Improving Diagnostic Quality and Safety/Reducing Diagnostic Error: Measurement Considerations Committee Web Meeting 4

Moderator: Meredith
Gerland January 29, 2020
2:00 PM ET

(Meredith Gerland): Good afternoon everyone. My name is (Meredith Gerland) and I'd like to welcome you all today to our fourth Committee Web meeting for improving diagnostic quality and safety, reducing diagnostic error measurement considerations. I'd like to first take this opportunity to introduce myself to the Committee. I'm a director at National Quality Forum and I've been with the organization for about three years. I've worked on a number of patient safety initiatives and implementation focus initiatives at NQF and I'm thrilled to be joining this project. I've had the pleasure of working closely with (David Newman-Toker) and the NQF team over the last several weeks and I'm looking forward to the robust discussion ahead of us today.

Before we begin, I'd like to review a few housekeeping items with the group. The call is being recorded and we'll post the recording on the Committee SharePoint page after today's Web meeting. All of your lines are open so please do mute your lines when you're not speaking and please refrain from placing the call on hold. We know many of you are following along with the slides on the Web platform, so if you are on the Web platform and have also

dialed in through your phone line, please do mute your computer speakers as well. If you have any questions or issues at all, feel free to use the chat feature on the Web platform to communicate with our NQF team and we'll be able to assist you accordingly.

I'd like to briefly review the agenda for today's Web meeting. We'll first begin with reviewing the objectives and doing brief Committee and staff introductions. As you can see, we have a packed agenda with a lot of content to get through today. We'll first review and discuss Use Cases 1 and 2, building on the conversation the Committee had in the December Web meeting. We'll focus this discussion today on identifying actionable solutions to help overcome the diagnostic errors identified in each use case as well as identifying measurement considerations.

After discussing both Use Cases 1 and 2, we'll identify crosscutting recommendations for measurement to reduce diagnostic error, improve patient safety and apply the diagnostic process and outcomes domain of the measurement framework. This discussion will be fairly brief as we'll focus more on this during our seventh Web meeting in late June.

We'll then continue the discussion today to identify Use Cases 3 and 4 from three possible options that were included in the slides and your discussion guide that you received ahead of this meeting. Lastly, of course we'll have an opportunity for public comment before the NQF team describes the net steps for the project.

On the slide ahead of you, you'll see our recent staffing changes to reflect the NQF Project Team for this project. As I mentioned, my name is (Meredith Gerland) and I'm the director on this project.

(Carolee Lantigua): My name is (Carolee Lantigua) and I'm the project analyst.

(Meredith Gerland): We also have (Deidra Smith), senior project manager supporting this project as well as (Jesse Pines), the consultant supporting this project. I'm going to turn it over to (Carolee) to perform the Committee roll call.

(Carolee): Thank you, (Meredith). So we know (David Andrews) is not able to join us today, so we'll start with (David Newman-Toker).

(David Newman-Toker): Present. Did you hear me?

(Carolee): (Flavio Casoy)? Yes.

(David Newman-Toker): Sorry.

(Flavio Casoy): I'm here.

(Carolee): (Unintelligible) (Karen

Cosby)? (Karen Cosby): I'm here.

(Carolee): (Sonali

Desai)? (Sonali Desai): I'm

here.

(Carolee): (Jane Dickerson)?

(Jane Dickerson): Here.

(Carolee): (Andreea Dohatcu)?

(Andreea Dohatcu): Here, hello.

(Carolee): We can hear you. (Mark Graber)? (Helen Haskell)?

(Helen Haskell): Here. Can you hear me?

(Carolee): We can hear you. Thank you for joining. (Cindy Hou)?

(Cindy Hou): Here.

(Carolee): (John James)?

(John James): Present.

(Carolee): (Joseph

Kunish)? (Joseph Kunish): Here.

(Carolee): (Prashant Mahajan)? (Kathy McDonald)? (Lavinia

Middleton)? (Lavinia Middleton): Present.

(Carolee): (Craig Norquist)? (Shyam Prabhakaran)? (Ricardo Quinonez)? (Roberta Reed)? (Hardeep Singh)?

(Hardeep Singh): I'm here.

(Carolee): (Colleen Skau)?

(Colleen Skau): Here.

(Carolee): (Michael Woodruff)? (Ronald Wyatt)? Okay. Did anyone just join while I was calling roll call?

(Kathy McDonald): (Kathy McDonald).

(Carolee): Okay, (Kathy). And so we also wanted to check if our federal liaisons are on the call today. (Andrea Benin)?

(Andrea Benin): Yes, here.

(Carolee): Welcome. (David Hunt)?

(David Hunt): Yes, I'm here.

(Carolee): And (Marsha

Smith)? (Marsha Smith): Yes, I'm

here.

(Carolee): Wonderful. Thank you for joining, everyone. I'll now turn it over to (Meredith).

(Meredith Gerland): Great. Thank you so much, (Carolee). So I know it's been a while since the Committee last convened, which was in December, so as a reminder, we'd like to reiterate the purpose of the use cases that we'll be discussing today. The use cases will really be used to describe specific diagnostic errors and identify causal factors and diagnostic challenges that may contribute to the error. The use cases will share solutions to overcome the error. These use cases should apply to various systems, settings, stakeholders in a population.

As you'll see in the discussion questions that were included in the agenda and discussion guide, we'll have a robust discussion today to help identify actionable solutions that apply to various stakeholder groups. Use cases will also identify measurement approaches and concepts to asses the degree to which the identified solutions are being implemented and are facilitating a reduction in errors.

The solutions within the use cases will be both global and granular. To help identify the more granular solutions, we'll discuss a series of possible case exemplars that illustrate the error in practice. These exemplars build on the discussion the Committee had in December. I'm going to now turn it over to (Jesse Pines) to share an overview of the first two use cases before we dive into the discussion of Use Case 1.

(Jesse Pines): Thank you, (Meredith). So since the last call, what we've done is to really try to flesh out some of the use cases and to, at least with the committee as well as the co-chairs, to come up with some proposed language about how to frame these particular use cases. so we're going to discuss the two use cases in depth today, specifically talking to their (unintelligible) subtleties and you know, this is either primarily in the cases where there is a subtle clinical presentation of a dangerous condition where the disease signal is too low and basically what that means is that there is, you know, someone comes in to the emergency department or another setting and they may have common symptoms of another condition, like, you know, fever or vertigo that common represent a more benign condition but something gets missed because the clinical finding that would have helped make that diagnosis are relatively subtle. So that's our thinking with Use Case 1.

Use Case 2 is going to focus more on a system error, specifically a communication failure, failure to close the loop, you know, and we're going

to be focusing on conditions that sort of travel across multiple settings where either transitions in care regarding a particular test result were not handed off properly or it was unclear who was responsible so those are going to be our first two use cases that I'm going to go into a little detail on those.

So again, the first is going to be this missed subtleties use case. Now, important on the last call, we had discussed it, that we didn't want to make this too specific to an emergency department, however there, you know, these sorts of conditions do commonly present to emergency departments and you know, so these subtle cases again can present to clinics, emergency departments, (unintelligible) potential specialty clinics so let me jump into some of the (unintelligible) here.

