

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

Yeah, that's – I mean, and particularly when you consider something at the transport level, one would assume that that's capable of more than just one particular narrow channel of transport. So something like looking at RHex or at FHIR or at CommonWell is really a broader set of services. But the –

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

When we look at CommonWell we really should look at it as an example of somebody who's chosen to use FHIR.

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

Right, right. And – but on the other hand, I think the ABBI focus is a great place to start because that's very pressing on all counts, it's about consumer engagement, but it also pushes into new territories that aren't covered by current standards. So, I think it's a great place to start. I just wanted to register my hope that we don't confine ourselves just to ABBI.

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

Okay. Thank you very much. Okay, Josh.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Yes.

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

I think you're going to share the screen at this point.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

I am. I don't have the permission to do it, we practiced earlier, so I know it works, but I think someone needs to flip it over to me. Or maybe I can press the start-sharing button. All right, here we go. So let me know if you can see my screen –

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

Yes.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Excellent. So I'm going to flip back and forth between some slides and some websites and documentation and demo kind of stuff. So first off, thanks very much for the invitation to talk. I'm really excited to talk with you about Blue Button Plus, but more broadly, just the question of opening up data for patients to use in ways that work for them. I'm going to say some things in the next several minutes that might appear to confuse technology and policy, and I am going to say some things that might appear to confuse transport and content. And so I apologize in advance for doing that. I'm thinking about the ecosystem that we need and the ecosystem we want. I hope I'll have enough to say about transport standards and enough to say about the technology side that you won't mind listening to the bits that I have to say about content and policy, too. Because for me, they all sort of go together.

I'm not going to talk for too long, and I'm going to try to gauge, during this conversation, how much technical depth to go in. So please interrupt me with questions and I will also pause at a couple of points and ask for questions as we go. I should also say, we're – I'm talking about Blue Button today, which Blue Button Plus is, let's just say, the new and more attractive name for the ABBI, or Automate Blue Button Initiative. So when you hear those things, ABBI and Blue Button Plus, you can think of them as the same thing. There's really two branches to what Blue Button Plus is doing, there's a push side, which is based on direct and I'm not going to focus on that today, because I think that really is a profile of what's in Meaningful Use Stage 2. And then there's a pull side of direct, which is something new and different, so that's where I'm going to focus. I'm happy to answer questions about the push side, so I'll give a quick overview of what that looks like, but my focus with the Blue Button group has been on pull, and exposing and API for apps to get data when they want it. So that's where I'm going to focus with this talk.

So, big picture. I think this is about meeting consumer expectations, right. There are a lot of health apps out there, very few of them have access to clinical data, and very few of them can take lab results from your provider and incorporate them into a broader picture of your health. But people use apps for all kinds of things and they have an expectation about how these apps work. People use Facebook and Twitter and Flickr and they install Android and IOS apps and people have a pretty good concept of how they can allow their apps, how they can authorize an app, to get access to data, and they do this all the time in their everyday life. Very rare in their sort of healthcare life, but very common in their private life. So that's just – that's an observation about what people sort of expect when they want to access data of some kind in their everyday life.

And I think, I wrote a blog post, which I think attracted some attention and maybe was what got me invited to talk today in this meeting, where I talked about another kind of use case for health data, which is technologists and tinkerers. So people who want access to their own data, to do things to start off at least, for themselves. People with a weekend project, folks who want to make sense of the data that's coming off of their home glucose meter and interpret it in the context of their clinical lab values. Folks who want to mash up their own clinical lab data with national data sources from the weather. People who want to do citizen science projects and figure out if the DNA they got sequenced from 23&Me correlates in certain ways with values that come out of their provider's EHR.

There are people with all kinds of little ideas that they'd like to try out, just for themselves, not necessarily big companies, not necessarily people trying to start something new and make money off of it, but just people who want to tinker. And I would love to have an ecosystem that supports not just people who want to build a business, but these kinds of tinkerers and technologists as well. So, there's a link to all of the components of this presentation that are highlighted, but this is on a smart platforms blog a couple of months ago, where we talked about ABBI and Blue Button and the technology and the policy, to enable tinkerers and technologists to sort of do their thing.

So those are a couple of the goals, we want to meet consumer expectations, we want to enable tinkerers, technologists to work with their own data. So where are we today in Meaningful Use Stage 2, and I'll use that to sort of set the scene for where we need to go. So in Meaningful Use Stage 2, the major certification criterion and the major attestation requirement is about enabling patients to view and download and to transmit their data to a third party. This is a really great start; it is a hook into the data inside of an EHR. And so I want to emphasize, it's important and it's great that we have it, but it doesn't go far enough. And I want to point out a few ways in which it's deficient and a few ways in which we can and should do better.

So first of all, the view, download, transmit perspective on the world imposes kind of a portal first workflow. So what do I mean by that, well, I'm going to contract it to something else in a minute. But when I say portal first, I mean the way that a patient gets their data into an app is not really starting with the app, it starts by you go to your provider portal, you sign in and then this is sort of the caricature of what that process might look like. If you started from your app, your app would basically say, leave the app, go find your provider portal, sign in to your provider portal. Copy down this long direct address that this app has generated for you, paste it into your provider portal or try to type it by hand, but you'll probably make a mistake because it's kind of long and it's got a bunch of numbers in there. Authorize the app and then, by the way, if you've got more than one provider, start over and do the whole thing for each provider that you have. So that would be sort of the workflow for feeding data into the app. It's portal-centric or portal first and it works, but it's not the most user friendly.

So a second point to make about the view, download, transmit kind of perspective is the way that data gets into an app is over direct transport, so effectively gets in by email. And the implication there is that if you're building a health app that wants to consume data, you'll need to set up a server, a direct server, at least can receive messages, over secure SMTP and extract the data from those messages, which works great if you're building a web-based app that's online all the time. But what if you want to build an app that just runs on your iPad or just runs on a user's Android phone? If that app doesn't have a server-side presence, it can't really receive these messages. So architecturally you've imposed a constraint here that says, you know what, the only apps that we can really support are apps that have a server-side component and flow a patient's data through that server. So, you can design an app that way, but a lot of apps are designed to run entirely on a local device, and it's nice to build it to do that way, too.

Then we get into the actual content of the data in view, download, transmit and the focus today is on clinical summary data, so sort of a CCD profile inside a consolidated CDA. And again, it's a great start. We've got the most common sort of clinical summary data, medication list, problem list, lab values, and the kinds of stuff that an app is most likely to want. But it's worth pointing out that there's a vast array of data out there that today is sort of locked inside of free text clinical notes. And you could represent those in a CDA, but it's not the thing that view, download, transmit requires. Today view, download, transmit requires just a clinical summary document, which won't have all of the sort of rich narrative data that you would find in clinical notes today.

And it's also worth saying that there's no explicit notion of, how can I control what data comes out of the system. I can't say, just expose my labs or just send my demographic data to the app or hold back this section. At least in the certification criterion itself, it's sort of you send one summary document and it's got everything in it. And the other point is, if you want to continue feeding data to your app on an ongoing basis, with view, download, transmit as it's specified today, a patient would have to sign into that portal every time they wanted to send an update to the app. They'd have to sign into the portal and say, send my latest summary to the app, so the app doesn't have any way to sort of stay updated without keeping the patient in the loop every time an update is called for.

And then there's this lingering issue in the view, download, transmit world of trust. I think we have a pretty good sense that trust relationships are going to be worked out generally, so if your Microsoft HealthVault, you have a pretty good reason to believe that most providers are going to be willing to exchange trust anchors with you and send you their data, things are going to work out pretty well. But if you're sort of a weekend hacker that just stood up a direct server on Amazon last night because that's where you want your data to go. Well, it's not clear that you have a way to get that thing trusted by your provider in anything like real-time or with a high degree of assurance or with a low cost. There's not a clear plan for that yet. So if you want to sort of standup your own server and do self-signed certificates and stuff, just to get your own data in your own account, you don't have a clear way to do it.

So those are what I see as some deficiencies with view, download, transmit as we have it today. And I hope that I made the point that these are not like theoretical concerns, these are actual, practical implications that affect what you can build and how you can build it. So it affects the scope of data you have access to, it affects the architecture of your app, it makes assumptions about who's going to build an app and why. And namely it makes the assumption that people who are going to build an app are going to have access to servers that are online all the time that they'll be able to go through some sort of trust registration process. All those are hurdles to building an app. So that's where we are today, and I think these are all things where we can do better.

So I want to talk about Blue Button Plus. It's a project through ONC's Standards & Interoperability Framework, that's looking at, in the Blue Button Plus pull side, building an API where apps can get access to clinical data when patients authorize them. So I want to emphasize this is an application programming interface. It uses web standards and it's a way for patients to use technology that they're sort of familiar with, and a paradigm that they're familiar with, of authorizing an app to access data. And I will – I'll show you the spec just at an overview and then we can dig into it, I think, if there's interest in getting into the particular parts of it. The spec is online, the revision history for the spec and the issue trackers and comments and everything are all on GitHub, so the spec is online at this URL here. And it's [BlueButton.GitHub.IO/Blue-Button-Plus-Pull](https://github.com/BlueButtonIO/Blue-Button-Plus-Pull) with hyphens in between, and you can actually click on the fork me link here on GitHub and see the source and see the issue tracker and everything.

