National Quality Forum

Moderator: Patient Safety and HIT
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OPERATOR: This is Conference #: 12537091

Operator: Welcome everyone. The webcast is about to begin. Please note today's call is being recorded. Please standby.

Andrew Lyzenga: Hi everyone. Thank you for joining us today for the third web meeting of the HIT Safety Committee at NQF. We appreciate everybody who has joined us both on our committee side and any members of the public and other stakeholders who joined us.

The purpose of our call today is to give just a very brief update for our committee members on some things that have happened with the project, but largely the point of this call is to serve as an open forum for members of the public to share any experiences that they have with HIT and Patient Safety, any challenges they've faced ensuring the safety of HIT systems and Patient Safety in the context of health information technology, any experiences they've had with measurement and prevention of HIT related safety issues and that kind of thing.

So, we'll have a bit of time here probably in the first 20 minutes to half hour where we'll present a bit of information just for context and to inform the public what we've been doing with this project, what we mean by when we talk about HIT safety and some other issues, but then we'll be, after that, opening it up for members of the public and participants on the call to just go ahead and share their own experiences, and again, best practices and challenges they've experienced related to HIT safety.

I'll talk a little bit more about how that's going to work when we get to that point. So, for now, I'm just – I'm going to turn it over to one of our co-chairs, Dr. Hardeep Singh, to talk a little bit about what we mean by HIT safety and a little bit about measurement of issues in this area.

Hardeep Singh.: Thanks, Andrew. Welcome everybody. My name is Hardeep Singh. I'm an internist in a patient safety research at the Houston V.A. and Baylor College of Medicine. I'm very happy to co-lead this group along with those with Belmont.

And so, we thought it would be important to get everybody on the same page about what we are talking about when we mean health I.T. safety and health – what does it mean in the section of health I.T. and patient safety, so complex.

So if you turn to the next slide, Andrew.

In general, there's been opacity of research in this area and research in this area has pretty much – has emerged over the last decade or so where apart from some of the benefits of heath I.T. which we know are several, there have been unintended consequences.

So what we do need is a robust foundation and conceptual approaches to understand the problem and we, as researchers, when we approach such a topic which is as complex, we like to have good conceptual models and good definitions so that we can measure and improve upon what we are doing.

But we can really measure what we (try to define). So, in this next couple of minutes, I want to just briefly walk you through some of the approaches and measurement issues that we've dealt within our work.

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So, this is the eight dimensional sociotechnical approach that we've used in our work, and some of you may have seen a picture before. But the essential thing to realize is it's just not about technology when we talk about health I.T. related patient safety, it's also much to do with other things such as

organizational issues, (workforce) issue, personal issues and also the, you know, the role that policy and rules and regulations play in the use of health I.T.

So all of these things have to be considered, and then (at worth), you realize that all of these eight dimensions must be addressed in order to address the broad area of health I.T. related patient safety. And that's why it becomes so hard because you're not only dealing with the hardware, software and the content issues with HIT and the user interface, but you also dealing with many other facets of sort of the social system and we call this a sociotechnical approach because it really combines what the technical in the sort of the social sciences as well.

Next slide.

So, the hierarchy that we've described in the last few year, this is, you know, we've sort of thought that it is not just about technology but much more than technology. So, there are three steps to achieving health I.T. related patient safety and we will probably touch upon all three of them in not only our call today, but also in the work that we're doing with NQF.

And the first step is that of safe health I.T. and that really means we got to have, you know, technology that is safe and effective.

You may know that in National Health Service many years ago, there was a computer glitch and 900 patients ended up getting prescription of (Vigrande) instead of (Wellbutrin) and that was strictly because of a computer glitch that happened.

And so that was a health I.T. specific event. It was a technology specific event. So that sort of the step one. That's what we got to fix in our work.

Step two is we got to make sure that we are using health I.T. safety, so we could have the best technology in the world. But if we don't use it appropriately and use it the way it's intended to be use, we could have problem. So, any time you have, let's say, submissions getting, you know, overwhelming number of alerts, for instance, that's bad news of technology

because they're all writing the alert and, you know, losing maybe a very important information.

So, anything that happens in work for changes and all those things, any time it's to do with the use of technology. This is in the second step and that's another area that we must address in our work.

And the third step which is I think a really important step and the reason why we implemented Health Information Technology is because we wanted to use health I.T. in true patient safety. So this is when we could use, for instance, health I.T. to prevent patient harm, to prevent medical error either before they occur or to improve – to prevent patient harm after medical errors occurred. And really, we want to identify potential patient safety concerns before patient gets harmed.

So, this (isn't of course) to be sort of outline in our work and we really think all three of these steps must be addressed in order to achieve health I.T. related patient safety.

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The next slide will – I think, it's the one before, yes.

So, this is a framework that we recently proposed. It's complicated, but that's the way it is supposed to be. I mean, this is a complicated issue as I've said earlier. What we do is we define this framework. And I'm not going to walk you through every single facet of the framework, but it just gives you a sense of the three stages or steps that we just walked through. We do need good – both retrospective and prospective measurements in this area which is important scientifically acceptable, feasible, usable and transparent. And then we need to use all this data to improve policy and practice and to improve patient care.

So, it's – we use the sociotechnical approach in this framework and this framework has been useful to stimulate some thinking by the NQF group in order to go forward.

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And so talking about definitions, what is exactly the health I.T. safety concern. I mean, those of you who've actually started analyzing some data in maybe a safety event where you try to go through and see what role the technology played, it gets really complicated really quickly. And, you know, how much is a role of technology versus a human, versus workflow, versus system issues. So, again, I'm not going to walk you through these slides and these slides, I'm sure, will be available to you.

But these – and we've actually talked about five instances in which there are different types of health I.T. related safety concerns, all of which need some attention. So this could be anywhere from, you know, broken hardware or software bugs to usability issues and to configuration and use issues. Use issues is what the examples I gave earlier.

Can you go to next slide?

This is just – and this is published work that you can – all of us, you're welcome to look at, but in essence, we think an approach like this can help give examples to people as to how to categorize these events when you start looking at what exactly is health I.T. related patient safety and how do you even start measuring it because we really need to have good definitions of what we are talking about here.

And I think that should be the end of my slides.

Back to you, Andrew.

Andrew Lyzenga: Great. Thank you, Dr. Singh.

So, that gives us a really good context for what this project is about. And we within that context, so the goals of our specific project are to develop a conceptual framework for measurement to the HIT safety and Dr. Singh has just talked a little bit about some of the ideas we've been – we've discussed and the sort of basic outlines of the framework that we're (inaudible).