So Daniel Kahneman is a Nobel Prize winner, he sort of describes two different ways of thinking, it's called System 1 and System 2. System 1 is the thinking where you have intuitive thinking where, you know, you sort of look at the whole picture and you may see, okay, well this is clearly benign vertigo and you may make a cognitive error using (unintelligible) where you're using some rule of thumb to say, okay, this whole picture appears to be something, you know, something relatively simple and you may not get the details and you may fall into a number of different biases

System 2 is where you really sort of think through a case and all the various details so when it comes to these missed subtleties, there are cognitive biases that can come into play, there are many in clinical medicine, things like confirmation bias and others but so certainly when it comes to these sorts of missed subtleties, confirmation and other cognitive biases can cause – also limited expertise so, you know, particularly when conditions may be a little bit rarer, there may not be a deep knowledge by the provider about either how to do a particular type of assessment or the clinician may just not think of a very

rare condition. So these failures of expertise can occur when these clinical cases are due to uncommon causes and again or again when these symptoms are subtle so sort of this combination of subtle symptoms in the context of a common presentation or a very rare syndrome, again and that with subtle symptoms that may get missed.

So next I'm going to talk through some of the specific use case – some of the specific clinical exemplars that we came up with and I do want to, what I'm going to do is run through these three and just do short case presentations here. These are fictional, these were made up by our team. These are really meant to serve as examples of how this could happen in real life clinical practice and but again, these are certainly not finalized and if you have additional feedback about how to (unintelligible) these better, you'll have the opportunity to do that.

So the first one is a 55 year old male, history of hypertension, presents to the emergency department with vertigo and vomiting for three hours. On exam, the patient has some left (unintelligible), changes to slight right (unintelligible) when looking right, which does not go detected so these and some difficulty walking but he's able to ambulate, so here, subtle neurological signs, otherwise, (unintelligible) neurologic exam. The (unintelligible) HINTS exam is performed, HINTS is the Head Impulse, Nystagmus and Test of Skew test which is – can be used to detect more subtle signs of – symptoms of vertigo that may represent a more central cause.

So this guy gets a (unintelligible) head CT, family is voicing concern that he is still having trouble with his balance, ends up with a diagnosis of peripheral vertigo, a diagnosis of labyrinthitis, discharged on (unintelligible) to follow up in a couple days and then ultimately returns with much more severe stroke symptoms and a (progressive brain stem) stroke (unintelligible) and then the

original team is never informed, which is important in errors to make sure that errors can get fed back.

Next case. (Unintelligible) female, history of COPD, fever of 101, myalgia, shortness of breath, flu-like illness during viral season. Busy emergency department, many patients with similar symptoms and viral syndrome. EKG shows sinus tachycardia, so fast heart rate but otherwise has normal X-ray, lab tests (unintelligible) blood, urine (unintelligible). The patient (improves) in the emergency department then and is discharged with viral syndrome, COPD flare but later dies at home of sepsis.

Case three is an 80 year old female, living independently, history of hypertension, mild osteoarthritis in the knees, presents to an outpatient primary care clinic with (a week of) bi-frontal headache, is assessed by a primary care physician who assesses the patient, the symptoms are worse when the patient puts her head between her legs. The thinking there is that this might be sinusitis, prescribes some antibiotics, no lab tests are done, patient comes back a few more times with persistent symptoms. Third visit, (unintelligible) brain tumor, which is negative and then within one week of the CT, patient goes blind in both eyes from untreated (unintelligible).

So these were the three cases that we came up with and why don't we and I'll briefly stop and get some feedback on any of the details (unintelligible) the committee if you have it, you know, send me feedback afterwards but (unintelligible).

(Cindy Hou): Hi, this is (Cindy Hou), I had a question about, I guess it was the second example, with the sepsis and the missed subtlety. I guess what you're trying to get at, that the patient, they came back to me, like I'm not sure if I would have

gotten the subtleties here. Are you just thinking of fever, tachycardia sort of criteria and maintain in the hospital or?

(Jesse Pines): Yes, so in this case, you know, we could also say that maybe the patient had an elevated (unintelligible) maybe no (lactate) was done, you know, the patient had – didn't have any blood cultures (unintelligible). I agree – we can (also) find some more subtlety, maybe a little bit of a –

(Cindy Hou): Yes, you could, you could maybe say something like, I don't know if you want to be specific but one subtlety is if you have a CBC with differential and there's bandemia, most computer systems, you have to scroll down the page and there's like a 10% bandemia, so if somebody has just missed the tachycardia maybe they would have missed the subtlety of the bandemia, so?

(Jesse Pines): Yes, I think they're – yes – bandemia, ECG. Go ahead.

(Karen Cosby): This is (Karen Cosby), in looking at this case, I wondered the same thing as (Cindy) and one of the problems I often find in short clinical critiques like this is that sometimes you reproduce the very error that we think we're demonstrating because we just have the snap judgement that, well, it's sepsis but there's no criteria here that you could get there and so at some point, you have to offer something that would clue someone in. So another possibility might be a persistent tachycardia that doesn't respond to fluids or some indicators (unintelligible) illness that would reasonably prompt someone to take further action.

(Jesse Pines): Okay. I think that's a good point. So what we can have a little, one more bit of data up front, similar to the other cases where the one red flag, subtle, that was missed (unintelligible), that's a great point.

Thoughts on the other cases? And we can certainly, again, we can go back to – we can certainly go back to the cases and add more detail, particularly as we think about some of the causal factors, if there are additional causal factors to add in, we can add a little bit more color to the cases.

(Karen Cosby): One of the – this (Karen Cosby) again – one of the thoughts I had as I reviewed these cases is that I feel that the abbreviated version almost recreates the same flaw and although I know you don't want to have very detailed cases, to a certain extent, what I think the granularity might or at least a point of improvement would be simply critical thinking where pertinent positives and negatives are explored or not explored and that that's actually the problem, it's a matter of testing hypotheses and either by question or by exam, revealing the pertinent things and the failure to do that sort of misleads everyone and sort of reproduces, I think, the same flaw that we're trying to address.

(David): (Karen), this is – excuse me – this is (David). Can you just flesh that argument out just a little bit more, because I didn't 100% follow. Are you suggesting that we do pertinent, that we make the cases more fulsome in terms of their details and then point to what wasn't – like what was on the exam but wasn't looked for or are you suggesting that we have a part about critical, you know, how the – what the thought process was versus should be?

(Karen Cosby): Right.

(David): If you could still talk about the details there?

(Karen Cosby): Well, I mean obviously, the details differ from the cases. I think this case, this point particularly deals, (unintelligible) example, 1 and 3 and I don't know that you want to change the cases that much per se but I do think, under global

solution, a comment about critical thinking, actively seeking out (unintelligible) and (unintelligible) (history) were used (unintelligible) an exam because it is in such cases, there were things that could have been explored but aren't articulated, you don't know if they weren't or you were just leaving them out.

(Jesse Pines): Got it, so almost like you would expect to see or hear in a CPC conference, you know, the clinical pathology conferences were an expert will go up and go through his or her thinking.

(Karen Cosby): Well, I think so. I think just at least articulating the need, that you know, the cases are as succinct in people's minds and that that may, in real life, and that is part of the problem. The reality is there's much more going on in the head of the clinician than we ever document and sometimes that happens and sometimes it doesn't but I think we need to at least advocate for that on-going process in the mind and that that's a very important part of a global solution.