But effectively, the spec uses web standards to say, here's how apps can register themselves. Here's how users can authorize apps, and once an app has been authorized, here's how apps can get access to data. So, I'll drill into a couple more points in a little detail, in just a sec. So there's this API we've been working on through the Blue Button group and effectively it promotes an app first –

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

Josh?

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Yes.

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

Can you say just a couple of words about who the Blue Button group is, who's been working on this? What's the breadth of the community?

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Yeah. So the Blue Button community at large includes folks on the vendor side, on the payer side, on the data holder side including folks from government in VA, and I believe in CMS as well. And it includes app developers who either have built or want to build health apps. So there's folks out there today who have built pretty compelling examples of platforms that help integrate patient data from across payers and today are screen-scraping data from patient portals and screen-scraping data from payers, in order to be able to put together the user experience they want. And these are folks who would love to be able to instead of screen scraping, have access to a proper API that's maintained and updated over time, so they don't have to write all their own interfaces from scraping every portal.

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

I know I'm maybe skipping ahead in terms of the stuff you might want to cover, but just so I understand the context, because I have not followed closely on the pull, the Blue Button pull side. Are there EHR vendors that are actively participating and I raise that question just simply from the point of view that it's their resources that are put at risk if this is not done correctly. Are they represented in your group?

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

I would say they're under-represented in the group. So as of 2 weeks ago, we had a draft spec on which the Blue Button group has achieved what we call consensus, which is to say, nobody objects to the spec, we've got the details worked out pretty closely. We'll talk about a couple of them on this call today. We don't have a vendor or data holder in the group who's committing to implementing what we have right now, that's the next "to do" item, now that we have consensus around the spec.

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

Okay. Yeah, and when I say their resources, what I mean is, they're at risk if something goes wrong and patient data is –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Oh, I hear you loud and clear. Yes.

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

– it's a breach concern rather than anything else; I didn't mean to sound like a nasty vendor.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

No, hey, you are a vendor, right, and without vendor support, these things won't go anywhere. So that's exactly the conversation we should be having.

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

Yup. So, sorry for the interruption.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

No, no, please. I encourage it. So, I should actually stop here before I get into the spec and say, are there other questions about what I've said so far?

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

Well, let me – this is David again. Let me just ask one – the view, download and transmit, there's view and transmit, but what about the download itself, just pulling the copy of the data to your own device and then doing with it what you want from there, which doesn't require direct server or anything. Obviously it's not automated, but is that a stopgap measure for some of these home tinkerers and apps?

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

So I think it's useful in terms of sort of spoon-feeding data into your app, download is useful and transmit is useful for sure. But what it doesn't get you is an automated way for your app to request those data and keep up to date.

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

Right. I understand that, you just didn't mention it as a possibility and I was wondering if you were excluding it because of the risk of leaving unencrypted data on a local PC or something like that.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

No, that is a risk, but it's a local risk and frankly, that's a risk however you got those data, whether you downloaded them or whether they were sent to you by a direct message. By the time you're viewing them on your screen, you probably have a local copy that you need to be aware of.

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

Hey, as I think Josh mentioned, there are a number of vendors, mobile app vendors, for example, that are doing this right now. The biggest issue, and RelayHealth is one of the systems that is one of the mobile app developers who's done this against – I think CMS and RelayHealth and VA and a bunch of other systems. The biggest issue is that like any – it's a little bit like mint.com in the sense that you need to enter your creds in order for the app to go pull your data. It works pretty well if your app maintains a stable URL that hosts the download page or the download function. But you have to store your creds locally or enter them every time. And that's my understanding for what Blue Button Plus is designed to work around is that a) need to figure out the URL convention for every portal, which is kind of a pain; and then b) address the need to store local creds in order to get the download to happen.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Yeah, that's a great point. When David mentioned downloading the data through the D part of VDT, I didn't even have in mind the idea of letting the app download it for you by giving it you username and password. I was thinking about a scenario where you log into the portal yourself, downloaded a file and then somehow, out of band, sent it into your app. But you're perfectly right. Folks who are doing screen scraping today are doing it by asking patients for their usernames and their passwords and then storing those however they store them. So first of all, that's a liability because, who knows. Second of all it's a liability because the only thing you can do is give your app access to everything. It's your username and password, you cannot – there's no mechanism to selectively say, I just want you to see this section of my data, or I just want you to have updates today.

So yeah, I think that's a big concern and you're perfectly right that that is a main focus of what Blue Button Plus, the pull API would like to fix. You should be able to authorize an app to see your data, the metaphor would be the valet key for your car right, which can start the ignition without opening up the trunk or the glove compartment. We want to be able to get apps access selectively with well-scoped permissions and if you want, a defined time window, all that kind of thing.

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

Well at least technically, more within the certain view – the current view, download and transmit model, you would use a transmit to third party avenue to get it to an app.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Correct.

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

– using – you wouldn't really download and push it, you would just say, send it over to the app. But then it would have to unwrap this email message and so it gets messy.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

That's right. View – I'm sorry, download and transmit are both useful, neither one sort of solves the general case that we're looking at of, I'd like to make a mobile app that gets access to data in an automated way and only what I want it to have.

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

Yeah.

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

And you – this is David again. I mean, and you see, we love to interrupt and jump in –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

No, it's great. Definitely.

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

– we all have low patience thresholds for listening I guess, but –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

No, it's good.

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

There are obviously lots of analogs in the non-health care world where people do this reliably all the time

–

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Correct. People –

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

– for Twitter and Facebook and things like that. So, you might want to mention those later on in your –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

So, that’s sort of what I tried to lead off with is, consumers have expectations about how the world works, which is, I can authorize my Twitter client to read my Tweets and not write them, that kind of thing.

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

Yeah. And not only do they have expectations, there are, in fact, actual standards to support it.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

That’s right, and we use the same standards inside of the spec, so that’s a really good point. We’re trying to use web standards here to do exactly the kinds of things people are used to in their sort of everyday, non-health life. So let me push through a couple more points here about what this API is. So I said that it’s sort of – it’s app first. And what I mean by that is, if you want, a workflow that this API supports is you can download an app that’s going to keep track of your blood pressure readings, let’s say. And that app can say, now link me up to your healthcare providers and it can have a provider directory inside and within the scope of the Blue Button Plus pull API, those providers expose URLs that’s stable structures that are discoverable. And the app can send you over to each provider that you choose, just like when you sign up at Mint.com, you tell it about all your banks, and within the context of each provider, you can authorize the app to see data. But the whole process is driven starting from the app and once you hit the authorize button, you flip right back to the app. So the patient isn’t responsible, or the consumer isn’t responsible for sort of leaving the app and going and setting everything up and hoping that they completed the whole thing without making any mistakes. The API allows you to shepherd a consumer through that process.

So let me talk about sort of what the API’s actually are here. So in terms of the actual data, we’re starting off very simply with Blue Button Plus, with the pull API. We effectively wanted to say, what are the data we can get today in Meaningful Use Stage 2 already, and effectively there’s a clinical summary. So we expose an API with an endpoint that is like literally the clinical summary endpoint, and when you get that URL, assuming that you’ve passed along appropriate authorization, you’ve been authorized to get it. You just get the clinical summary, whatever that is, specified by Meaningful Use Stage 2. And we can talk about ways in which that may be underspecified today, but that’s what you get at the clinical summary endpoint.

And then the second of two endpoints that we expose, is a document search endpoint, which effectively lets you say, what other documents are available about me, about this patient who has authorized access. And you can search based on a resource profile that’s defined inside of FHIR, it’s a document wrapper, they call it document reference. It’s a pretty simple wrapper that each document has a URL and some metadata which the format of the document, what kind of document is it and what data was it from. That’s basically the scope of the wrapper as far as we’re concerned right now. So you can list the documents, maybe see what they’re called, see what they’re about and then any document in that list, you can individually retrieve it. So that’s the API we’re about.

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

Josh?

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yes.

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

Josh, when you said search, it sounds to me more like just a table of contents query.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah, so you’re right, but I’m not trying to imply searching through the text of the document, it’s really a filtered list of FHIR document references, if we’re going to be technical.

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

Is it filtered by something in the get itself?

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah. It’s – so FHIR defines resources and for each resource defines parameters that you can query on, so within that kind of framework, they have defined a resource called a document reference. And we can actually open up the page in FHIR here, but FHIR defines a document reference and then that document reference explicitly says, you can search – these are the fields the document reference can have, we won’t get into them, but then it explicitly says, you can search for the following parameters. So you can search based on the creation date – oops, are we still online?