In addition to that, we want to identify gaps in measurements related to HIT safety and make some recommendations for filling those gaps. We want to identify the highest priorities with respect to measurement of the HIT safety issues, and then to identify best practices and challenges around HIT safety measurement.

So, you know, these last three items are some of the things that we're really looking to the participants on this call, you know, of our – members of the public who have called into this call to help us think through and to give us some thoughts and ideas and experiences that they've had around these issues, any again experiences you had with HIT safety and measurement of HIT safety or ways in which your institution has worked to improve HIT safety.

Let's get to the next slide.

As Dr. Singh spoke about in a bit more detail, this is our preliminary framework for HIT safety measurement sort of having a hierarchical framework starting from the bottom would safe – establishing a foundation of safe Health Information Technology. We have some principles within that level including data availability, data integrity, data security, so these are the things you're trying to ensure at that level of HIT safety.

Moving up to the next level of safe use of HIT and some principles within that level or HIT system usability, ensuring complete and correct use of HIT organizational planning, preparation and governance around HIT and HIT safety. And then, surveillance and monitoring of HIT systems for patient safety related issues.

And then, finally, the sort of top level or the third level as using HIT to improve safety proactively helping – using HIT to help make care safer and facilitating things like patient engagement that can really help to improve the quality and safety of patient care.

Let's get to the next.

So, as you can imagine, this is an area that involves a lot of different stakeholders. You have, you know, many issues across the sort of spectrum of

development of HIT systems and implementation of HIT systems, use of the system and many other considerations. And we've talked a lot within our committee about the idea of shared risk and shared accountability, shared responsibility for all of these things.

And, I'll turn it over at this point to our other coach here, Elisabeth Belmont, to talk through some issues related to that notion of shared risk and what it means in the context of HIT safety.

Elisabeth Belmont: Thank you, Andrew. I'm Elisabeth Belmont and I'm corporate counsel for MaineHealth in Portland, Maine. And I have a specialty practice in health I.T., and information sharing with a special focus on HIT safety and quality improvement. And, I'm delighted to be participating in today's call.

There's a growing recognition that when we think about health I.T. and patient safety, that is not just the responsibility of the individuals who are using it, rather there's a recognition that everyone who's involved in the process from the health I.T. vendors, from the developers to the companies that sell the products to the organizations and the end users. In order to get our arms around this process, all of us have a responsibility.

And one of the ways we can do that is by defining a culture of safety. And in order to that, it's important to clearly define and document the roles and responsibilities of all stakeholders. And, we think that by doing that, we'll be able to identify which party can best mitigate a particular risk that involve health I.T. (percents) and that that's the entity or individual who should bear that risk.

And what we're looking at as we work on these measures are to tie our measure concepts to health I.T. safety concepts that already exist in the HIPAA Privacy and Security Standards and ISO Standards, which certain vendors are currently subject to the joint condition – the Joint Commission standards and IOM recommendations based on the 2013 report that came out on health I.T. and patient safety.

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And then looking at these measures, we feel as though they fall into two buckets. The first is allocating responsibility for health I.T. and converging technology safety among participating stakeholders. I've mentioned the culture of safety, with regard to our responsibility agreement, that's a concept from the ISO Standards, which certain vendors are subject to.

And while not all our health care providers have responsibility agreements with vendors, what we usually have are hardware, software agreements and we believe that it's appropriate within those agreements to further flash out who has responsibility for certain aspects of health I.T. based on who has the most responsibility for it.

And, there are certain software license and hardware purchase agreement which contain contractual provisions which actually can negatively affect patient safety efforts. So, let me give you a couple of examples. Everyone on the call is probably familiar with limitation of liability causes which attempt to restrict damages.

And I think that you can still have those types of provisions in contracts, but they really shouldn't limit a health care provider from being able to recover for liability for their vendor's breach of certain obligations of the vendor.

Again, it goes back to who has the most responsibility and who's in the best position to mitigate certain risks associated with the design implementation and use of health I.T.

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The second bucket has to do with ensuring the confidentiality, integrity and availability of EHR data. And many of you on the call are probably recognizing that that's an obligation that appears in language in the HIPAA privacy and in security racks.

And, it's important when we think about that because the last thing we want from an EHR patient safety perspective is not to have data stay confidential if we're trying to make a patient care decision, we want to make sure that we can

appropriately rely on the data that it's complete, that is accurate and it is available.

And for that reason, we want to make sure that we undertake appropriate security risk analysis of the potential health I.T. threats and vulnerabilities which may affect patient safety threats and make sure that we have an emergency preparedness plan in effect. So, if a system goes down, we're not going to create additional safety concern.

And this is particularly true of cloud-based EHRs.

And while many institutions have a general disaster recovery plan, some are deficient and not having specific sections that relate to health I.T. and patient safety.

So, that is a quick overview of where we're going with these measures. And I'm going to turn the call back to Andrew.

Andrew Lyzenga: Thanks so much, Elisabeth.

So, with that, as – again, some sort of context and to set the stage for the discussion on the rest of the call, we'd like to open it up for the public at this point. And I'll talk in a moment about how you can sort of indicate that you'd like to speak.

I'll walk through just quickly the sorts of issues that we're looking for discussion around, first, whether – if and whether and what kinds of experiences your institution or you have experience with around HIT safety. Some examples might include EHR system downtime, HIT-induced adverse medication events, incorrect lab or imaging tests ordering and processing related to HIT issues or other issues.

You can go to the next slide.

Next, we'll sort of open it up for experiences and discussion around strategies that your organization may have developed around ensuring safeties of HIT in avoiding unattended consequences. A little bit about, you know, hopefully

what – why you develop those strategies, any results you've noticed as a result of those efforts.

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We'll then ask for input on whether your organization is trying to measure the effects of HIT and patient safety. Any particular measures you've developed or implemented within your organization, any particular issues you prioritize around HIT safety and how you might be measuring them.

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Oh, sorry. So that will be the basic sort of structure of this discussion. And if you can skip back to that first slide.

So, if you'd like to share any thoughts or feedback for our committee, any input, any experiences you've had related to HIT safety within your organization, please press star one. We will queue any participants who want to speak up and we will try to open up the lines one by one for anybody who'd like to talk.

So, if you would like to share anything with the committee at this time, please press star one.

I'd also note that we would welcome any comments or thoughts or experiences from our committee members. And you all have an open line, so you don't have to press star one, you can just speak up if you do have anything you'd like to say.

Lisa Freeman: Am I (supposed to be heard)? Oh.

Andrew Lyzenga: Yes, go ahead.

Lisa Freeman: OK. I – yes, this is Lisa Freeman.