(Jesse Pines): So, got it.

(David): I like that. So basically add maybe two or three sentences about the thinking of the clinician and what is, you know, what the medical decision (making) was and then why that was wrong.

(Karen Cosby): Yes. I mean you're not going to be able to do that in each of the cases but I think, as a global solution, to advocate for a thoughtful, critical reasoning that assesses the common things in the most emergent and explores pertinent positives and negatives, in history and review (of) systems and exam.

(Jesse Pines): Got it. Yes, so you really want us – you're a little bit ahead of us, (Karen), I think…

(Karen Cosby): I'm sorry.

(Jesse Pines): …but you want us to make sure that that gets included in the solutions part more than in the case exegesis per se. Is that (unintelligible) correctly?

(Karen Cosby): Yes, well, yes, although I do fear, like I say, the fact that the exercise, in being so very succinct in the presentations…

(Jesse Pines): Yes.

(Karen Cosby): …does sort of reproduce the very bad behavior we're trying to avoid.

(Jesse Pines): Okay, we'll do both.

(Karen Cosby): So to the extent that you could simply add very simple, that certain things were explored or not explored, like these questions were asked, these that would have been helpful weren't asked or they were asked kind of thing. Just, I don't mean to recreate the whole thing, but a little bit of focus on that so that people see that you're not just being bad, reproducing the same bad stuff that we are trying to avoid.

(Jesse Pines): Got it. That makes sense, super. Thanks. Okay. Any other comments on the cases so if we do have (unintelligible) and start talking through some of the next slides here, some of the challenges and solutions and maybe we can also refer back to the case in there. Any other questions before I'm going to hand it over to (unintelligible)?

(Sonali Desai): This is (Sonali Desai), just had a quick comment in Case 3, with the (unintelligible). I think for that particular (unintelligible), the main issue is

thinking of that on your differential diagnosis because that will then lead to the next steps, which would either be the labs or an expedited referral to rheumatology, ophthalmology and so I don't know if there's a way to throw in something about labs or you know, something about, in the global solutions, about an expedited referral process but short of that, I think it's a little it challenging because if the diagnosis wasn't thought of to begin with, then you're not going to go down the pathway to get to the solution, as opposed to first two cases.

(Hardeep Singh): Yes, this is (Hardeep), I agree with (Sonali) and a little bit, you know, I'm getting what (Karen) is trying to say as well. I think the cases have to be a little bit more explicit, that people won't start sort of questioning the sort of the facts of the case itself to figure out, well, you know, I would have done it pretty much similar to (unintelligible) of the case. I mean, if there's no (unintelligible), if there's no (unintelligible), if there's no other sort of "subtlety", it's hard to sort of justify, you know, why something different should have been done. I mean, we have to sort of illustrate what the missed opportunity was, in some of these cases.

(Jesse Pines): Okay, just being more explicit (unintelligible).

(Hardeep Singh): (Sonali), I think that's what you were trying to get to? I don't want to sort of put words in your mouth. You were thinking something like a sed rate of greater than 100 or something (unintelligible) something to that effect should be making you think that way?

(Sonali Desai): Yes, yes, exactly.

(David): So this is (David). I just want to respond a little bit about the Use Case 3, which is a real case that happened exactly that way and I think Sonali's point

is well taken, which is that what you have to have done there is to have thought of the problem. I sort of suggested we put that case in there because it was a case that could be solved for instance by a diagnostic reminder system or a checklist in your pocket or something else for a patient or even an HER-based simple rule that says, if a patient over the age of 50 has a new complaint of headache, have you considered giant cell arteritis, would you like a sed rate or for that matter, automatically orders the sed rate for you.

So I think this is a different class of solutions than the kind of solutions that might be required for some of the other cases and we were trying to capture that sort of broader palette of things as well as to make sure that we had something in primary care.

I think our (unintelligible) point is subtler, which is should we make it more obvious that the person made a mistake, like if there is a sed rate of 100, then and somebody didn't see it, everyone is just going to say, "Oh, well, I would never have missed that." And what happened in this real case was that the person drew an erroneous inference about this pressure phenomenon, I literally talked to the primary care provider and this was the logic on which she based her decision to treat this as sinusitis.

She was using a piece of misinformation and not relying on kind of – if somebody had said to her have you thought about giant cell arteritis on the first day, she might have thought oh, I should get a sed rate but it was the fact that she didn't pick up on the fact this was a new headache in an older patient who'd never had headaches before that was kind of the principle problem. The patient didn't have (jaw)(unintelligible), the patient had no neurological symptoms at that time, until four weeks later when she went blind in both eyes.

Anyway, other questions?

(Hardeep Singh): I actually don't think most primary docs are going to order a, you know, start working up giant cell arteritis when an 80 year old person walks through the door with a headache. I mean, with a (unintelligible). I mean, there should e something else that could lead you to think – so every 80 year old who has a new onset headache – I'm not sure all primary docs would agree that they should get a…

(Karen Cosby): Well, I think it's the fact that the patient came back two times in a short time period and I think that that would be the cue that I would use to think, we're going to create an alert, when you have a patient who presents with a common symptom who is multiple frequency, you know, to back to primary care and we still haven't relieved the symptoms or come up with the etiology, then that's where an alert or something that would trigger you to consider these alternative, less common diagnoses, is what I was thinking, but –

Man: So we'll…

Woman: (Unintelligible) that's a thread in several of these cases, I can't see them all right now, but the family concern and the patient concern that they're saying, we haven't addressed this.

Man: So that's a really good point about the repeated visits and I will add and we can put this actually into the case, because this will partially solve the problem that was raised before which is at the second visit, she started complaining that she felt sort of achy and then this was attributed to a viral syndrome or maybe part of the sinusitis picture. It was sort of – the whole thing was kind of blown off and started off on the wrong track but we'll add some additional

details to make that point clear and also explicate the logic, as (Karen) suggested earlier.

Anything else before we move on to sort of talking about the challenges and solutions for the cases? All right, so in this section, I'll just take a moment to talk a little bit about this use of low signal and high signal before we get started because I'm going to – we thought hard, went back and forth about how to present these cases and how to think about them and how the different, you know, across multiple different use cases, how we would think about these kinds of cognitive errors and what the challenges were and how they related to solutions and I don't know whether we succeeded in getting it exactly right but the notion here is that we tend to miss stuff when there is a signal to noise problem.

That is, there's either very little signal but there's also a little it more noise than there should be, some sort of distractor or the signal is so low that people are not seeing the disease at all. And then when we get to some of these other use cases that are more like ICU-type cases, where people are really sick and there's a ton of signal and people are sort of overwhelmed by how much signal there is that essentially, the signal side but the noise is also and that's where we sort of run into some problems. We don't run into problems when there's a huge signal of the disease and no noise, like if a patient who is 55 with diabetes, hypertension walks through the door with crushing substernal chest pain radiating down the left arm, it's all signal, there's no distractors, there's no noise and we diagnose MI, it sort of goes straight down the pike.