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

Yes.

MacKenzie Robertson – Office of the National Coordinator – Federal Advisory Committee Act Program Lead

Yeah, we can still hear you.

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

We can still hear you.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

And can you still see my screen?

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

Yup.

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

Yeah.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Great. So you can search based on the creation date or based on the type of document, based on the MIME type, that kind of thing. Effectively there’s a search parameter corresponding to each of the attributes of the document reference resource. So we just use that. Does that make sense?

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

Yeah. No, that’s good, I didn’t – that was my question as to whether it was just a total –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah, so these become ACTP debt query params.

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

Yup.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

And there’s an example of what it might look like to search, you’d say get/BD/record/search and you would – format equals conforms to CCDIA and the time period is before 2013. That kind of thing. So we have effective just two API endpoints to find today for getting clinical data, the summary and the search. And the trick here, the part that –

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

There must be a third one to actually fetch the document?

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Retrieval. So the summary retrieves a document directly, and then – so that takes care of itself. When you get back a document reference from the search, yes, that document reference has URL as one of its properties and if you simply get that URL including the right authentication header, that’s the document retrieval endpoint; it’s a dead simple – but thank you.

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

So this entire document retrieval piece is all FHIR, is that right?

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yes. The document search thing is right out of FHIR and then one of the attributes that a FHIR document reference has is, if we switch back to the FHIR documentation here. A document reference has a location where the document can be accessed.

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

Uh huh. Okay. Yeah. So, FHIR returns the location and then you – okay.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah. So the only thing on top of that is a little profiling to say, by the way, you better include the right OAuth header when you fetch that URL, otherwise you’re going to get access denied. So that piece isn’t explicitly in FHIR, that piece is more in the Blue Button spec. But that’s exactly right. So we use FHIR for document – what I’m calling document search, but you’re perfectly right, it’s a filtered reference list and for retrieval, although there’s not really an API there beyond get the document.

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

Yeah. Yeah. Actually, it’s very – it’s kind of similar to what the PCAST report did, where it returned a location of a document and then you really got to go to the location and present your credentials to actually have the document provided to you.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah. The important thing to note here is that you use the same authentication token and the same authorization to do the search and to grab a document. So there’s no end-user interaction that has to take place at this point, but the user authorized – the app knows exactly which step it needs to take to find and retrieve a document.

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

Right, but that same authentication – the same authentication data get mediated twice, once for the search and once for actually pulling the document.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

I don’t know what you mean by mediated, but I think what you said is true.

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

Somebody – two entities looks at it, the search, when you have the FHIR, you’re going to search where the document is, and that has to be authorized to even do the search.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah. So in the scope of Blue Button, those are sort of the same entity, the one who responds to the search endpoint and the retrieval endpoint, those both fall under the entity of the Blue Button Plus provider. Now under the covers architecturally, sure, they could be on different servers or they could actually inside a different network, but they both have to tie into the same authentication scheme and they both have to recognize the same token, so that’s totally transparent – or totally opaque to the app, it just says, list the documents and fetch this one.

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

Yeah.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

It’s up to the Blue Button Plus provider to maintain that clean interface. So, let’s –

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

Yeah, what the Tiger Team calls a targeted search, you know exactly where you're searching is where the document is.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Yeah.

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

Yeah, only in this case it's – yeah, it's the OAuth headers that will allow it to go forward or not, which is a little bit different maybe than a fully distributed – or a fully federated model where you're indexing in one place and querying from someplace completely –

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

Exactly right, that's what I was thinking, more of a federated model. And this is one where you already know, you go to this hospital, search for the document and then you go and get it. Okay. I got it.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

That's right. So an app – it's important to know that an app may be connected to more than one provider, so that's the level at which federation happens –

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

Right.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

– but within the context of the provider, the search exposes exactly the documents that are available.

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

I see.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

No more negotiation has to happen.

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

Good, I kn – okay, good, good, good.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

So I want to get to this point about where do apps come from and how do people know about them. And in particular, how do providers know about apps and is that important. So when it comes to using OAuth for allowing patients to authorize access to their data, the operation is, a patient authorizes an app to access a record. And that requires that the app at some level, be known about by the provider, so that the provider can display an appropriate authorization screen and say, Josh, do you want to authorize the blood pressure graphing app to access your data. So it has to know at least something about the blood pressure graphing app to enable that use case.

So inside of Blue Button Plus, we actually do – we take two approaches to allow the providers to learn about the apps. The first and the simplest one is called open registration, and it effectively says every Blue Button provide exposes an open registration endpoint where any app can come along and say, hello, here I am, I'm an app, here's my metadata. Here's my URL, here's my logo, here's the stuff you need to know about me to treat me as an OAuth client and the provider says, okay, I just registered you ad hoc, here's an ID that you can use, here's a password that I've generated for you, which is called an OAuth client secret. And you can take this and you are now an app in my – in the context of this provider, you can ask for authorization, you can do all the things that an app can do. And it's a totally open process and the goal here is to enable that sort of tinkerers and technologists use case. If I want to build an app over the course of the weekend, I should be able to build it and hook it up to the data, and the implication here might be that a patient gets a really scary warning screen if they try to authorize my app. They might get a warning screen that says, here's an app that we've never seen before, nobody's ever used it before, but here's its URL, we'll be sending data to request – that initiate from this app here. And if you're willing to authorize it based on this big scary warning, go ahead and it'll get the data.

So we wanted to make sure that we had a floor in place, so any provider –

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

Josh? This is David; I'm confused on the workflow of these authorizations –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Ah, okay. So let me –

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

In other words, why does the provider app need to know at all, isn't it the consumer –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Yeah, gotcha.

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

– doesn't the consumer go through the app to his medical resource and authorize a service? Why does the provider app need to know – the provider application – provider portal need to know anything about the app at all?

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

So let me see if I can make that clear. I understand your question perfectly. So steeped in the OAuth stuff that I didn't make that as clear as I should. So let me show you a quick picture, which I hope will help. The answer is – the simple answer is that within – when a patient gets directed to their – I start off with the app, right. And the app sends them over to their provider, to an authorization screen, are you with me on that?

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

Um hmm.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

So you start off with the app, you say I want to hook up to the Beth Israel Hospital. So the app flips you over to the Beth Israel Hospital to an authorization screen.

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

So this is the consumer – the patient is in front of this screen, which has been redirected to him by the app.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Yeah. So, this is not exactly the right – this picture I'm showing on the screen is not the exact use case we're talking about, but it illustrates the point. The point being, that authorization screen says to the patient, do you want to authorize this app to access your data. The authorization screen is scoped to whoever's doing the requesting and not whoever's doing the requesting in OAuth is an app. So that's the extent to which the provider needs to know about the app at authorization time.

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

But doesn't the fact that the consumer got to that screen through the app imply that the consumer knows the app?

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Well, in a security sense I don't think it implies that, because the consumer might have gotten to that screen by clicking on a phishing link in their email. So, that's one point. But the other very simple way to answer your question, David, is to say; later on when that app goes to get data, that app is going to use a password, a client secret to authenticate itself with the provider. And so it needs to have been assigned a client secret, a password, to do that authentication, an in OAuth that happens at registration time. The app registers itself and that's when it gets its client ID and its client secret, and all the parameters it needs to do OAuth with the provider, so part of OAuth is a registration step that has to happen up front, before patients can authorize and app and before the apps can request data. Does that make sense?

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

Yeah it does, although maybe I'm confused – maybe I'm just making a mistaken assumption about how much core knowledge the provider has of the app. If you go home on Friday afternoon and start tinkering, and Saturday morning you're ready to try your app, and you point it at your provider's portal, will you get success with this open registration process? Or are you going to have to wait until Monday morning, where you talk to the provider and say, hey, I'm going to try this app, would you allow it?

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Yeah, with open registration, you get a success.

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

Okay.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

The provider effectively says, the patient is going to decide what apps to authorize, in the open model, and as long as they're willing to say, yeah, my data can go to the app at this URL, that's up to the patient.

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

Yeah, that's what I was assuming was the model, and I just misunderstood when you talked about registration. You're really talking about dynamic registration –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Dynamic registration and in the case of open registration, it's a fairly trivial process where the app makes some assertions about itself. And it has to happen just to support the mechanics of OAuth, because that registration step is a required up-front step in OAuth.

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

Yeah, no, I get that. It's –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

So yeah, open dynamic registration. Bingo.

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

It doesn't require pre-negotiated exchange of secrets out of band.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

That's exactly right. And it also doesn't require pre-negotiated sort of vetting or approval of the app. That's the open registration, and I'll contrast that with what we call trusted registration. Trusted registration also doesn't require pre-negotiated exchange of – well secrets between the app and the provider, but we introduce an intermediate component called a registry. And the job of a registry is to vet apps, and that could mean different things for different registries, different registries might do that with different degrees of assurance.