You know, I wanted to mention that there's one thing that I've been thinking about. And I'm not sure where it exactly falls into the different diagrams and charts that you've created. When a problem becomes apparent to a health care

organization and they dismissed it as not being significant enough, you know, I'm not sure how we can address that or where it exactly falls.

And, you know, just to put it in context, I personally had a situation where there were two people in my larger group practice, not in the same office, but in the same practice with my name, myself and someone else.

And our records for a time repeatedly were getting mixed up and the practice insisted that it wasn't a big enough problem.

And, that kind of goes outside – a little bit outside of the different areas that we've identified.

Andrew Lyzenga: OK. Any comments or thoughts on that from our committee members?

Hardeep Singh: Sure, Lisa, this is Hardeep Singh. I think you make a good point. There's two things to this, right? So one is, the factors in saying that this is serious enough because nobody had been harmed yet, but at the same time, this is exactly like one of those near misses that you need to fix ...

Lisa Freeman: Right.

Hardeep Singh: ...that otherwise you're going to have a, you know, disaster coming up ahead.

So, you know, with – I'm going to mention couple of things, but I think one thing I want to emphasize is, and I think Andrew, you can probably – and Jason is I'm pretty sure on the call as well, you can talk about.

We – NQF actually just endorsed, I think, or at least partially and on the way, there's a measure that Jason Adelman created. And Jason, you should talk more about this which can actually measure the number of wrong patient orders.

I think the point that you're making is exactly why we need to create systems of measurement, so that we can cache these things proactively, and otherwise, you'll never find out, you know, what types of issues are going on within the system.

So, Jason, do you want to talk briefly about it if you're on the call?

Jason Adelman: Sure. Hi, this is Jason Adelman, I'm the patient safety officer at Montefiore Medical Center. And we just – earlier in the month, the NQF Patient Safety Committee reviewed a measure I submitted for identifying orders placed on the wrong patient.

It's a sort of a simple measure, it looks for when doctors or P.A.s or nurse practitioners place an order or a couple of orders, let's say, like an X-ray (internal) on a patient. Realized they're on the wrong patient and cancel it pretty quickly. And then same doctor orders the exact same two things on another patient program, used to call it the oops query, but we call it the retract and reorder tool.

And we've used it to identify many of our wrong patient errors that – or previously known by voluntary reporting. And we use it for surveillance and for – as an outcome measure, we just had a paper post two weeks ago in pediatrics about using it to identify wrong patient errors (in NAAQ).

So, that's the quick two minutes summary of the retract and reorder measure.

Hardeep Singh: And I think, Andrew, I think this is well on its way, right? It's not being finally approved, but I think it's sort of looking promising. Is that what the story is?

Andrew Lyzenga: Yes, it's got at least preliminary approval from – at the Standing Committee level. There's a couple other layers of review for endorsement of – NQF endorsement of a measure, but it's certainly gotten a very good reception at this point. And there's a lot of, you know, excitement about the measure and sort of what it represents and the potential to really help improve safeties of HIT system.

I think we do have a call – a comment at this point from David Hunt at ONC. Could you open up his line, ma'am?

Operator: David, your line is open.

David Hunt: Hi. Oh, thank you so much.

I just wanted to reference back to the young woman who spoke about the issues with the patient matching. I think one thing that her experience also brings out and is one of the first things, I think, we should always keep in mind is that no matter what set of framework – what framework we have to measure safety, safety is inherently a cultural issue. That is to say that you have to have institutions and individuals that are looking to make system safer and to keep them safe.

So I think at the top of the list as far as that specific, a problem, we have to really think about assigning also something to the safety culture within our practices and our health care institutions.

Andrew Lyzenga: Thanks, David.

So I think we'll ...

Jason Jones: May I ask a question of ...

Andrew Lyzenga: Yes.

Jason Jones: ...the other Jason?

Andrew Lyzenga: Please.

Jason Jones: Does your measure take into account cross-system issues, not to minimize patient mix ups, but we often find that the challenges that we run into is when – that (Corey MR) has to talk to the lab system or a membership system or radiology system or some other system that's not identical that, you know, that has to reach outside and get the answer back, authorization and so on and so forth.

Jason Adelman: I don't think so. It works like simply like I described, meaning it looks for when doctors place orders, cancel them and then place it on another patient. I supposed depending on how the error you described place out, like if it – I mean, the way you described it, I would take it would almost be a behind the scenes error instead of affecting how providers place orders. But if it's

somehow displayed the wrong or confusing data, that might lead to somebody thinking they're on one patient placing the order, realizing they're not cancelling it and then correcting themselves.

Jason Jones: Yes.

Jason Adelman: So I guess it depends how the error presents itself.

Jason Jones: OK, so it's pretty limited then to choose the placing and replacing of orders.

Jason Adelman: That's right.

Jason Jones: OK.

Hardeep Singh: But Jason, I think you bring up a good point. The – you know, I think the point of these triggers and I haven't done anything in medication triggers, but we're looking at diagnostic.

So the point of the triggers is you can't catch everything, and the predictive value is never going to be, you know, sort of 100 percent. But you do the best you can and you try to pick as many needles from the haystack as you can given, you know, the fact. And I think that also makes David Hunt's point really important that we're going to need other things than just picking out, you know, needle. We need to make sure that we have the cultural chain that try and looking for these things and preventing these things and reporting these things.

Jason Jones: I was curious if people has – have studied how often we run into safety issues between systems as opposed to within systems that may even indicate whether these are often related to a human errors versus system design errors.

Hardeep Singh: So do you mean things like system, system interface issues like test results not crossing over and ...

Jason Jones: Yes or – yes. Some differences in the way addresses are structured that cause somehow a membership connection or phone numbers are restored. And then, the wrong patient gets called or the wrong – and gets – medications get delivered to a wrong address or these kinds of things. Or ...

Bill Marella: This is ...

Jason Jones: ...again (inaudible). Sorry, go ahead.

Bill Marella: Jason, hi. This is Bill Marella at (Acory).

So, we're starting to look at a – the scope of events that you're describing as part of the next workgroup that we're trying to get going with the health I.T. partnership.

So, the first workgroup that we stoop up was on copy and paste issues and that should be reporting out in the next couple of months. And the one that we're starting up now is on patient identification specifically.

So, I still say that the best majority of things that get reported internally tends to be, I guess, intra-institutional parallels. And they're cropping up not just in, you know, place orders, but I mean, they're even cropping up in, you know, the registration systems and, you know, you can kind of pick them up all the way through the clinical encounter at all sorts of different paces.

There are handful of reports that I've seen so far that sort of deal with the intra-system issues.

So, where – the crux of the problem might be in the interface between two systems which I think is what you're talking about. So I think people are starting to become attunes to this.