So you'll hear this sort of low signal, high signal, what happened to the signal kind of stuff cropping up and you can let us know whether you think it's helpful to the thought process or not but for this particular use case, we divided the solutions, again, not for any one of the three specific examples but

sort of in general across this use case of missed subtleties or uncommon presentations or whatever it is, that there were sort of three basic constructs there, one of which was that the subtle or non-classical presentations, there was a gap in expertise and so the low signal was overlooked or missed and in the second set of challenges, there was this sort of red herring problem, like in the second case with the COPD and the sepsis and cognitive distractors that whatever signal was there was overshadowed and in the third case, that there was sort of a common complacency or clinical overconfidence where the low signal was ignored.

And although these three do correspond to the three individual case scenarios, the notion is that sort of these are sort of broader constructs that would theoretically apply across any of the challenges, any of the types of cases that fell into this use case construct. So starting with the first of those, if the problem is that there is a lack of expertise, then there are basically a couple of different ways to solve that problem, right? You can make clinicians more expert by education, whether that's simulation or otherwise, feedback, any of those things will tend to enhance people's expertise over time. Of course, everyone has pointed out that one of the big problems in our health care system is that feedback is so lacking on diagnostic accuracy that we actually learn the wrong information, we think we are better than we are, we get this sort of (unintelligible) like bad breath problem, you know about everybody else's but not your own.

The second is, increased access to other people with specialized expertise that may or may not be physicians. We've shown, for instance, that you know, there's a place where I work where the physical therapist, (unintelligible) who is the most expert person with respect to diagnosing dizzy patients at her institution so there's a teamwork component here, conceptually, that's not just a question of referring to specialists or otherwise and then there's some sort of

notion of having other tools that substitute for human expertise around – along the lines of AI or other decision support based enhanced diagnosis.

And then appended to that are sort of a series of potentially more granular solutions listed on the right hand side of the slide. So rather than read all those to you out loud, why don't we take a little bit of feedback and just, can I ask, (Meredith), how much time do we have, roughly, for this segment on the agenda? Just so I know kind of when to move us along?

(Meredith Gerland): So I think we're running a little bit tight on Use Case 1. We can probably go for about ten or fifteen more minutes for the full discussion and the measurement piece before we need to move to discussion (unintelligible).

Man: Okay, all right, so we'll keep this part to five, five-ish minutes, if we can.

(Karen Cosby): I would like to add one point, this is (Karen). One of my concerns in looking at the solutions that I think they are very well done except I'm not sure they're practical for a lot of settings. I would try to make sure, among the range of things that you suggest, that you include things that can be done outside of academic centers. So for example, (unintelligible) consult some specialized expertise makes sense in academia but you might include maybe telemedicine or other options for people who don't have ready access. So just, I don't – I mean, other ways to do this but I would revisit it and think about the different sorts of settings that would be trying to learn from this.

Man: Okay, (Karen), just specifically on the telemedicine issue, it is there on the page, do you want some place other than where it is?

(Karen Cosby): Oh. Well, actually, I didn't see it but is it in the more granular solutions?

Man: Yes.

(Karen Cosby): No, well, then I apologize for that. I think didn't come through on the original version I'm looking at, I printed out, probably a week or so ago and it looks like it's been changed on my computer so it looks like that was changed but the point I make is somewhat the same, it's trying to make sure that not all (unintelligible) highly resourced areas.

Man: Sure, solutions apply, not just academia. Got it.

(Karen Cosby): Because it does feel that some of these are reaching and that's visionary and that's wonderful but some of them have to be practical for people with less resource.

Man: Yes.

(Flavio Casoy): This is (Flavio). I have kind of a similar (unintelligible) systematic feedback on patient outcome. It's not clear to me how that can be operationalized when, you know, when patients go between different systems, you know, do you leverage claims data so that you get sort of a track between systems or you know, how do you do this? You know, like I live in New York City and people do not go to the same hospital or to the same system and even within the same system, people use different electronic medical records and there's no interoperability and it's not up to the individual physician or even the individual service or individual hospital to sort of make changes. These are all much higher level systems changes.

Man: So it's a great point, (Flavio). In Maryland, we have the good fortune that we have CRISP which is a regional information exchange that tells us when a patient of ours goes to some other hospital and that gives us a leg up. I think

the reality that what you and (Karen) just brought up is that not every hospital will be able to implement every potential solution because as a practical matter, the system is broken and it doesn't have the things in it that it needs.

I'm not sure that we should shy away from suggesting solutions that might work, even if they would require massive systemic changes to the way we think, right? It is, to me, an embarrassment that the entire health care industry which is a whatever trillion dollar business, multi-trillion dollar business is – does not actually systematically track its performance in diagnosis by figuring out what happens to people after they leave our hands. I mean, that to me is, it's actually embarrassing and unconscionable at some level so yes, you're right, we can't ask to put that on clinicians to say, well, you've got to figure out how to make it work, but at the same time, I don't think we should shy away from saying that that would be a system-level solution that would help the matter.

Let's, just in the interest of time, let's move to the next slide so that we get through these and let's see if there are other ideas that sort of come up in the same construct. So in this second challenge, the notion here is that the problem is that the low signal is being overshadowed by something else, these might be situations where you would use cognitive forcing strategies or encouraging external input, (curbside) second opinions or real time access to decision support or other repositories or reducing cognitive loading through live or digital workflow enhancements where basically you're trying to cut down on the noise or increase the chances that the subtle signal is picked up amidst these red herrings and then there's sort of a list of granular solutions on the right. Comments or thoughts on these?

(Karen Cosby): One idea comes to mind, this is (Karen) again, in terms of global solutions is I could – I'm trying to imagine a way to catch this case and the only way I can

think of is that maybe another team member or family member would recognize some severity of illness and maybe employing, I mean, if you run into the case, theoretically, people could retrospectively acknowledge that they thought they looked ill, a nurse or a family member and that maybe the action would be to acknowledge a team approach and an engagement of more than just one provider because I think we read these cases as an individual provider, thinking what would I do differently, and there's nothing in this case that helps you get there unless someone else jumps in and adds a comment or a judgement.

Man: Great suggestion. Others?

(Flavio Casoy): This (Flavio) again. For the electronic health record-based sort of an interventions, I think these have to be well designed and with significant input from physicians, otherwise I think there's a real risk of sort of like a helper burnout where 56 things come up on your screen and it's hard to take it all in and you know and then you just (unintelligible) without really reading it carefully. So I think that there's a design element that's very important to consider, not just adding more and more forms, more things (unintelligible) and so forth.

Man: Absolutely. Let's move to the third one and we'll see if we get any more thoughts or comments. So this third sort of set of challenges are the kind of getting stuck in the common (unintelligible) complacency or clinical overconfidence where whatever that low signal was, it kind of got ignored and in these situations, of course, to some extent, at that point you have to and as (Hardeep) has pointed out in some of the support they have done, showing this issue of overconfidence and how it sort of plays into the process with case vignettes et cetera, is you have to impose an external solution because if

somebody is not seeking the diagnosis and thinking about the problem, there has to be some other way.