But the technical component, the registry, vets apps and then exposes at a well-known URL, a list of the apps that have been vetted by it. And for each app that it approves, it shares a registration token, a secret, that the app can use when it shows up at a provider and says, "hey provider, I want to do open registration or I want to do dynamic registration, but I am a member of this registry and here is my registration token, a secret token, to prove it." And at that point the app can prove to that provider that it does belong to the registry. And the process – the mechanics are just the same, but now when a patient goes to authorize that app, they won't have to see a scary warning sign saying we've never heard of this app before and everything about it is self-asserted. Instead they can say, we believe in this app to the extent that we trust this registry, and here are the details of that as they came from the registry. So there's an open registration and a trusted registration.

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

Is this something unique to Blue Button or is this already done with other OAuth instances? I'm not familiar with this registration –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

So this registry thing is something that’s unique to Blue Button. We take advantage of an open standard, OAuth, as well as an IETF standard called dynamic registration, that runs on top of OAuth. Dynamic registration, the standard, has a hook in it and the hook says, when an app or a client goes to register, they can provide some kind of token and the semantics of that token aren’t specified in that spec. So that’s what we do here, we say the semantics of that token are, it is a token that was issued by a registry that the provider trusts and they can check into all the details about it by querying that registry for the information about that app. So we build on top of OAuth standards.

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

Is anybody using the registry, the IETF registry, in the commercial OAuth world, aka Twitter or Facebook?

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Is anyone using dynamic registration in the commercial world?

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

The trusted – what you called trusted registration.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

No. So what we’re calling trusted registration takes dynamic reg and adds to it this registry component. There’s nothing like this outside in the rest of the world, in the commercial world that we’ve seen. And the use case here is – the use case is, you want apps to be able to connect to thousands of providers across the country and the typical commercial OAuth use case is, I am Facebook, I’ve got all the data people want; or I am Twitter, I’ve got all the data people want. And Twitter has its own Twitter API, and Facebook has its own Facebook API, so it would hardly even make sense to try to write in an automated way an app that would connect to both, because it would be doing one thing at Facebook and a different thing at Twitter, whereas in the Blue Button world, we want an app that can do exactly the same operations at every provider. So it is a bit of a different use case and we didn’t see anything out there that solved exactly this problem. So that’s something that we layered on top of the standard OAuth dynamic registration process.

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

Can you summarize what problem you were trying to solve when you added this complexity?

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yes. So the problem that we were trying to solve by adding this complexity, which is a great way to put it, is allowing an application – so, Keith Boone actually has a great name for this, he calls it “the million registration problem.” It’s allowing a thousand applications to register with a thousand providers in a trusted way, in a way that can scale. So rather than turning that into a problem where a million providers have to vet – a thousand providers have to vet a thousand apps, you can have a registry that vets the apps, the providers trust the registry.

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

Well, I don’t get the difference –

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

Okay. So I’m – that’s what I thought. The bottom line there, the problem you’re trying to solve is some kind of trust problem –

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

Yeah.

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

– but I’m a little confused as to why you need to solve that, given that the API’s available to any app which gets through the registration process, are well defined and well constrained and the consumer is driving the process. What’s there –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Why isn’t open registration enough?

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

Exactly.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

So, it’s possible, so that’s a great question. It’s possible that open registration is enough. I’ll put that out there, that’s why we have open registration; we definitely want that floor. And we think that open registration should be enough to drive initial innovation here, to let people at least get started. But we thought it would be a good idea to come to the table with a plan for how a more trusted registration process could also scale. That seemed like the hard problem in this space that we wanted to take a crack at. And we thought we could do it in a way that profiled existing web standards, used all the dynamic registration components and then layered on top of it one well defined hook point, a way to provide a trusted registration token at registration time.

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

Yeah, and I think it’s commendable to think that far and take it on. My only concern, or the question to be thought about, and absolutely this needs thought, not a quick reaction. But my quick reaction is, it could conceivably be over-engineered because in fact, the consumer has already selected the app for whatever reason and it’s going against a well-defined API that’s going to have to be bulletproof anyway, even for trusted apps, because – just because it passed some trust certification, doesn’t mean it’s really trustworthy –

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

Yeah.

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

– so the APIs have to be bulletproof and I just wonder if it’s over-engineered to the point at where the vendors are going to push back and say, you’re making this too hard. And then, of course, you have the trust issue of who gets to decide what’s a trusted app and oh my gosh, if you think the technology is hard.

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

But you can’t just let anybody – any app say hey, I’m a good guy, let me in – let me get access to your patient data.

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

Why can’t I, it’s my data –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

But you can, here, let me put it this way. When you have this sort of dynamic registration mindset, let’s say a thousand people installed a blood pressure graphing app on their own iPad. That app is going to register itself a thousand times with Beth Israel Deaconess. How does Beth Israel know that they’re all the same app and ten of them aren’t some sort of rogue app just claiming to be that one? All they can display to the patient at that point is, this app says it’s the blood pressure grapher. But if you – if you enable this kind of trust model with a secret token that’s get passed in at registration time, suddenly Beth Israel has a way to say, oh, you know, these guys all possess this secret. They all actually are this blood pressure graphing app and I can display to the patient some very useful information, like 800 patients before you have authorized this app and, who knows, they rate it three stars. Whereas if all we have is dynamic registration, the best guarantee I can ever make to the patient is this is what the app claims to be.

So I think there’s a strong role for both. I share your concerns about over-engineering. We’ve worked pretty hard within the Blue Button pulls workgroup to define what we thought was the minimum amount of infrastructure that could solve this problem, and we certainly appreciate any more insights on that one.

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

What’s the difference between this and what the app store does?

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

What the app store does, like the IOS –

David McCallie, Jr., MD – Cerner Corporation – Vice President, Medical Informatics
(Indiscernible)

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist
– the Apple App Store –

Dixie Baker, MS, PhD – Martin, Blanck and Associates – Senior Partner
I mean they have all these apps registered with it as well –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist
So that registration process – so first of all, there’s only one app store, right –

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

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist
...in the Apple world at least, and that registration process involves a whole bunch of out of band communication, right, it’s not an automated thing. The app developer pays a fee, they submit some forms, they get their app reviewed by Apple and then a thumbs up approval decision happens which says, this app is trusted and can be included in the store. So that process is akin to what Blue Button Plus registry would do. There’s no strong equivalent to the sort of open registration process in the Apple world, or if there is a strong equivalent –

Dixie Baker, MS, PhD – Martin, Blanck and Associates – Senior Partner
Well, I meant trusted, what’s the difference between that and your trusted registry here? Why can’t you just use the App Store?

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist
Well no, I think that’s a good model, it’s just that we’re not thinking about just mobile apps or just IOS apps, we’re thinking about any app that wants to consume these Blue Button APIs.

Dixie Baker, MS, PhD – Martin, Blanck and Associates – Senior Partner
But it’s very similar, the process that you’re vetting is very similar to that, it’s not – you’re not really doing extensive penetration testing on every app; you’re just getting some level of trust.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist
Well, yeah, the mechanism here is really it’s a framework for having registries that can define these levels of trust and implement them. And you could have more of a bullet proofing registry which includes as one of its criterion, doing penetration tests, you may have other registries that a serve different purpose.

Dixie Baker, MS, PhD – Martin, Blanck and Associates – Senior Partner
I see. I’ve got it.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist
The better analogy than Apple might be sort of the Android world, where there actually are multiple app stores, you can go to the official Android App Store or you can go to Amazon, which hosts its own Android App Store and you can sort of get apps from either place.

Dixie Baker, MS, PhD – Martin, Blanck and Associates – Senior Partner
Yeah. Okay, okay, I see.

Arien Malec – RelayHealth Corporation – Vice President, Strategy & Product Marketing
But you’re not proposing – I’m sorry, I had to drop out for a little bit, but you’re not proposing that you will set up and maintain the registry –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist
No indeed.

Arien Malec – RelayHealth Corporation – Vice President, Strategy & Product Marketing
– you’re just setting a vocabulary for registration.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

That is correct.

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

Yeah, this is really – yeah, okay.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

What the registry – I’ll just show you for a sec what a registry actually does. It’s pretty simple. It exposes a list of providers, it exposes a list of apps and it exposes its own metadata. So if you trust a provider, you just go to it, it’s a discovery endpoint, and it says, here’s a list of all the apps – of the providers that I know about and here’s the list of the apps that I know about, and for each of them, the URLs.

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

So this is – this is David. I just don’t want to get sidetracked by the fact that the core security is from the patients having to provide credentials, that only data is released on presentation of those credentials through this OAuth –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

So that is true. Let me –

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

– mediation.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yes. Yes.