Kevin Haynes: And this is Kevin Haynes. Just a quick comment on that especially to the confidentiality and HIPAA stuff, it's a disclosure if hospital A request information from hospital B and hospital B sends the wrong information, right. And so that would have to go through all your legal as well.

Elisabeth Belmont: Well, if it turns out to be a wrongful disclosure, yes.

Kevin Haynes: But if I request a (Bob Smith) and you've sent me (Bob Smith) but it's not the right (Bob Smith).

Elisabeth Belmont: You're right. Then we have a wrongful disclosure.

Male: Yes, I think that's why some of the HIE seem to be, you know, kind of staying away from that issue and, you know, using a federated system, you query it and as the query year, you're over sort of responsible for what results you pull up, and deciding whether they were relevant or not.

George Hripcsak: This is George Hripcsak at Columbia. You know, just thinking there are two approaches for this metrics for HIT safety using Jason Adelman's as one of the example. So let's say you do want to find intra-system errors. One approach is that you have – you start with the hypothesis of what the system may be doing wrong.

You look for evidence where it's doing wrong, then you look for downstream errors that may have been caused by that error. So in this case, you get the address wrong or gets the wrong patient because (it is done and do the math) right, and we see anything but wrong in that patient's record after that.

The other one is to start with the error and then look upstream and that's more Jason's approach where he's finding a retract and reorder, which could be use to find many different kinds of things could lead to that error. One being pick in the wrong patient, but other things could, like, you know, picking the wrong medication because it wasn't displayed properly or efficiently or whatever.

So that one is where we find metrics that something – we know something has – there's a good chance that's something has gone wrong in our job is then to look backwards and see and investigate what could have caused that. And then, once we see a pattern and that's exactly what Jason Adelman did found a pattern of – that this marker that retract and reorder this certain – of the exact same order on a different patient, well that probably means they did it on the wrong patient versus retract and reorder a different medication may means maybe they got the medication wrong.

Jesse Pines: Hi, this is Jesse Pines here at NQF.

We're also pretty interested in hearing, you know, not only sort of perspectives on events that have happened, but also (inaudible) up there how organizations have really address this in good proactive ways and what those results have been.

So, you know, we were, you know, we're definitely interested in hearing about people's thoughts about the framework and, you know, especially to hear if there are any comments on Elisabeth's presentation, particularly on the shared risk environment. But also just get things going, if they are any experiences people could share on organizational strategies that have been successful, particularly where measurement is involved, you know, that's really, you know, I think, would be interesting to hear.

Andrew Lyzenga: And both from our committee and then again, just as a reminder for anybody who's on the line from the public, hit star one if you'd like to add a comment.

Any thoughts from our committee members on organizational strategies or best practices you've maybe witnessed or heard about for preventing HIT safety related events or issues?

Jason Jones: So this is Jason Jones from Kaiser Permanente again. Don't want to be contrarian because I think this is really important. But one of the things, I think, that we're beginning to learn is that many of our unintended consequences were caused by our strategies for reducing risk. And that may sound really weird, but there were two things I think that we are rethinking now and I wonder – I don't know exactly how this can be brought into measurement.

One is that we went for a very, very processed and compliance-driven approach to trying to reduce errors. And what that meant is that we had frequently for our most common changes within our electronic medical record system three signoffs required before making a change to try to ensure that nobody accidentally made a change that would have a negative consequence.

But, what that ended up doing is both great. And there are sometimes, when that makes all the sense in the world, so the strategy is how can we separate when that makes all the sense in the world from when it doesn't.

The unintended consequence of our approach, however, was that we took something that the change itself might take 10 or 20 minutes to make. And (inaudible) into about six hours of human time and about three weeks of calendar time to get it done. And what that resulted in was that often, we weren't able to get the feedback from the users very quickly because they forgot or people forgot what it was that they were doing and were so involved in the process that they took their eye off the ball which was actually the change.

And the second thing has been, and this we're less sure what to do about, has been to take the change processes within our course systems and to break them into small steps hoping that people could master those small steps and we may have lost track of overall what were we trying to achieve, and so people get sort of hyperspecialized and aren't able to see the bigger picture and pick up on issues.

So, this is a little bit of a lesson, I believe, we're starting to learn in terms of how it is that we can take a focus on safety which Dave, at your point, we did so with all the best intentions and with the best, you know, sort of culture in mind but may actually have caused, which certainly because we can measure the time that it takes caused much more time and cost than we expected and we believe that we may have introduced some errors.

We've picked up some – you know, on some of this sort of last minute and been able to correct them, but we wonder if our approach to trying to prevent them has, in fact, (itself) caused some safety events.

I don't know if others have run into anything similar.

Hardeep Singh: So this is ...

Jason Jones: Or if anyone can follow that.

Hardeep Singh: Yes. Jason, I was just trying to clarify. So, what you mean is, because it took so long to introduce changes that would have prevented sort of bad things from happening, is that what you ...

Jason Jones: No. So, let's say, somebody just wants to change the way a drug appears to stick with the drug ordering things, and so they want to change how something looks on the label say, we would require three signoffs for that in our standard approach.

So that then draws out a very long time instead of, you know, making a sort of quick retesting on the label, did it work, you know, pharmacist, doc, nurse involved quickly turn it around, bang, you're done, now becomes a three-week I.T. sign-off process to be able to do that.

And we think that some of the time besides just being somewhat inefficient, some of the time that has actually increased our risk of making mistakes because we can't get that – you know, you talked about the different ways that I.T. gets used and that usability piece, we may have sacrificed for the sort of technical purity of the solutions we put in place.

Does that help?

Hardeep Singh: Yes, I was going to say that I think – I'm going to say three weeks is still pretty fast, I would say. You know, in several organizations, some of them should remain unnamed.

It's – it takes a while to get things done through I.T., and suddenly three weeks is fairly quick, I would say, I don't know if others have to do. But I think what you bring up is an important sort of point that when you have this – Lisa, sort of touched upon this, too. When you identify a safety issue, how do we make sure that gets turned around and you fix the problem within a, you know, reasonable amount of time when your I.T. is, you know, so much fixated on getting the meaningful use stuff done and the ICD-10 stuff done.

And we created layers of, you know, backlogs where to some people, it's not a clear urgent safety issue and how do we get the things done. And I think this is where the folks with technical approach is so, you know, important that we're going to need to think about much more beyond than some of these just technical fixes, and how do you get the measurement in the fabric of the organization. So we can make rapid changes.

That's what I got, I think, from your point.

Jason Jones: That's a slide out safety issue, that's a whole different level.