This is where, (Karen), we had placed the sort of empowering patients and nurses and allied health professionals to be part of the team but we can certainly put it also in the other spot, if you like, conceptually. So here we had creating an environment and a culture, essentially focused on shared ownership for getting the right diagnosis and speaking up and externally driven diagnostic reminder tools, empowerment of the patients and their families and implementing clinician education on patient and family-centered diagnosis, really trying to make it more of a team effort so it wasn't reliant on that one individual that might be complacent or overconfident in the thought process. Thoughts on this set of global solutions or granular solutions?

(Michael Woodruff): This is (Michael Woodruff). I really loved it. (Unintelligible) and I'll just, I'll call it out a little more explicitly, we have time and again seen our providers, for whatever reason, actually literally ignore the concerns of the patient and the family and so we – so bringing the patient onto the diagnostic team but also just explicitly calling out what are the family's or what are the patient's specific concerns and have we addressed them? I think we get close to that on the solutions but I just wanted to share with a thing we're exploring which is in terms of the diagnostic check in with the patient that happens in an automated fashion after a visit so that we check on the accuracy of our diagnosis at some time interval after we've had the encounter. So we're early in that process but I'd just be curious (unintelligible) that issue.

Man: Yes, that's great. We're doing something similar, (Kelly Gleason) here at Hopkins has got a program of essentially contacting the patients after their (ED) visits to check in on their diagnosis. I think that's a great idea, we should talk more about that, happy to add that to the mix. Other thoughts before we

move on to the measurement piece? Okay. I think I'm turning it back to (Jesse) now. Is that right?

(Jesse Pines): Yes, that's right, so again, just wanted to give a brief pause here, make sure that we, I think we talked about this in the context of each of the solutions slides but any other comments additional solutions that – I think there are two other – so we're going to talk about measurement in a moment here but wanted to specifically call out (payers) or researchers here and see if people had any other comments. Obviously, these are – a lot of these interventions, some are in place, some are more conceptual but before moving to measurement, any additional comments or points people wanted to make? Other changes? And again, you can go ahead and email the team directly if you have specific comments. You're going to get multiple opportunities to do – to give more direct feedback.

Okay, so let's move on to the measurement considerations. This is basically what we talked about last time, which is when it comes to these types of cognitive errors related to subtleness symptoms, the four areas we thought of for measurement were one would be to measure short term outcomes and to try to link visits where a particular symptom could be related to a serious diagnosis and the classic one that's been done in the literature is linking acute myocardial infarction diagnoses, looking back and was there a CV visit or other visit for chest pain or shortness of breath? You know, that could be done or (unintelligible) disorders or pulmonary embolisms or other serious conditions in the clinic or EE settings that's one.

Number two is focusing on (this balance) so we have this laser focus on misdiagnoses, make sure that we're not overwhelming the system with unnecessary radiology so for example in the first case, using the HINTS exam, that's a bedside test, doing an MRI is going to be a much more expensive,

longer time period for all patients with vertigo so to try to balance the use of consultation, (CT) imaging, (MRI) imaging, admission with these misses which would be in the first row there.

Number three is to specifically look at protocols that may be in place and to try and detect some deviations, specifically what was the local protocol? Did the local team implement the protocol properly? Why was it not adhered to? And then the last piece is asking for patient feedback and we've heard that, I think, multiple times, from multiple Committee members, about asking for feedback from patients about whether or not people thought they were appropriately listened to and about whether or not appropriate communication was had about diagnostic uncertainty and make sure that patients were engaged as well as with our often disjointed, fragmented systems, sometimes it may be only the patient who is able to identify that a medical error happened and that something was missed.

So let me go ahead and stop there and get some feed back on these areas and if you have other ideas, let us know.

(Lavinia Middleton): Hi, it's (Lavinia Middleton). I like what you just said about sometimes it's only the patient who knows but I would and I think it was mentioned earlier, I would really try to find a way that we can partner with insurers because they also know as well and try to incentivize the insurers to partner with medical societies to share claims data in ways that haven't been done previously.

(Jesse Piness): Okay. Yes and I think, in particular, for the (unintelligible) when you're measuring these long term outcomes, if a patient, I think someone was mentioning in New York, is someone goes to a different hospital, it may get missed but the (unintelligible) truth may be the insurer so that's a great point. Other thoughts on measurement? Okay.

I think this is – this will get us back on track then, if there are no additional comments to move into Use Case 2. This is the communication failure use case. Again, briefly to describe Use Case 2, this is related to the increasing complexity of medical care, patients moving across multiple technology platforms, across multiple settings, different team members, disciplines, locations, and then with this increased complexity, communication failure can and does occur. Test results can go unrecognized and missed test results can lead to delayed or missed diagnoses and potential for patient harm.

I'm going to go through these three cases again and then turn it back over to Dr. David (unintelligible) to talk through some of the solutions. So Case 1, 56 year old male smoker presents in the emergency department at 3:00 AM, four day history of cough, no radiologist is available at night, this is – this happens in emergency medicine where the radiologist may only be there for daytime reads or may come in the next morning to read the films so chest X-ray is performed, read by the clinician as negative, patient is sent home, diagnosis of bronchitis with albuterol, (unintelligible), counsel on smoking cessation. The next day, there is an over read by a radiologist of a 6mm non-calcified pulmonary nodule, a follow-up X-ray is recommended in six months. Commonly, radiologists will call the – back to the emergency department to hand off this information which happens in this case that they communicate to the physician on duty, who tried to contact the patient. Patient is homeless, unemployed, no working cell phone number, no stable address, all attempts to connect with the patient fail. Eighteen months later, patient is diagnosed with a large left lung mass, a large lung mass that has metastasized to his sPines.

Case 2, 70 year old female, Spanish speaking only with A-fib on (unintelligible) with a diagnosis of appendicitis on (unintelligible). Given the early stage nature and that she's on (anticoagulant), she is treated

conservatively with antibiotics which more and more is happening these days as opposed to operatively and recovers. CT report does recommend additional CT at three months to insure resolution, surgeon communicates this to the patient but in broken English without a formal interpreter and also assumes the primary care physician will follow up with the test. Patient doesn't really understand but nods and (unintelligible), we've seen that before, that certainly happens. Primary care physician sees the report, assumes the surgeon is going to order the test to follow up. No, she doesn't get the test, two years later, the patient is diagnosed with a large appendicle carcinoma that has metastasized to the liver.

Case 3, four year old female seen at urgent care clinic for cough, illness and fever. Chest X-ray is done, read as negative by the treating clinician, over read by a radiologist detects a healing (unintelligible) rib fracture, concern for child abuse which is sent by email to the patient's pediatrician. The pediatrician does not see the email, there is no explicit flag for it, that this was something that was vital to look at. Pediatrician opens the email, doesn't really process it, you know, a pediatrician gets a ton of emails about patients per day, doesn't really process this that something needs happen here. A year later, the patient returns with major trauma, (unintelligible) to child abuse and is admitted to the ICU.

So let me – I'm going to go next to our solutions here but any high level, global comments about the cases and certainly I think, I heard a lot of the prior comments that maybe adding a little bit more explicit detail about the thinking, about the providers and why they didn't particularly act on it, we can add some more pertinent positives and negatives in but any other comments on the cases?