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

So the app doesn’t ever have access outside of consumer provision of credentials, so that’s the weak spot.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

That’s right. The risk is, when you’re displaying that authorization screen to the patient, when a provider is displaying that authorization screen to the patient, they want to explain the risks as clearly as they can to the patient. And there are situations where it can be helpful to say, this information about the app isn’t just self-asserted, I have an independent reason to believe it’s true.

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

Yeah.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

So that’s why the trusted registration piece is in there. I wouldn’t focus on it as the key idea behind Blue Button; it’s a way to enable an increased level of trust there.

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

Yeah, but it will be the hardest thing to implement, which is why I’m worried about it.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

No, that’s there. And it may be that that is the step that comes later. If there is support for doing open registration earlier than there’s support for standing up what could be a more complex trust framework for having these registries, by all means, the technology is designed to work on the basis of open registration alone. Trusted registration goes a step further and says you can vet the data that’s being presented.

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

And the open registration basically is you, your patients are given access for this app to download and you’re taking responsibility for all the consequences thereof.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah, and this app is – the definition of this app is totally self-asserted by the app.

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

Sure. Right.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Okay. So two more slides, and they’re quick ones. We’ve already said all of this, at least implicitly, but I’ll just say it again quickly. The text asks for a Blue Button Plus for this pull API is, we use OAuth 2 dynamic registration to register apps, there’s an open flavor and a trusted flavor, we’ve been through it. Patients authorize apps using a standards OAuth 2 workflow. After that happens, apps can act as data, we’ve talked about this simple RESTful API for fetching a summary document, searching through document references or listing document references with – and retrieving a document. And then the step that I didn’t say explicitly, but I think this was probably implicit for everyone on the call is what about patient authentication? Well, that happens on a portal-by-portal basis. So in this workflow, when the patient got flipped over the authorize the app at Beth Israel Hospital, Beth Israel said, “hey, please login using whatever system Beth Israel uses for logging patients in.” They’re already going to have a portal in the context of Meaningful Use Stage 2, and they use whatever mechanism that they deem appropriate locally.

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

Right.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

So, we don’t try to profile that at all.

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

And that never goes away, that’s always the final common gate that everybody goes through, regardless of whether you’re a trusted or an open registered app.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

That’s right.

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

The patient still has to authenticate to their record.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yes.

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

Oh, shift focus a little bit, can you say a little bit about how – what version of OAuth 2 and how you’re using it and in particular, if you know about the RHex work that MITRE did, how can you compare and contrast to that? Because OAuth – has been something of a battleground.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

So, I mean we’re using the final specs for OAuth 2, I think it’s been finalized since the RHex Project happened last fall. I will say that Justin Richer, who is a MITRE and who is an author on the dynamic registration spec for OAuth, and is actively participa – actively participates in OAuth spec development at IETF. He worked on the RHex Project and he’s also been – he has joined the Blue Button pull workgroup for the last several months, 3 or 4 months. So, we’ve been – Justin and I together with some other folks from MITRE and other folks in the Blue Button community including Keith Boone, have authored the spec that I showed you online today. So that spec is written with input from the RHex community.

In terms of how this approach compares with RHex, the approach to OAuth, it’s very similar. The RHex Project focused more attention on doing authentication, user authentication in a distributed way, so they used a profile of what’s called OpenID Connect to allow users to login using this OAuth based system. We don’t do that here, we say users login however their portal supports it, so that could be with OpenID Connect, it could be with a custom username and password per hospital, it could be whatever. So we don’t profile that piece.

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

It’s a different use case; this is much more the traditional OAuth use case.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Correct.

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

One app wants to get authorization from another app to go get some piece of data.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

That’s right. And RHex also left the registration piece sort of out of band, which is also sort of traditional OAuth, registration happens through some process the provider dictates. That doesn’t work here for the million-registration problem, we need some dynamic approach to it, so that’s what we’ve added. And that in terms would be actual clinical endpoint APIs, those – we’ve defined or borrowed from FHIR for exposing the clinical data.

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

So for us, and we probably don’t have time to do it now, or maybe the right people, but, speaking to our workgroup here, in terms of transport standards and the associated security standards necessary to make the transport safe. The distinctions and differences between these various flavors of OAuth and RHex and the use cases for which they might be applied in healthcare is probably something we’re going to need to study in more depth.

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

Yeah, I agree. Yes.

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

And have a little matrix of what –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah, that’s a great place where the team at MITRE could probably be a big help because they worked on both projects.

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

Yeah, and I was really glad to hear that and was going to suggest to Dixie that we ask MITRE to do that for us.

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

Yeah.

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

Because this is their – that’s their –

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

Yeah, ask ONC to ask MITRE. Avinash, you’re on the line.

Avinash Shanbhag – Director, National Health Information Network (NwHIN) – Office of the National Coordinator for Health Information Technology

Yeah, yeah, yeah. No, that actually makes sense because – this is Avinash again. When we reached out just to kind of request for the RHex presentation – did suggest MITRE, too. So hopefully we can work together to kind of have them give us – information.

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

Yeah, we can ask – David; let’s remember to ask him to do that as part of their RHex presentation.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Specifically Justin Richer, he has been working very closely to help define the spec for Blue Button Plus and he also worked on the implementations for RHex. So I know his input would be quite valuable. So I want to show one more slide, which, if I haven’t gone off the deep end yet, may be going off the deep end. But, I was at Health Refactored last week and I was what was billed as a debate between Arien and Adrian Gropper about access to data –

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

Pretty damn boring debate.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

It was a pretty damn boring debate because there wasn’t a lot of contention. Everyone sort of agreed that various people need the data at various points in time and that will be a good thing when it’s more accessible. But as I was watching and listening, I formulated some kind of idea in my head, which goes something like this. How do you compare, if you think that we’re in a world where providers can share data with each other very easily, or providers can share data with patients very easily, then how do you compare and how do you make sure both of those things sort of work. So I formulated this concept of like, is the patient getting access to the data they need through Blue Button and how does that compare with the data that providers can get.

So one thing is, this is a first stab, is to say, well how much – like what’s the entropy, what’s the information content of the data that a patient can get through a Blue Button interface, all the documents, all the data they can find, how much data is it? Versus, what’s the data a provider can get through something like NwHIN or CommonWell or another system, fill in the blank? How much stuff is available to patients versus how much stuff is available to providers? And that’s a ratio, that’s like a number we could look at and say, yeah, we’re doing pretty well, we claim that we want to give data to patients, in fact we are giving patients access to 30, 60, 80% of the data that providers can see.

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

I would assert right now actually that the ratio is over-skewed, at least as of Meaningful Use Stage 2.

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

It’s over-skewed –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

How do you mean over-skewed?

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

I would assert that right now, the value of that ratio would be substantially greater than one.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Ah, well so we should take into account the data that a provider can see within their institution and then things –

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

Sure. Yeah, yeah, yeah. It’s just that if patients can get access to everything that a provider can see and then everything that all their other providers can see –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Well, I would push back. So, I mean, in my mind, one of the things I’m thinking about is like visit notes, an electronic copy of –

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

Sure –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

– my actual discharge summary, where the real meat of it is probably in a narrative text somewhere –

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

Correct.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

– that the provider can see and the patient, through VDT, actually can’t get.

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

That’s right. That’s fair enough.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

That’s the sort of path I’m trying to point to.

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

That would be OpenNotes – that’s kind of the OpenNotes concept.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah, I think that’s fair. You could actually look at profiling – when we say there’s a document search endpoint; you could certainly say that the documents that you can query over include notes, in a very OpenNotes like protocol –

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

Yes.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

And –

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

But I think –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

To the extent that CommonWell members are going to get to search for whatever documents they can search for across provider systems, it would be nice if those same documents were exposed to patients.

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

It would be nice if we didn’t count documents only –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Oh yeah, that’s why I say data –

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

– of this document box –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

That’s why I changed the word documents to the word data on this slide. I slip into saying document, but I do mean data, and I wrote data.

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

I agree with premise that the ratio should be roughly equal to one.

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

Well it depends on the patient’s desires –

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

And this is if it was available, it doesn’t say actually access by or actually used by –

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

Yeah, available – well, with – outside the constraints of patients limitation, the patient may choose not to share their data.

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

Correct.

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

Yeah, but from a record bank point of view, the – Farzad’s notion of an HIE of one, this ratio should never drop below 1.0.

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

Yeah.

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

I mean, the patient should always have access to everything and the providers should have access to only what they need, but we’re a long way from that world.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah, we are. The interesting thing here is that this or sort of something like it, you could calculate.

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

Yeah.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Anyway, that’s –

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

Well, except for size of data –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Its entropy, you count the bits to start. You’re right, when you get into the details things get interesting.

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

Yeah.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

But the idea that some metric could be created that would help us figure out sort of how we were doing is, to me at least, an interesting one.

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

Yeah, it is. It is. Very interesting.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Anyway, that’s my closing thought there and I would love to discuss any of this stuff further.