If someone identifies the safety problem, that gets bump up to the front of everybody's cue. It's more than – the apparently mundane changes, simple changes that we would like to make, for something like readability on a label for instance, those are the ones that are not a safety issue, it's not like anyone is making a mistake doing the wrong medication or something like that, it's just a simple change.

Those are the ones where if we apply the same standards to say an upgrade to the EMR, you know, we may be doing ourselves a (inaudible) but we could get somehow get to measures that take into account unintended consequences of being hyperfocused on sort of technical correctness, I think we'd be better off.

Jesse Pines: This is Jesse Pines. Just another example actually from Kaiser, so I don't know if, Jason, you want to comment on this, but I know that as I guess the positive intervention around patient safety and health I.T. that I believe Kaiser has started integrating pictures of patients into some of the electronic health records, at least this is from friends of mine who were other E.D. physicians.

And, you know, at least anecdotally that that's been helpful in, you know, ensuring that you're, you know, ordering the right medications on a patient, you know, particularly where you may have two patients in the emergency apartment with the same name or, you know, or potentially preventing Jason Adelman's measure of wrong patient retract and reorder.

Jason, I don't know if you want to talk a little bit about that, or if you know about that program, or for the rest of the committee or the folks who were dialed in, if there are other interventions like that that you know of in your organization, those are the kind of things that (works) in hearing about, too.

Jason Jones: Jason Jones, I can't confirm that's happening in the feedback. I haven't seen the measurement for it. But the feedback has been very positive exactly for avoiding some of the mix ups that you've called out, absolutely.

There are so many handouts that happened really, really easy and the picture is just such a simple way that people can immediately pick up on.

Andrew Lyzenga: So, I mean, we'll continue to – if – we'd love to hear some more thoughts from our committee members and others, any participants in the call, I thought I might recognize that this could be a somewhat sensitive issue for some folks in some institutions.

So, I don't know if there – we did get some, you know, interests in sharing experiences where that's which is one of the reasons we held this call. But, if there is some hesitation around that, we would encourage you to e-mail us at safetyandhit@qualityforum.org, there's a link there in the webinar, you can find in the link section. And we can include those experiences, you know, feed them into our report and as sort of the identified experiences, you know, if there's any hesitation about sharing stories in a public forum like this.

But, again, we would still encourage you to join in and share with us on this call if you do have anything you'd like to add or any input into the framework or any other thoughts for our committee at this point.

And just as a reminder, please hit star one if you do have something you have to share.

Hardeep Singh: And, yes, on our screen here, we do have a one person who has their hand up, (Amber Feil). So, if she could potentially type in her question or comment ...

Andrew Lyzenga: Actually, if – yes, operator, could you open up (Amber Feil's) line?

Operator: (Amber) is not dialed in.

Andrew Lyzenga: Oh, she's not, OK. I got you. So she – yes. (Amber), if you could maybe type your question into the chat function, that would be – we can – or your comment.

Or (Amber), if you could dial in to the conference line if possible, that would make it easier for you to share with the committee on the phone line.

In the meantime, I would, you know, encourage the rest of our committee to share any experiences or best practices they've had, or thoughts that you have about measurement that you've had since our last time we've talked.

Hardeep Singh: Yes, or alternatively, if you think that your institution is – does address health I.T. safety issues in a timely and effective way, would also be helpful to hear at least (inaudible) which institution you're from. But, to hear about, you know, some positive examples of places that are doing as well.

Elisabeth Belmont: And this is Elisabeth. And I would add to what Jesse has had to say that if you currently are working with measures that you think are useful, and you would be willing to share those measures with us, we would very much like to see them.

Kevin Haynes: And this is Kevin Haynes. I know that with the committee, one of the last times we talked about presenting some used cases with regards to either hypothesize used cases or really used cases that show either through data integration potential errors or near misses of those types of things, because I think having some used cases to populate into the framework will help NQF sort of put little boxes, if you will, within the manuscript to the white paper that highlights the framework in action.

Bill Marella: Yes, this is Bill Marella. I mean, I would second that. And I just put this question to Andrew, if – I know we met in person last time, you know, we did a lot of brainstorming around candidate measures for, you know, I think we had classified them by the framework that Hardeep had lay out.

The report that comes out of our committee, do you envision at this point that it will contain candidate measures or would you just put examples in, or how – I guess my question is how far do you envision the report going in terms of putting out specific measures for specific aspects of health I.T. safety.

Andrew Lyzenga: Right, and I think there are some flexibility there. We – I think we will at least list out the measure concept, a somewhat refined list, you know, removing some duplicates that we had in the report.

But in terms of (inaudible) recommendation around in terms of sort of future development, further development around some of these concepts or just prioritization of measures or measurement areas, it could be, you know, we could make project recommendations around, you know, specific measures that we think ought to be further developed, we could recommend that there are some sort of broader areas or themes that we'd like – would like to see further development within.

Or just, you know, even (gooning) up to sort of one of the levels of our framework here that broadly that we'd really like to see measurement focus in this area, that's something I think we'll discuss a lot more at our in-person meeting in September. And we will have some sort of more structured exercises to do that prioritization.

But I think that's something worth talking about on this call as well if anybody on the committee has any thoughts about whether we should make recommendations around specific measures or sort of keep them – the recommendations limited to sort of some slightly broader themes, you know, we would welcome any input you have at this time. But, again, we'll talk through that a lot more at our in-person meeting in September.

Hardeep, I don't know if you have any thoughts of that as – about that as a co-chair or what sort of ...

Hardeep Singh: Yes, you know, I think we're going to have to give some specific examples. And, you know, we could definitely come up with in each of the, you know, categories, some sort of broad example just to get people a little bit more, you know, a little bit more detail oriented. We need to sort of push details, because I think we've been talking a lot in this field on the high level. And when you get down to doing stuff and operationalizing stuff and it's sort of harder, so it would be good to give maybe at least in some broader areas specific examples.

I don't know if we're going to need to do this only for endorsed measures, but we could suggest, for instance, if measures have been used in certain studies, you know, as – or have been proposed in previous work. We could give them as examples.

Jason Jones: Have we – sorry, go ahead.

David Classen: Hardeep, it's David Classen. I think it's really important to give specific examples.

Hardeep Singh: Yes.

David Classen: Not just a (little rollout), but giving specific examples. And then maybe even creating criteria in general categories might be helpful as well.

Hardeep Singh: Yes. David, is there anything from the stuff that you've been doing at, you know, some of the trigger work you've been doing that you think might actually, you know, fit into one of those categories or could be used just an example?

David Classen: Absolutely, absolutely. So, we created a library of over about 130 different triggers that we've tested electronically. So, I'd be glad to share examples from that work because I think it's been very helpful in uncovering things people didn't know about.