(Flavio Casoy): Just on Case 2 and 3, this is (Flavio). You know, on Case 2, right, I mean, it's not just a complex system problem. I mean, it's a failure in quality of care problem on the individual who does not use an interpreter, right? I mean, that – I think that the source of the problem there is not just a complex system. Same thing in Case 3 where you know, you have a radiologist who is a physician and a mandated reporter who suspected child abuse and failed to notify the authorities, right? I mean, that's a medical problem but also in some places, it's a felony. So I think that's – these cases are a little bit different than Case 1, in my mind.

(Hardeep Singh): So this is (Hardeep), so I would say for Case 3, it may be better to just sort of focus on the EHR notifications rather than email, just because they've been sort of studied and they are a huge source of information overload and things do get missed. It will also keep the thing sort of in the medical record because most radiologists are only going to call you directly for life threatening findings so I'm not sure, depending on the organization, some have specific critical values that they, radiologists call verbally. The others are notified through the electronic health record most of the time, I mean, it depends on where you are, obviously, I think that might be better for Case 3, just sort of focusing on EHR. They're called in basket notifications in case you want to use a technical word for or inbox notifications rather, (unintelligible).

For Case 1, I was thinking, do you want to project to Case 1 back? I don't see it. There was something about the case that struck me that, yes, the example one. You know, I think it looks like the ED did try to do a good job of communicating to the patient but they couldn't sort of do it. Can we do it? I mean these things get lost to follow-up quite often. And sometimes it's actually obvious stuff like sometimes it's like a preop or an ED film or a preop x-ray where there's no communication, there's not even an attempt of communication. Those things are a little more obvious. I'm not sure if, you

know, here the ED seems like they did a very good fit effort to try to communicate.

(David): This is (David). I think I'd agree with that's the thing that struck me about this us also, the constellation of problems this particular patient has in being contacted is kind of hard to, you know, I think this would turn every one off and say, "Well we gave it a shot we tried with the real issue here." I think there's enough instances where we have patients that have multiple contact information things listed and documented and on call might be a little bit better. And one other thing just so you know is as a surgeon most of us consider suspected appendicitis treated non-operatively is not conservative but radical treatment.

Man: Radical okay.

((Crosstalk))

Man: You know, just to kind of add on to that on that communication by the ED physician, I think, you know, one good thing to point out and I think you do in your solutions or maybe make it more explicit is creating multiple safety nets. So in our organization it doesn't stop there. So we assign a social worker who will then contact law enforcement and go to pretty far extremes to get to the homeless patient, you know, if it is a critical result or something. So I do agree that the ED physician did everything they could but then there should be other layers, safety nets in that process.

Man 1: Right.

Woman: Yes.

((Crosstalk))

Man 1: (Unintelligible) I would agree with that. I mean the - you know, I think that the environment of care in which we discharge patients too needs to be taken into consideration, you know, at the onset of the visit. So, you know, if there's a critical value right, I mean the system should take into consideration how are we going to get back to this person. You know, I - it can't just be left in the hands of the individual physician. I mean it's I think it's similar to, you know, when we're talking about case one. I mean at the systems level right this is a major failure even though that particular doctor did what, you know, she or he could do. But there was still a failure of the system. So I think it needs to be addressed in some way. And, you know, a lot of our patients are homeless and an unemployed and have no contact information but we need to sort of design this to make sure that they, you know, get good care also.

(John): Yes this is (John). I work with some people in the homeless in Houston. And these people tend to go certain places and it seems to me in this case perhaps there should have been a clear questioning about how do we find you, where do you eat? Where do you sleep, you know, so that if it's turned over to law enforcement to find this person they at least know where he tends to hang out.

(David): Yes this is already – sorry go ahead. (Karen) go ahead.

(Karen): I'm sorry, so this is (Karen). In reading case one I think one of the difficulties with it is that the only real corrective action besides some of the more advanced how to contact a homeless patient is that there was no nighttime radiology and most emergency physicians and probably primary people would look they say well the lesson here is that you have to have 24 hour access to radiologists and of emergency medicine if you're going to discharge patients without, you know, with a one-time visit. And that message screams so loudly

that I can't hear the communication piece so well. So I think you have to grapple with that because it confounds the message. This is - that's not a communication problem, that's a system problem.

The second thing is like when people say there are ways to contact homeless people and emergency departments know that. And technically you're supposed to ask of them for some contact. And there's often a friend or family member who in the event of an emergency could get a message to them and that is usually typically captured somehow. So it doesn't – they make it sound like there's no solution here there actually typically is some sort of solution.

(Cindy): Yes I was going to say – this is (Cindy). I think if the point is to illustrate that there needs to be all these sort of systems changes any of these cases would be just fine. You know, as long a point is illustrated. But I can tell you that most health systems have trouble sometimes even updating and contacting the patients who are even not homeless. I mean we've seen test results fall in through the cracks...

(David): Yes.

(Cindy): ...even when there has been a, you know, sort of like no, you know, they for whatever reason and people don't. In fact (David) knows this but OMC safer guides which talk about communication of test results in really good detail specifically recommend that this information should be updated and all providers and patients should be contactable. This information needs to be updated but a lot of times health systems are not doing those updates.

(Craig Hearst): So this is (Craig Hearst) I'm at ER Doc as well and this - we deal with this on a daily basis like you guys said even for the non-homeless or the homed patients I suppose. I mean and I think the other thing is, you know, systems

errors we should be putting in place some systems corrections. And, you know, we're all at least in Arizona we're required to participate in a health information exchange for the state. Well then that should also be used because, you know, homeless or not, people tend to go to different departments and then if there was some way to flag if there was an abnormal result that we could get this information to this patient if they would show up at a different emergency department that would provide us, you know, another potential to reach out to that person.

(David): Okay. That's a great feedback here and we can certainly make some updates to the cases. Any additional feedback before we move into some of the challenges and solutions? Okay let me - I'll turn it over to (David Newman-Toker) will be going through some of the challenges and solutions.

(David Newman -Toker): Great. So again we sort of put this into three challenge buckets one of which is this notion of incomplete handoffs or diffusion responsibility across clinical providers, the second which is failures of receiving test results when they get reported and the third is sort of failure to communicate with the patient in terms of the patient clinician mechanism of kind of conveying that information vis-à-vis the National Academy of Medicine Definition of the diagnostic errors is not just getting an accurate and timely diagnosis but actually hearing about it or understanding it from the patient's perspective.

So in the first case, the first challenge was those incomplete handoffs we had sort of three global solutions. One is the enhancement of handoffs and transitions of care. The second is getting rules that assign follow-up to a specific team member. A third was defining requirements for synchronous communication and then there's some granular solutions that went back to those global solutions. Happy to hear others – other suggestions or reframing so how did people feel about this list in its current incarnation?

(Karen): This is (Karen) and I'm actually disturbed that I think the solutions are all constrained predominantly to inpatient settings where the responsibility rests mostly with the provider when there are better system strategies for accomplishing the same things. So a safer system would have methods in place that would backup providers. And they can be designed and they are used so that, you know, there's someone besides a busy clinician who is doing follow-up and backing things up. And so I would just - there are many different samples so you wouldn't want to be overly specific but since providing system backup for accountability doesn't help your system to track these things and follow up.

(David): Okay.