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

So, Josh, great presentation. This is David. Just, I’ll lead off with the first question from a vendor-centric point of view. Great presentation, you make the case really clearly and you guys have done great work, which is why I was really excited to have you present it. But the provider community, the EHR community pushback I suspect is going to be wait, you want me to open a hole in my firewall and allow anybody in?

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

That ship already sailed, though, David. I mean, that’s a decision that ONC and CMS made jointly a long time ago, the firewall hole is done, it’s poked.

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

In what – compare and contrast Arien. I’m not saying that we’re not – that it’s not – going do this, I’m just saying, okay, the pushback is going to come –

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

I’m saying that any security risk that is exposed is already exposed circa Meaningful Use Stage 2. And there’s a proof case which is the Humedica app that already has the ability to store creds, mobile-side and then go pull any data that it wants to, and as Josh said, and not only that, but use any other feature of the portal. I mean, once you’ve – this was the premise of Blue Button from the beginning in the Markel Foundation consumer workgroup meeting where I think it was Adam Bosworth said, if you can just give an RSS-like Blue Button to download my data, I can build a Mint.com-like app and go pull it. As I said, I think that ship is done, it’s sailed.

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

I’m not sure that the risks are going to be perceived as equivalent. Maybe they are –

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

I would argue that a well-designed – now a poorly designed OAuth 2 implementation raises all kinds of nasty security risks –

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

Right – and –

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

– and a poorly designed – but unfortunately a poorly designed portal application –

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

– portal –

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

– raises exactly the same security risks and I've been enough – through enough – we have a pretty strong security team here, who have pulled in third party auditors, and I've been through that process enough times to know that a well-designed portal app is a hard thing. And to be suspicious that there are a lot of really poorly designed portal apps that are floa – that will be floating around Stage 2 Meaningful Use. So, that's why my – I just have a that ship has sailed kind of perspective here.

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

Yeah, I mean, I get the logic, although it took the vendors years to learn how to write a secure portal app, now they're going to have to learn how to write a secure OAuth service and that's –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Well at least this is an area of broad –

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

– that may not be as easy to achieve across the what, 350 EHRs that are certified?

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Yes and no. I mean, at least this is an area of broad study. There are libraries available on the client side and on the server side to support this. The risk models I think are at least widely discussed, if not completely understood. I think there's a lot of reason to believe that yeah, there's complexity here and it's something new and it will take time. But at least there's a bigger community working on these problems than securing a portal app.

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

And it's well designed complexity and it's not everybody rolling their own for themselves. So that in itself gives you some assurance.

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

That's true – that's true of web tools as well. I mean, you can use Apache, but if you forget to keep it up to date, you're going to fall prey to the next vulnerability and, guess what, even though millions of man-hours have been put into securing it, it's still got vulnerabilities that show up every month, well, maybe every quarter.

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

And even worse, if you configure it poorly, that'll kill you even faster. Is there – just to that point, Josh, is there a – are there a set of reference implementations of the server side, Java and dot net that are built on top of those server – ?

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Yeah, the answer is not yet, we're jumping into that now. So having achieved – consensus on the draft spec, we have a good starting point for the server side, which is a tool that MITRE has built, which it doesn't do Blue Button Plus but it does a lot of the same moving parts that it uses for OpenID Connect, so we're going to –

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

Yeah. I mean MITRE built that in – which I love, but –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

That's actually a Java Spring server.

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

(Indiscernible). Okay.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

They have Ruby implementation of various other pieces including clients and consumers for these data, but their OpenID Connect server, which is called MITRE ID Connect, is an open source, JAVA Spring project.

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

And then just the perspective that I have is, when we did this direct, we found that HIT vendors were pretty evenly split in the JAVA and the dot net camps and if you could cover those two, you kind of had 90-95% coverage. So –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Although in the direct world, folks will say over and over again that the reference implementations aren’t meant to be used. Now whether they are used is another story. But I’ve had this conversation with I think on the last Direct Connect-A-Thon with Greg Meyer around adding security into the reference implementation. He said, well no, it’s not a good idea because then people will expect that it’s designed to be used, and it isn’t.

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

It’s not designed to be used out of the box; it’s certainly designed to be –

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

It’s used as a cloning starting point.

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

– used as a starting point, right. Because it’s not – it doesn’t do all of the – it doesn’t integrate with your security backend, but –

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

– and then use it.

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

Exactly. You’ve got to do your own – you have to do your own risk profiling and mitigate your risks and do all the good stuff.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah. No, so point taken. There’s certainly – we’re at early stages in the reference implementation discussion. I think we’ve got a path laid out, we’re still looking for actually folks to commit to working on the Java implementation and then from there we’ll have to gauge interest and figure out who’s out there who’s interested in working on the dot net side.

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

So I guess Dixie, the – zooming way back out to what ONC wants to hear from us would be some kind of an endorsement or not or a work plan to gain endorsement or not –

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

No, no, no, not at this –

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

– MU3.

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

I don’t agree. I think –

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

(Indiscernible)

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

– going back to my slides, maybe that would be the next step, is to go back to the next slide that I had that is a reminder of the criteria that we use for readiness to become a national standard. Oops, my computer timed out here – there we go. I think – I certainly don't think that they expect us to come up with an answer of "yes, it's ready" or "no, it's not." I think it's more like, is it ready to be subjected to a more in-depth assessment.

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

Well, that's kind of what I –

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

There's no way we could do this assessment in half an hour.

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

No, that's what I – I think that's what I said is that they would want to hear from us, proceed deeper, this is a good idea, it merits the investigative work, versus –

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

Yes. I agree with that.

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

– no, it's a dead end, it's too complicated, it's a distraction or whatever. I mean –

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

Exactly, that's the kind of thing I think that they – of course, Avinash is on, I hope. Is this right Avinash, is that what they're looking for, kind of a –

Avinash Shanbhag – Director, National Health Information Network (NwHIN) – Office of the National Coordinator for Health Information Technology

Yeah, yeah, exactly. I mean this is for future stages, so clearly I think if there are areas where we need to analyze deeper or areas where, as you said, do require some further embellishments to making it ready. I think we'd certainly like to know and I think we can work with this group, as we've done in the previous efforts, to help support any efforts needed by the working group to reach that conclusion.

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

Dixie, going back our framework. I can almost mentally compile the framework down and we're going to get to a conclusion that well there's some new stuff here and it hasn't yet been tested. It's built on some emerging work and this is actually – this is the core problem with healthcare standards in general related to certification in a regulatory context is that we've built ourselves a mechanism where it's really hard for innovation to take root because no one wants to do things that aren't going to be on certification path. And yet our criteria for getting things to national scale certification aren't – want things to be more established before they can proceed and so we've built ourselves a race condition.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Do you see any way out?

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

Pilots.

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

Yeah. Pilots and – yeah. Yeah. So on the screen, finally, we see here these are our criteria that we – that the NwHIN Power Team developed for determining or deciding – assessing readiness for it to become a national standard. So if we – this is, of course, at the very highest level. We did drill these down to metrics, but we looked at the maturity of the specification, the maturity of the underlying technology, market adoption, ease of implementation, ease of operations and intellectual property. So I think it's pretty clear that this is very new and still developing work.

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

Yeah. And going back to David's earlier question on, are EHR vendors doing this? I mean I know that Keith Boone's been involved from GE in this work for a long time. I was involved early on, until I got distracted by the CommonWell work, I was involved early on in the push side of this. And I can tell you, and I'm almost positive that GE's going to be in the same boat, I can tell you that if I raised the flag on this work internally, unless for example DOD said, we really want this to happen, and we're willing to pay for it and it's a high priority for us. I could tell you that this would go into the really interesting, we'd love to support it, but we've got a thousand other things on our roadmap right now.

And I can almost guarantee that that same conversation would play out in much the same way across the vendor community, and that's where – that's really where I'm pointing at the race condition is, we want this stuff to go into pilot, but the pilots are dependent on the HIT vendors. The HIT vendors are reluctant to take on new and innovative work because they've got a lot of other stuff they've got to get done, and that's really where I see the innovation dilemma that we've built ourselves, playing out. Now I could be wrong and we could get 15 HIT vendors eagerly adopting and rolling this out, but I just – I know what our roadmap looks like, I know what the roadmap of our EHR folks looks like. I've seen a bunch of these discussions play out in the past, that's really where I start to get concerned.

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

But that's a – meaningful use is making us all work hard complaint really, rather than anything about this particular approach or this particular standard –

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

No, yeah. So this is not about this particular standard, I...

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

– it's just –

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

– it's a dilemma that we built ourselves that innovation, we want innovation in order to proceed to more advanced stages of meaningful use, and yet the system that we've built makes it difficult for innovations to take hold.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

I think that's put really well. I'm feeling that every day. The solution isn't quite pilots, I think, as you reframed it, the problem is you can't get to pilots, if you like, or get past them.