Hardeep Singh: Yes, good. So, David, when we chat some more, I think it'll help if you think – so, you know, looking at those three big categories, safe I.T., you know, see which one might fit, you know, give us some thoughts on what three or four might fit in the first and what few might fit in the second and like that.

David Classen: But we might even think in the major categories what might be good criteria as well.

Hardeep Singh: Yes. And expand on that, criteria in terms of ...

David Classen: Like, if you were going to develop measures in this category, what would be useful criteria to help identify and select those measures?

Hardeep Singh: Got it. And I think NQF has some sort of foundational things, frameworks that they have used. I think, you know, Andrew and Jesse, maybe you can touch upon that, you know, important useable (trend spin), all of those things.

Andrew Lyzenga: We do. We've got some criteria that we use in the evaluation of individual measures for endorsement.

To some extent, some of those are maybe not quite appropriate in terms of prioritization of measure concepts or areas for future development. They're kind of more for use in a, you know, evaluating already fully developed and specified measure.

But, I think some of it will certainly be applicable, some sort of ideas around feasibility of a measure concept. It's important, you know, whether it has an evidence base supporting it, we probably won't be able to get into some of these things around scientific acceptability like the reliability and validity of a measure because you really have to have sort of fully flashed out specifications and testing as a measure at that point to make any kind of assessment of those issues. But, certainly we'll be drawing from some of our criteria for measure evaluation.

And then, we have some ideas that came up in our last meeting as well, and actually got a bit of feedback from our CSAC recently, our Consensus Standards Approval Committee at NQF on some potential criteria for prioritizing measures.

One that just jumps into my mind right now that they were interested in was to the extent to which a measure or a measure concept can be linked to patient outcomes and specifically, you know, severe or important patient outcomes like mortality or severe injury, and that kind of thing.

So, those are some of the things we'll be thinking about, and we'll try to get some feedback from you in advance for the September meeting as well on that.

I just wanted to ask our operator if she could open Hank Mayers' line. We've got a comment from him on the public line.

Operator: Hank, your line is open.

Hank Mayers: Thank you. I'm with ReliaTech Consulting in (Western) Michigan.

Well, it's not something that I think would be typically measurable, I think, in terms of the concepts we use. I still find myself thinking about in terms of HIT safety and so forth, frequently, the user interface and the lack of understanding of how people successfully navigate or use systems can contribute to problems. The typical one is somebody moving quickly through a pick list, and they picked the wrong thing and it's partly due to the fact that the window is too narrow.

There are a number of emerging kind of recognized goods and bads in user phase – user interface development that absolutely effect quality. And it also – some of those things are also getting significant hearing or complaint through the AMA and some other folks.

Now, the question, I guess, for us is, you know, I'm not sure how you get at dealing this traditionally in from the NQF point of view of looking at measures. But on the other hand, you all are a major voice in the realm of health care safety and quality. And, have you guys ever thought about trying to get an effort together to develop some best practices around user design or least convening a group to begin to talk about that because it's – there's a lot of heat and concern, but we really don't have anything that people can take as common sense kind of stuff and incorporate into EMR design in particular.

Hardeep Singh: So I can try to start answering that, I think this is an excellent point, and it might take me a while and then I build maybe and some others can join in.

So, couple of thoughts that come through my mind, I think you identified usability as one of the things that we should focus on and we're absolutely onboard. In fact, we do have sort of usability sort of, you know, (interwoven) between – within the frameworks, there are things that we could do.

I'm not sure whether you've seen a recent paper by the Terry Fairbanks's group from MedStar, you know, I'm just thinking, I'm just giving example of a

measure since you said, is there any way that we could even start measuring these things about usability.

Is that the paper, it was in JAMIA, and that's in June. It was very telling, they actually went to 11 vendors and did, you know, detail interviews. And they found – I would encourage you to look at the table one of that paper and it's – I think – the title, I can't remember but Rollin Fairbanks is one of the authors and it's in JAMIA.

And the usability stuff in each of these, you know, multi-million dollar companies didn't seem as real balance as the rest of the crowd.

And so I think one of the things we could do is to encourage a better presence of usability personnel within, you know, the institutions that are designing and developing these things and do a better testing, and there are ways to sort of think about better and noble, you know, ways to sort of test, not just in vitro, but also when, you know, the EMRs are, you know, implemented.

There are safer guides, we actually developed – I'm not sure whether you're familiar with ONC SAFER Guides, Hank, but I think if you haven't seen them, you should look at them. They have several examples of, you know, areas where usability could be improved upon. And we didn't call them best practices, they are recommended practices when we developed them and ONC actually, you know, has fully supported and released and disseminated and host the guides on their website for free.

There are several practices in there that are relevant for usability. But I think going back to my earlier few slides, I think usability is not just only about the user interface, it's more of a sociotechnical challenge. And even if you have a, you know, great looking, you know, user interface which I absolutely think we need to have, we're still going to have fix some of the other issues such as workflow and, you know, the many, many issues that keep sort of piling up.

Hank Mayers: Right.

Hardeep Singh: And, you know, again, I'm going to reemphasize a point about learning from what we are discovering. The issue is we are identifying issues, but right

now, we don't have a way of actually fixing those issues and making changes probably as rapidly as, you know, Jason was talking about.

We had a recent paper a few months ago where the graphing of diagnostic test results in, you know, several different EHRs was suboptimal.

And, you know, there are several ways we could actually change that. The – you know, some of the graphs were backwards and the spaces were not correct. So the several things we could actually do, but right now, there's no actual system even when people, researchers or other institutions start measuring these things, the important thing is putting that measurement into action is going to be the hard part, how do we make those changes that are needed in order to fix these issues.

Hank Mayers: Right.

Hardeep Singh: So that's sort of my sort of broad perspective, I'm sure others will have something to add.

Jesse Pines: This is Jesse Pines.

Just to address the question of whether doing a, you know, looking at best practices for usability would be within the scope of NQF or within the scope of – for this project.

I think that's definitely what we do want to hear about on this call, but NQF is really about measurement and, you know, develop – about making sure that we've got good quality metrics out there and that we're – and that those have been varied appropriately.

So, the degree to which it touches quality measurement, I think, would be sort of within the NQF scope. But, you know, certainly, Hank, you mentioned, I think, a very good point of really trying to understand human factors. A lot of the work that Terry is doing over at MedStar on human factors and understanding the human use, user interface, I think, is a very important area. And an area where there are some potential measures and I think in the measure concepts that we have, I think that some were mentioned that they

would – that would touch on that in terms of testing a system before it is live and making sure that there are no sort of systematic errors or sort of human computer interface measures but ...

Andrew Lyzenga: You know, whether there's been user input ...