(Cindy): It's (Cindy). So sometimes if you're let's say in the outpatient setting that you order a test, you can have a joint responsibility with the patient also to call if there's - so I guess that's kind of along the lines of what you were saying before, maybe some other responsibilities to families and patients to, you know, whether it's electronic they can follow the test results in order to call if they kind of don't hear from us or something like that. That might capture some of the outpatient incomplete results handling.

(David): Okay. We have a little bit of that maybe (Cindy) in the second slide that's sort of educating patients that no news is not good news component. And there's some stuff there about patient portals. Would that address the concern or you think that there's more to that than those aspects?

(Cindy): No that's exactly what I was getting at. Thank you.

(David): Okay and some of this is a little bit artificial in terms of I mean I don't want to make it - we're just sort of rather than just sort of throwing a bunch of solutions just on the page in a long laundry list, we were trying to kind of peg specific solutions to particular diagnostic challenges. Some of that's maybe a little bit artificial for some of these problems there. They're all sort of wrapped up and tied together and some of the system-level solutions will address any or all of these. So it's – there is a little bit of artificiality particularly as it appears in the slides because it's broken up into these three pieces whereas on a page it's all together.

(Cindy): And (David) I would say -- this is (Cindy) again -- you know, joint commission just issued this brief. It's called Quick Safety 52 -- I think it's 52 -- that goes over sort of the details of – they give a case and there's a lot of discussion on whether the organization - what organizations can do to…

(David): Yes.

(Cindy): …handle the problem of communication of test results. It also has a bunch of resources at the end of it. So I think maybe try to match what you're saying here with the joint commission resource which also then links to other resources such as (O&C) safer guides and there's an equity, you know, toolkit as well on closing the loop.

(David): Yes.

(Cindy): So making sure that everything is sort of, you know, sending the same message and not - we don't have to reinvent the wheel that.

(David): Yes that's a good idea. We should definitely not reinvent the wheel since this is an area that's been well wheeled. We're on use case, the second challenge

slide that here's the sort of failures of test results for C, had a series of solutions here eliminating secondary distractions and competing priorities, increasing the interoperability of EHRs, automating clinical actions in the EHR based on high risk results like auto scheduling and follow-up appointments or (unintelligible) test, creating EHR safety nets and family patient centered test result follow-up. Aside from (Ardeep)'s good point to harmonize this across the existing sort of body of solutions relate to the area there, are other specific suggestions that come to mind for people or ways of framing that you'd like to see done differently?

(Colleen): This is (Colleen). I was just going to say with respect to the EHR safety net and, you know, specifically the electronic trigger tools to identify and run the drop the ball scenarios, I think that's very important. And I think as part of that we have to be thinking about how to make sure that those safety nets also include the diagnosing provider because it wouldn't necessarily, you know, be obvious to a pathologist or a radiologist if they send a result and they believe the clinician has received the result and they don't hear any questions it wouldn't at all be obvious to them that that hadn't been followed up.

And I know there's a lot of rules governing exactly when a consult is ordered and et cetera, et cetera, but sort of similar to the no news is not good news just because you don't hear from a clinician that they don't have any questions doesn't mean that they have necessarily acted on something. And, you know, it can't necessarily be entirely on the diagnosing clinician to call and say, you know, did you get this, did you receive this, do you have any questions?

So I think as we build those in a system fashion just to make sure that there's some kind of looping back to the ordering or to the diagnosing clinician to say, "You know, yes we did what we were supposed to do or we do have additional questions. We are ordering additional tests like that."

(David): Great, no...

((Crosstalk))

(Karen): I have a question.

(David): …yes, that's a good idea. Please.

(Karen): This is (Karen). I have a question. When you say eliminate secondary distractions and competing priorities I don't know what you mean by that. We have competing priorities. The question is how to manage them. I think it might - and I don't think you could eliminate if your secondary distraction is taking care of a patient and getting a critical test result you can't really do that. So maybe I'm just not hearing what you mean or the context of what…

(David): Yes.

(Karen): ...it was written. But...

(David): So I think eliminate is maybe too strong a word. Should just eliminate the word eliminate. Reduce might be a better word and maybe a little bit less offensive but it still might not be clear. I think if we just sort of look over on the granular solution side which we're sort of tended roughly to parallel the global solutions just to give some specific examples, this idea of reducing alert fatigue, it came up earlier which is you can't just have a pop-up for everything in every situation on every circumstance. You know, there's been a lot of thought put into this issue of alert fatigue and it's clear that we haven't found the sweet spot around EHR alerts to where the critical information rises to the top and the not so critical information isn't constantly in people's way.

The, you know, my – not to deviate too much but my Toyota Prius when I backup beeps at me to tell me that I'm backing up rather than beeping at me when I'm about to run into something when I'm driving backwards. And it's annoying and I just turn it off so I mean we've all sort of dealt with this stuff. But clearly that's the kind of thing that I think was alluded to whether it's - it may not be worded well but the idea was take some of the pressure out of the system that's making it unnecessarily difficult.

(Karen): I think it might be easier to suggest that you advocate for as far as staff as a support mechanism to support that work so that you augment the workforce and not just continue to put it on the (unintelligible).

(David): That's a good idea.

(David): Yes, this is (David). I'd have to agree with that mostly because, you know, we're looking at each of these spaces in an isolated case but none of them have the context of how many other cases each of these ED docs or these other providers were actually managing at the time. And one person's is - I think it was brought up one person's case might be another person's additional distraction.

(David): I would say this. The – in terms of this issue of caseload and overwork and all that other stuff we should definitely I think make that point somewhere in this I don't know exactly where it goes but it's abundantly clear that at some point if you push people beyond the capacities of normal human functioning either the too many distractions or too many patients they're managing or too little time to see patients we know that you'll drive them over the diagnostic cliff and they, you know, won't be able to catch these errors under even, you know, the best of circumstances. So for sure we need to sort of articulate that somewhere in the whole story. And I think (Karen)'s suggestion to advocate

for additional staff is an important mechanism of thinking about solution making.

(Lavinia Middleton): Hi. It's (Lavinia Middleton) again, thinking about the Toyota previous comment and how you probably paid in advance for the maintenance of that car over 36 months, I'm looking at these three use case scenarios and is two years later, one year later, 18 months later. In all these cases the bill has been dropped and the insurance company has been made aware. And, you know, insurance companies aren't providers but they are partners. And so we have to somehow think about a solution that links in the information that we are sending them and perhaps create some type of trigger alerts for when or make suggestion of triggers for when secondary follow-ups aren't billed.

(David): Got it.…

(John): This is (John). Could I ask a really naïve question? Are we past any chance of getting a national EDHR system?

(David): Yes.

(John): I mean okay.

(David): No chance.

(John): Okay.

(Kathy): This is (Kathy). One thought on the solution space is to also try to add some solutions that are a little bit more about finding the positive deviance and leveraging the opportunity to follow those who have figured out how to say manage these types of workload issues better to create more safety. I know

we've got use cases where there's been, you know, we're highlighting a problem but that wouldn't keep us from thinking about solutions that are oriented towards, you know, to (Lavinia)'s point the insurance – some insurance companies were more active partners and created systems, you know, could that be part of the solution is finding those approaches that are actually working and implementing from that knowledge base.

(David): That's great sort of a safety to orientation.

(Kathy): Yes.