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

But why is that not – why is that the case? I mean, at least it seems theoretically plausible to me that there is some vendor out there who would find this an attractive experiment to go do for some probably market-facing logic, I mean, they want to be the vendor that's known that does this well.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Well I hope that's true.

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

If there was some endorsement that this is – if an endorsement came from the Standards Committee that says this is a sound approach that solves a real problem and needs piloting. With a successful pilot being something that would put it as a candidate for later Meaningful Use, would that be sufficient to get an innovator to go out on a limb, I mean we've got hundreds of EHR vendors out there that want to – themselves.

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

Sure. Yeah, I mean I would be much more enthusiastic about, for example, BID, BIDMC, and Partners agreeing to make their respective portals Blue Button Plus enabled and then anybody in – mostly anybody in that part of Massachusetts could take advantage of the ecosystem. That might be a faster path to get adoption is places where you've got homegrown apps, although I think Partner's is probably a little distracted right now.

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

Yeah, I –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

That’s right. And we’ve had this discussion about sort of vendor side versus care provider side and frankly, I think there’s challenges to recruiting pilots on both sides. The nice thing about attracting a vendor target is at least you can scale it across their customers if you’ve implemented it.

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

Right.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

I mean, the other thing is, to the extent that you guys can say, yeah, it sounds like it would be a good project for some vendor, but not for me, is a tough kind of logic to play out and say okay, well who is that somebody else?

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

Well it seems to me that the area of the standards that is the most complex, as well as the area that is likely – most likely to receive the most pushback from providers is the idea of registering multiple apps with them. Some of which they don’t feel comfortable with and there’s a need for infrastructure for the registration vetting of the trusted ones. Is it possible to implement this in steps where you wouldn’t allow just open registration of multiple apps, but you selected which apps – restricted it, in other words, restricted the apps at the beginning of the implementation with the idea of moving toward a richer registry of apps?

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

So I think that’s a technical possibility. I think, when it comes down to a discussion with somebody who really wants to implement, it’s a discussion that we can have. My sense is, if you push-off the sort of floor of open registration and say, we’ll get to that eventually but we won’t start there, there’s a very strong risk. And we’ve seen this over and over that you’ll never get there.

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

I think you would in this envir – I mean, I think you would. And I think that you could get some – in my opinion, you could get some provider buy-in if they – if you had a couple – one or two apps that you could explain to them what they did, and you could build this infrastructure without really taking on the whole thing.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Well from the other perspective, what I hear David saying is actually if I were going to cut one, I would cut the trusted piece, because it seems like a lot of infrastructure and needs over-engineering –

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

Correct.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

– and at least the open piece is strict standards and easy to implement.

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

Oh no, I –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

You could make the argument both ways.

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

I would have the same perspective – this is Arien. I would have the same perspective that if there’s one thing you have to implement it’s the open spec. Although I don’t know that it is a trivial amount of work to go implement it.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Oh, not trivial, no, no, no.

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

It requires implementing the server side of this, doing the risk analysis, integrating it in with your security framework. It is bigger than a breadbox, maybe smaller than a – I don't know, what a big thing is, but it's –

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

It's less than say it's DS4P.

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

It's not less, it's smaller than DS4P but it's bigger than the work that we did that really helped it for Blue Button where we enabled the text file download. Well, that was trivial, because we already had the CCD download function already there, and it was a matter of a different format and a little bit of text. This isn't that, this requires good, heads down engineering by a team to go off and do.

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

Yeah. I was talking about just skipping – but then all you would have left is search and download, which is what they have already.

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

Yeah.

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

Yeah. Yeah. Yeah.

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

The other side of the equation is worth looking into, which is what's the demand for this? Josh, I mean, there's a robust clamor of mHealth apps out there, but no proof that they're very good or useful. And I don't say that disparagingly, I just say, it's such a green space right now.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

I hear you. Talking about a chicken and egg problem, the demand – the number of people who are building apps and would like access to this API is clear and we would love to be able to have a pilot or an effort in place that would hook them up with those data. The demand side is actually quite strong. Now proving the value in those apps, I don't think – unfortunately I don't think we're going to have answer to that, it's a bigger question about the value of Health IT pretty broadly, and it's hard to answer that without real data flowing into the hands of real people who use it to make real decisions over time.

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

And this is a classic network play, and network plays are hard. They're hard to get started; they're powerful once they get going.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Right.

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

Yeah.

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

And this is again one of these areas where sometimes, I'll get off my soapbox again, but this is the reason why it's taken ONC to kick the HIT industry to implement standards en masse because the value for anyone to independently go is low. The value for everyone to go is high.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

So I hear you. I think we're feeling that here. Certainly the high-level goal of this project is to build something that could be included in national certification requirements and be broadly implemented. The question is how long is that road and are there gaps in it that are so wide that we can't cross them? And sometimes the race condition is very real.

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

I would argue that your national go – your goal ought to be that there is high demand for this capability and vendors feel a need to implement it to be competitive. And oh by the way, certification helps.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

I agree, but if you – I don’t know, maybe you disagree with what Arien said when he got off his soapbox and thinks that we would have gotten to widespread adoption of standards without certification requirements –

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

No, but I think that’s the – where I would disagree, and I suspect that we actually don’t disagree, is that that may have primed the pump, that got a lot more EHRs out there and a lot of providers using a lot more EHRs and an awareness and so forth. I mean, in some ways the worst thing that could happen to you is that this becomes a certification requirement, because –

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

Yeah.

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

– that will mean no one addresses it until the absolute last minute and then they’ll do a lousy job of it, just get to past the NIST –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Well, the trick there is doing – so that if people do it at all, they can’t have done so lousy a job that it fails to enable the act that we want.

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

Right. I’m –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

In other words, if we specify this thing right, passing the NIST certification test means that this thing actually will work to expose data for patients, not just sort of trivialize down to the point where it doesn’t do anything.

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

I agree. My point was a little bit in jest, obviously. But the point is that if there’s actual demand for this, where there’s an ecosystem that will benefit from it and it feeds back to the vendors such that they understand the value of this demand, that’s a much sweeter spot to be in in terms of getting widespread adoption than adding it to a 2016 certification cycle.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Maybe yes, maybe no, in terms of the actual timing, it’s not totally clear. I mean, just in terms of providers asking for functionality from vendors and then seeing that through to implementation, that’s a slow feedback cycle. So to go from patients asking their providers, providers asking the vendors and then getting functionality implemented, it’s – I would like to see that push and that clamor get louder, but it’s not clear to me that the feedback loop would be faster than 2016.

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

Yeah, it’s possible.

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

That’s –

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

I mean I think you could certainly pilot it quicker than that, I mean, one slight thing going for it in some vendor settings may be the fact that this is an augmentation of portal capability. The portal teams are already accustomed to thinking this way, this is not deep in the innards of the EHR, this is on the boundary layer, so at least in our shop, the team that would do this understands these technologies really well already, and for them it’s just a roadmap problem is do they have space? But they would not be flummoxed by what you’re requesting, they’d say, okay, that makes sense.

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

Well yeah, but the – as Arien – going back to Arien’s question, that bothers me too, the server side tools that will be needed to really implement this aren’t there yet either.

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

Well I think – I mean, we use a lot of OAuth and we're – I don't know, Arien uses a lot of OAuth. I mean, I don't think the technologies here are all that unfamiliar. In fact, I wanted to maybe shift the discussion back to that question –

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

Um hmm, sure.

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

– which is, do we see any issues with the building blocks that the ABBI Plus or BB Plus team have used here, in terms of JSON, OAuth, RESTful approach, etcetera.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

FHIR search interface.

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

FHIR –

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

Yeah, FHIR search interface. I mean, my gut reaction just to start the conversation is, those look good to me, they look like appropriate standards.

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

They actually encourage, I mean, when I was looking at it, I'd actually encourage can you do the whole thing – can you effectively go standards track on the whole thing and push the whole thing back through FHIR?

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

Yeah. Yeah. I'm assuming that it is FHIR basically, is what I'm saying. I mean, you core – your core API is FHIR, so make the whole thing FHIR, which is –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Well FHIR just doesn't do these pieces about authorization, I mean –

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

No, no, right, right.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

– right now. So this would be the first profile on FHIR that says here's how you do patient-facing authorization.

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

That's what I'm suggesting is I'm assuming you're going to go back through standards track with FHIR and get this working and then get back to a standards track.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

It's not clear to me that we're on a path to try to put this through some kind of HL7 approval process, but that may be where this goes, but that hasn't been on our roadmap yet.

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

Yeah, yeah.

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

And wouldn't the authorization is somewhat orthogonal. I mean –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

It is, but you need both to enable the use case.

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

You do, but you have an OAuth –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

I think you’re right, OAuth2 – the authorization is orthogonal and that’s the place where we’re focusing, is how do the apps register, how do the authorization screens get displayed, what are the authorization scopes that are required. I mean, that’s basically what the spec talks about. The actual data access API is one endpoint to retrieve a summary and then a FHIR endpoint to search and free documents. Clinical –

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

So you’re building on well established, or at least standards that are on their way to becoming established –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah.