Jesse Pines: Right.

Andrew Lyzenga: ...end-user input, you know, sort of early on in the process and that kind of thing as well.

Hank Mayers: All right. All right, thank you very much.

Andrew Lyzenga: Thank you, we appreciate it.

So, yes, again, back to the issue of criteria for, you know, our recommendations and for prioritizing measures and measure concepts and measurement areas, we've certainly opened it up for discussion from our committee and for many input from the public on how you think we ought to be considering these kinds of questions, what sorts of criteria maybe we should use in terms of prioritizing HIT's related safety measures.

So I would – maybe we can talk about that a little bit and see if there is any input from the public. And again, if you'd like to share with us more sort of privately, we would welcome any e-mails you have at safetyandhit@qualityforum, there's also a link there to the e-mail address in the webinar.

George Hripcsak: Can I – this is George from – George Hripcsak from Columbia New York-Presbyterian.

Can I just want to push a little bit more in how broad we can define metrics, I know that usability may be too far. And the reason I asked is because HIT safety improvement at, let's say, our organization, New York-Presbyterian, is largely not metric base, but uses a range of approaches. And I like the idea of using specific examples.

So something could pop up because you did root cause analysis on a never event, or could be near misses, near miss reporting, I guess, to it, or through user groups, or review of help desk logs, or looking at alert usage for the ones that are always rejected, or some institutions allow you to write comments in the alert (fee). When you get an alert, you can put a comment you need to review those messages.

And then you get to say generic metrics like Jason Adelman reported and then more specific metrics. So those, we clearly are in scope those last two, but is the process for reviewing help desk logs to look for HIT safety, is that within scope or out of scope?

Hardeep Singh: George, I think it is within scope. In fact, I can't remember but I think we put that in some kind of paper ones. I have to look back and see which paper we wrote that about, looking at the help desk logs, to look for trouble. I'll – we'll try to leave that in. I think that's important.

But even the fact that – I mean, the problem is many of the institutions don't either have the infrastructure to sort of do these investigations or they're not doing it or they're not thinking about it.

And so, I think the point you're trying to make is how do we leverage the learning from, let's say, the RCAs and the, you know, the FEMAs and the – maybe the complaints, the help desk logs and, you know, I.T. cost, how do we leverage that.

And Andrew, I don't remember if you've put that into the example yet, but I'll forward you a couple of things that we should think about in sort of leveraging the use of data. I like that framework that you just said. You know, the general, the specific and the other routine patient safety information that's collecting that.

Andrew Lyzenga: Yes. I like that as well, and I'll look back at some of our materials, but certainly, I think that's something we could try to weave in.

Eric Schneider: And Eric Schneider. Just to comment on that, of those sort of reflecting on the criteria, the criteria in that were suggested around patient outcomes are

trying to find things that are linked to patient outcomes. And I'm – was a little worried about that as a criterion and given that we're talking about safety, since the probability that someone could be harmed as a result of some process that has thousands of near misses is greater than something else we might measure that, you know, it happens once in 10,000 or a million users of a technology, then it might produce a patient outcome.

I guess the other way of thinking about is, if we wait for bad patient outcomes, we are potentially missing lots of metrics that could help us because we know there's a logical connection between the thousands of near misses and the eventual catastrophe.

So, I'm just thinking, we probably need a slightly different framework for thinking about this and might be usual in the NQF environment. And as much as I like the idea of tying our metrics to patient outcomes or morbidity or mortality events that affect patients, you know, we can also get there through careful engineering process, redesigned, you know, not necessarily observe the harm that we're just waiting to happen.

And the other comment is around the NQF framework, and related to George's very helpful, thoughtful contribution, I'm not an – you know, the usual accountability framework has the metrics serving as a motivator of the types of improvement or monitoring or intervention activities that George mentioned.

So, we put a metric out there so that hospital A and hospital B can compare themselves, and one of them is not doing well or they're not – neither of them is doing well against the benchmark.

And then, they say, "Well, what can we do to fix the problem?", and they probably should be doing root cause analysis or quality improvement activities. And Hardeep, remember, we actually – when I was at RAND, a series of case studies of organization is trying to improve health I.T. safety, and the tools really weren't there yet to – or at least the tools weren't in place in a way that the organizations could use them to tackle that problem.

So, it seems to me the metrics – we might think of metrics built around help desk logs, but reviewing the help desk logs might also be the process that we're – we would measure or we might want metrics that would encourage organizations to review their help desk logs.

So, it may be at our future meeting, we want to come up with a model for thinking about how this metrics would lead to downstream changes in the way hospitals ambulatory practices do their normal health I.T. related processes.

Hardeep Singh: And if I could just comment about the NQF criteria. So, under the first measure which is the important measurement report which looks at the evidence, so the – really the – what the ideal measure would be an outcome measure known that in HIT and patient safety that getting to outcome measures like, Eric, you mentioned are pretty rare and there are always issues with reporting.

The second level for structural and process measures, if those are – have been associated with some sort of outcome in observational studies, that also passes or that could potentially pass to the committee.

And then the third level would be the exception to the evidence criteria where, you know, like the help desk example, if the committee believes that this is so – that the justification is so overwhelming that this really should improve safety or that's important to measure that the committee can vote something through under the exception criteria.

So, you know, certainly, the NQF criteria are – do have some flexibility in terms of what will go through.

Andrew Lyzenga: Yes. And in terms of, you know, those again are really meant for evaluation of measures that are sort of more fully specified. But I think that's really useful feedback on what we sort of select as our prioritization criteria. And we, in fact, had some pushback at the CSAC meeting, even among some of the CSAC members that may be that was getting a little too far ahead of ourselves.

This is, you know, really a – still a nascent area here of HIT and patient safety and we kind of have to, you know, thinking, you know, within our framework here.

You know, start at, you know, sort of the foundational level of ensuring that we have sort of basic, you know, safety around our hardware and software systems that we're ensuring safe use of the systems and, you know, then sort of advancing into, you know, linking it to outcomes and improving patient safety.

So, that is definitely good feedback and for us to consider as we're sort of trying to shape the criteria that we're going to use to do our prioritization.

Male: And if I could just make one additional comment, so the Jason Adelman's measure which was, you know, putting in the wrong order on a patient and taking it back, that is an example of an outcome measure sort of a, you know, near miss that almost risk the patients. So, you know, that – I think that there are a number of concepts. You know, (inaudible) a couple (with it) in the committee and I want to discuss in this call that they could classify as the outcome measures.

Eric Schneider: This is Eric again. I wouldn't classify that as an outcome measure and it's a near miss, so it has to be a process measure. But what I think I – and I may not have been very articulate about this, I guess I'm thinking one of the criteria for measures in this instance may be around the likelihood that they would motivate organizations to make these changes or address the user interface problems, so the other problems that arise with the health I.T. system.

So, one could certainly imagine a measure, you know, measures of catastrophic outcomes are great in terms of motivational power, although if they're rare events, most organizations say, "Well, it's a rare event, it'll never happen here", or in – of course, it will happen eventually if enough time is allowed to elapse.

So, that's the sort of difficult tradeoff I think we're going to face and maybe this criteria. Maybe we could elaborate a bit on the criterion of what would likely to motivate end users to invest in safety programs.

Hardeep Singh: So, this is pretty – oh, yes, go ahead.

Andrew Lyzenga: Oh, I was just saying that's – yes, that's helpful and we'll definitely take that into (consideration). Go ahead.

Hardeep Singh: Yes. Eric, you know, you made me think and actually, I went back and found the paper.

We actually were, you know – we think that – thinking of the routine patient safety activities and some of the process measure that we could, you know, potentially apply. You know, the risk managers get a lot of data and a lot of these hospitals have risk managers, they routinely get data, they have the hands-on data. So we actually thought we could maybe use like a red flag-based approach for risk management for EHR (inaudible) safety issues.

And so I'll send – Andrew, I'll send you the paper that's – actually, I was looking back, it was written several years ago, but the several things that were just mentioned that could be potential red flag, for instance, for incorrect patient identification or red flag for a system, system interface error that might be useful for us to consider.

So, maybe something to think about for our next meeting as specific examples that, you know, we could, you know, use. So if a – there's a significant increases in the number of calls by clinician to the health I.T. help desk, this is one of the red flag meeting.

And regarding problems with order entry system, that could just be one sort of area that a risk manager needs to be – either they're getting the data or that – just a red flag that something might be wrong with your order entry and that's why you're getting so many calls.

So anyway, we're going to think about these things.

David Classen: And it's – Hardeep, it's David Classen. In terms of criteria for measures, there is a new IOM report called Vitals Signs Core Metrics for Health and

Healthcare Progress. It has a nice set of criteria for measure selection, (block 31) and I'll send it to you, Andrew.

Hardeep Singh: Yes ...

Andrew Lyzenga: OK ...

David Classen: So updated it to address a lot of the issues people were just talking about.

Andrew Lyzenga: OK.

David Classen: And I also wouldn't be so negative about outcome measures. We've now been able to automate measures of harm within HIT systems that can only be called outcome measures. They actually measure harm. And (David Bates) and I developed a measure of HIT safety that's correlated with the occurrence of harm, the EHR flight simulator that we (prog) uses.

So, there are some HIT safety measures that do correlate directly with patient harm outcomes.

Hardeep Singh: Yes, we should look (inaudible).

So I think it will be good to collect those lists from everybody, Andrew, getting down to specifics. I know you can organize them depending on, you know, where they fall.

Andrew Lyzenga: Yes, and we'll be – I think we'll be sending out some information via e-mail and soliciting some input via e-mail from our committee members on – and we will put together sort of preliminary list of prioritization criteria and see if we can get some feedback and kind of refine that as we approach the September meeting, so that we have something kind of in place that we can use during that meeting to really go through and create our recommendations and prioritize measures at that time.

So this is really helpful sort of food for thought in this discussion. This is definitely going to be helpful in shaping that ...

Hardeep Singh: Yes.

Andrew Lyzenga: ...so – yes.

Hardeep Singh: I'm going to ask Eric. Eric, in the RAND project, did any of the people sort of we've talked to, did they give any specific examples that might be useful? I know you probably sent the report to everybody before, but anything that you could sort of think about that could be potentially useful to use?

Eric Schneider: Yes, you know, it's interesting because I went back, I was actually paging through because I couldn't remember any, and the reality was that there were almost no – I mean, that was really the challenge with that organizations had a lot of difficulty coming out, you know, using the diagnostic instrument that we created to help them conceptualize the problem and then, the metrics part was sort of a gap area, which is why I guess we're on this committee, so.

Hardeep Singh: Yes.

Male: Yes, this is (inaudible). I think a lot of the hospitals on that project and as well as, you know, others that we talked to, many of them are not even at the level of being able to monitor their alert (who immigrates). I mean, that's kind of low-hanging fruit elevated to people who are on this call. But, you know, a lot of hospitals aren't even at that point yet and they're just turning the alerts off because it's such a mess for them.

Eric Schneider: Yes, and this is Eric again. You know, one of the reasons I asked – part of the point I made was about, you know, the experience of this report showed me that, you know, I agree that there are going to be measures harm. I think, David and – (David Bates) and Classen's work have pointed the way there.

What's striking to me though is that it was the same issue that most systems, most organizations just aren't even at the level able to implement some of what we're talking about. But – so a criteria in that would really address that readiness of the organizations to tackle the problem might be important.

It's been very helpful discussion. Thank you.

Andrew Lyzenga: Yes, it's been very helpful for us as well.

Male: Yes.

Andrew Lyzenga: And again, we'll be following up with you for some more – with this more detailed information proposed list of criteria possibly sort of a longer list that we can maybe – that we can add to and cut down a little bit and refine for use at our meeting.

Are there any other comments from the public or participants on the call, just a reminder, to press star one if you have any thoughts you'd like to share. And we'll – we'd still welcome any comments from the committee and members as well. If we don't have any, we'll maybe let you go and give you back some time this afternoon.

All right, well, so hearing no further comments, I think we'll go ahead and let you go.

As we've mentioned a couple of times already, we will have another in-person meeting in September that will be on September 16th and 17th, it'll be here in Washington, D.C. So, you ought to have that on your calendars, but we look forward to seeing you then and we'll certainly be in touch before then with the – to try to get some input from you on how we'd be preparing for that meeting and the prioritization exercise.

So, please reach out to us if you have any questions or comments or thoughts in the wake of this call.

Again, for any members of the public or participants on this call, if you have any thoughts you'd like to share with us that you think would be useful input to this group to the committee, if you have any experiences with HIT safety in your institution or thoughts on measurement of HIT safety, we would really love to hear them.

You can e-mail those to us at safetyandhit, one word, @qualityforum.org. You can also e-mail me at alyzenga@qualityforum.org, I'd be happy to get any thoughts from you as well.

And with that, I think we'll go ahead and end the call.

Thanks again for all of our committee members for taking the time to join us and to all members of the public who've listened in here. We appreciate your time. And to our committee, we look forward to seeing you in September.

Hardeep Singh: All right, thank you.

Male: (Inaudible) everyone.

Male: Thank you.

Male: Thank you.

Female: Bye-bye.

END