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

– FHIR and OAuth 2, and you are putting together a profile for how to use those. I’m not sure the profile needs to be standardized. It may need something like the direct applicability statement, where you have a community who agrees in a consensus way that they accept the profile, but the core standards have their own tracks that are well defined and are appropriate, it seems to me.

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

Yeah, it’ll be really interesting to see how the RHex and the OAuth and the FHIR, I mean they’re all 3 really tightly tied together and which one is really should be the standard or, you know what I mean?

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Those are all at different levels, all right. I mean RHex is really a profile around RESTful data that tries to say here’s how you do authorization, here’s to access API. But below that there’s hData, right, which is what they implemented for their pilot, which is –

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

They used OAuth 2.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Yeah. I mean, so OAuth is – it’s a tool in the toolbox for delegating authorization and for authenticating requests for maps. And it’s one of the best tools and it’s pretty broadly adopted and I think that’s a common element we’re going to see across all of these.

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

It’s being adopted; it’s not broadly adopted yet.

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

OAuth 2, maybe not in the healthcare space, but in the web text space broadly, it sure is.

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

Yeah. The simple version of it that you’re using, not the more complicated one that RHex –

Joshua C. Mandel, MD, SB – Boston Children’s Hospital – Research Scientist

Correct. So, that’s right. There’s a lot of things people know about – is protocol.

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

I would argue that our Committees work might be to look at say, RHex and its use of hData and OAuth and your use of FHIR and say, these could be reconciled into a common model.

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

Yeah, that’s what – that’s what I was kind – yeah, there are some threads between – yeah.

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

Right. There's a tremendous amount of overlap that reflects – the differences reflect just slightly the timing and space when they got instantiated plus maybe the emphasis and focus. So you step back and say, how can we synthesize this to a well understood way to specify RESTful query for health data called FHIR and a well-understood set of technologies for remote authentication authorization called OAuth. And then a variety of future to be defined profiles, some of which don't even need to ever be standardized, because the just become common use profiles.

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

That's a good –

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

I'm trying to focus the standardization on the building blocks, but not on the building itself. We want a lot of different buildings out there.

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

Yeah, I totally agree. Yup. Yeah.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Well, at the same time you also want to apps to actually work –

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

Right.

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

Yeah, but that'll happen –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

– so something needs to be specified in enough detail that the app can reliably fetch a document or fetch a structured data feed and tell where that feed to look for the things it wants.

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

Yeah, but we're always setting that line really carefully between completely architecting the solution versus really giving the building blocks. It's really –

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

And in that –

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

I mean, the way I look at this spec for Blue Button Plus, at least, is to say there are a couple of well-defined endpoints where your definitely going to find data, the clinical summary and a documents list. They're pretty trivial, there are sort of wrappers around functionality that's already out there in IHE, XDS repositories. Then, from there, the way you extend this is by saying, sure, what are other clinical endpoints that can be added over time, and that can be quite modular, it could say we'll expose any data profile that's in FHIR, or hData. So I think the extensibility points here are clear, you open up the clinical endpoints and define new ones, but we need a couple of concrete pieces to be there from the beginning. We can't just say, it's all modular, or we'll be in trouble.

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

And a third data point that Doug Fridsma talks about a lot is this spigot, a very general-purpose query interface into the EHR.

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

Yeah which – and then, which I keep trying to steer him towards the app – container app model, the SMRT platform or something equivalent, which is not quite the same set of technologies, albeit you could imagine that the data layer is the same as these, and that would certainly simplify life for the vendors, hint, hint, hint.

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

I think this is –

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

We don't like RDF.

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

Um. So are other – this is a really good discussion and Josh, we really appreciate your presentation, it was just outstanding. It was just what we were looking for, good conversation about it and I think it really does a nice job of setting us up for our next couple of sessions too, because the next session I think we're going to talk about FHIR and CommonWell. Arien, if you're – we – oh, that's in the next slide actually.

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

That's actually – so, the issue is that I am going to be in Mexico on the, I think it's the 11th or the 12th.

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

I think we switched them Arien.

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

Oh good.

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

Next slide please.

Avinash Shanbhag – Director, National Health Information Network (NwHIN) – Office of the National Coordinator for Health Information Technology

We put them all to sleep.

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

Yeah. So our next meeting is June 6 and we switched those so that Arien and David could do that June 6 with FHIR and CommonWell. And then the June 12 with the RHex, the Initiative. I don't think we have a speaker yet for the RHex, I think that ONC's still looking for one. I would be really nice if we could get Justin Richer –

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

Yeah, get Justin if you can.

Avinash Shanbhag – Director, National Health Information Network (NwHIN) – Office of the National Coordinator for Health Information Technology

Yeah, this is Avinash. I just sent a note to FHA, so they did recommend MITRE, so I'll follow up to get Justin, if he's available.

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

Yeah, that would be great, it sounds like a perfect person to have – one who's worked on multiple things here, it would really be useful to have him. And, that's actually a good final presentation for us. And then on June 19, which is the next Standards Committee meeting, we will report observations and recommendations to that point. And David and I will have to figure out, at what level – how much we can actually say at that point. So – but this is an excellent start and Josh, we're really, really grateful to you for giving your great presentation.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

All right. Well I appreciate your time and your questions. And if you have any more, feel free to please reach out to me by email or I'm on Twitter at JoshCMandel. Look forward to discussing further.

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

Can you send your slides to either David or me and we'll get them over to ONC?

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Yeah, they're – I'll just send you a web link the them, sure thing.

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

Are we going to have public comment Dixie, is that our next – ?

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

Yeah, yeah. And also the link, I wrote it down someplace, but just to be clear, just send it in the message, you know, into the website – the Blue Button GitHub website. Okay. I think we're ready for public comment.

Public Comment

MacKenzie Robertson – Office of the National Coordinator – Federal Advisory Committee Act Program Lead

All right. Operator, can you please open the lines for public comment?

Rebecca Armendariz – Altarum Institute

If you would like to make a public comment and you are listening via your computer speakers, please dial 1-877-705-2976 and press *1. Or if you're listening via your telephone, you may press *1 at this time to be entered into the queue. We have no comment at this time.

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

Any public comment?

Operator

We have a public comment from Suzette Stoutenburg. Please proceed with your comment.

Suzette K. Stoutenburg, MS – Lead Information Systems Engineer - MITRE

Oh yes, hi. I just wanted to let you know that I'm Suzette Stoutenburg from MITRE and I was actually the pilot task leader last year on RHex, and it was really great to hear all of the things that are going on here and the discussion around RHex. And I just wanted to let you know that I was on and I was just going to comment that we've actually used RHex for other use cases, other than distributed authentication.

We've actually used OAuth also to allow access to RESTful links within a database, protected by OAuth, and we did that in support of the Maine Health Information Exchange and we did that also with TATRC, the Telemedicine and Advanced Technology Research Center. We used OAuth to again place RESTful links within the database and then protect service access to those using OAuth. So, just wanted to throw out that we're trying it out still in a number of ways, the pilots are being supported by other organizations outside of ONC. And I'd be very interested to attend on June 6 and I can also help to coordinate with Justin, we're still working together on these subsequent pilots. So if that's useful, I can send you my contact information.

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

Yeah, that would be great.

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

Yup, appreciate that.

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

Yes, thank you.

Suzette K. Stoutenburg, MS – Lead Information Systems Engineer - MITRE

Who should I send it to?

MacKenzie Robertson – Office of the National Coordinator – Federal Advisory Committee Act Program Lead

This is MacKenzie. If you want to send it to me, you can do that. It's MacKenzie.Robertson@HHS.gov.

Suzette K. Stoutenburg, MS – Lead Information Systems Engineer - MITRE

MacKenzie.Robertson@HHS.gov. Okay. Thank you.

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

Ollie, are you still on the phone? Ollie? Ollie's at TATRC so I thought maybe he was familiar with that work. Okay.

**MacKenzie Robertson – Office of the National Coordinator – Federal Advisory Committee Act
Program Lead**

Is there any more public comment?

Rebecca Armendariz – Altarum Institute

We have no further comment at this time.

**MacKenzie Robertson – Office of the National Coordinator – Federal Advisory Committee Act
Program Lead**

Great. Thanks.

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

Okay. We finished a little bit early today, so that's great. Thank you. David, did you want to say anything more?

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

No. I think this was a great session and I learned a ton and I like what I heard and I hope we can find a way to push this forward. I think it's valuable work.

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

Yeah. I do, too. Thank you. Thank you Arien.

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

Thank you.

**MacKenzie Robertson – Office of the National Coordinator – Federal Advisory Committee Act
Program Lead**

Thanks everyone.

Joshua C. Mandel, MD, SB – Boston Children's Hospital – Research Scientist

Thanks very much everyone.