(David): Yes.

(Kathy): Yes.

(David): Good idea. Are there other thoughts before we move to the next slide? We're on to the last slide here, patient clinician communication, demonstrating communication plan prior to discharge will also be communicated to the patient caregiver or a family. That - a lot of that came up especially in the homeless case but even if we make it less difficult or more routine it still applies. Empowering patients to ensure test results, follow-up and ask questions about test results, ensure patients understand their diagnosis and results and again with some more, slightly more specific more granular solutions on the right-hand side. Does this trigger anything for anybody, any additional things that people want to make sure get put on the page?

(Karen): I have one thought on your granular solution of our interpreters.

(David): Yes?

(Karen): I think that it should be rephrased because although sometimes you're fortunate enough to have an in person interpreter increasing the online resources are used. You know, the AT&T services have been fabulous. They have pretty much all languages 24/7. So I think it might be more accurate it even more appropriate to say interpreter service.

(David): Okay.

(Karen): And then secondly I think it's politically correct phrase that is desired now is preferred language because patients maybe by trilingual but you're supposed to always ask what the preferred language is. And that's sort of a politically correct term these days.

(David): Let's – we will change desired and native to preferred language and add the interpreter services piece. Those are good suggestions, thanks (Karen). Other thoughts?

(Sonali): This is (Sonali) and I'm trying to sort of be thoughtful in how I say this but, you know, we've been working on this ambulatory safety net program for a couple of years. And, you know, we have a great patient portal and we have a nice electronic radiology alert notification system and we have open notes. And despite all of that we still need, you know, at least a team within our ambulatory patient safety team to actually still globally look at all of the lung nodules or all of the abnormal PSAs or all of, you know, whichever test result we're talking about and work with both the primary care or the ED or the specialist to really make sure that the loop is closed.

And I think part of that is figuring out what do we mean by like when have we did – when have we done enough, you know, would that good-faith effort described in one of those use cases about trying to call the patient and contact

the patient be enough or how far do we need to go? And I'm sort of thinking through like these are all excellent ideas and solutions but I do think there is still with a lot of this automation or other things that you still need some – the human component to make sure that what we're recommending as a follow-up is still indicated that it actually gets done. But those are just my thoughts.

(David): Yes, I think that's great. No, we definitely need to put that there certainly. You're not alone there. There are other people certainly around the country who've got to, you know, 15 people that do nothing other than call people back about missed test results. And in terms of the sort of escalation protocol, I assume (Sonali) or (Ardeep) or others that there's someplace we can refer to that's kind of a standardized escalation protocol that says, you know, if you can't reach them this way then you go to the next step or the next step and the next step whether it's the homeless person who you call the police on or whatever. I assume that that's all mostly laid out someplace. Is that fair to say?

Man: So (David) for the VA we've got quite a lot of procedures sort of streamlined because we have a national policy on this and it's very well standardize. We may not have it to the extent that, you know, I think you're looking at but sure you can point to certain things. There is a joint commission journal paper from about ten years ago that also has escalation procedure. You know, if you can't reach the PCP what do you do next? It may be a bit VA specific but it may be nice to sort of point to people that develop their own procedures right?

So I mean the procedure you would see in Harvard would look different than the one that would look at, you know, Houston VA or, you know, another VA. So yes we can sort of send you stuff. And I think I sent some stuff to the NQF staff already.

(David): Great. So in terms of let's move to the next slide and one of the things that maybe gave a little short shrift in use case one and just sort of conceptually, you know, saying with most of it's in the framework of use case two by thinking a little bit about this issue at a higher level of what actions can payers take and what actions can happen, I mean people there's still a little bit of a yearning at some level. Maybe some of the solutions got a little bit to provider focused or provider organization focused. What about these sort of higher order issues about research or payers or policy level kind of changes to be able to move the needle on some of these things?

(John): So this is (John). This is all about communication. And I'm wondering if there should be an explicit concerted effort to teach patients how they should be communicated to and how they should communicate with their doctors and nurses and so on maybe even something let's say at the high school level where these are the expectations of a reasonable patient.

(David): Fascinating idea. Certainly there's been a little bit of motion on that. (Helen) do you want to talk a little bit of about the sort of fit inside of that or the kind of work that's been done around trying to kind of educate patients or (Kathy) there's somebody who's sort of engaged with that piece of the elephant?

(Helen): What I think we have – no, I mean, mainly we had the toolkit. I think in terms of explicit yes, didactic efforts we really haven't gone very far in that direction at I'd say unless I'm overlooking something. (Kathy) did you have something else?

(Kathy): No, I mean I think (John) and (David), others I think these ideas have been talked about a little bit the - and they can certainly be included in something like this but there's lots of barriers. So you can create the material but getting the material to people like in a, you know, in a format that teachers would

adopt and use, are the students at that point really ready to learn that and retain it and use it later? You know, kind of what's the right mechanism to get patients able to partner and those on the receiving end able to use that information? So I feel like we've had a lot of conversations and a lot of interest in trying to think about this area but of making - getting traction and figuring out where the leverage is to get traction as well as developing the right tools would all need to happen. So it's – it makes sense it's practical. But the effort that we've had so far have been mostly the toolkit like (Helen) like you said. That's the main thing.

(Helen): Yes and we've had several toolkits. There's one at the IOM as well.

(David): All right I'm going to – go ahead (Flavio) and then will turn it back to (Jesse) for – to talk about the measurement piece.

(Flavio): All right, so it just from a policy maker point of view my main job is I work for the New York State government. We did a few things over the years so we have a central database of all Medicaid claims that any provider who has access - and you can, you know, your hospital can request access can log in and see not the results of the tests or the, you know, the content of the visits but, you know, and taking into consideration claims lag an emergency room doctor can log in and see where every – where this particular patient has gotten outpatient, inpatient and emergency room visits, you know, for the last, you know, many years can see which labs have been ordered or which medications have been paid for.

And really any clinician who's sort of program has been able to get access to this can login, you know, with patient consent. You've got to get the patient to sign a consent form to ask this information. And it includes things like, you

know, who's the person's case manager, who's the person's primary care doctor? You know, and then we also have quality flags.

You know, for example this individual has had a, you know, four admissions in the last year for the same problem or this individual has received in the last year a prescription for an opioid and a benzodiazePines. So, you know, they're at risk for an overdose. And then there's a whole series of quality flags that sort of jump up on the screen when the provider accesses. It's not integrated into the - all the many different medical records where the provider has to log in separately but it's a treasure trove of information and we're trying to incentivize the providers to access it.

Another thing that we are trying to do is in our oversight authority of the Medicaid plans, you know, the - a portion of the Medicaid premium gets held back and then redistributed based on the different plans ability to sort of meet certain quality metrics. And a lot of these are the HEDIS measures but also - but many are sort of patient engagement and ability sort of to connect a patient to the appropriate outpatient level of care. So the plans are incentivized to sort of staff up and go find the patients and get them connected to care.

And then there's a whole series of other sort of incentives that we create for the provider community to sort of adequately engage the patients and make sure that they are sort of connected to their care. One thing that's happened is rolling out a patient portal for this information so patients will be able to put in information the providers will be able to see when they login in an emergency setting or whatnot.

So that's kind of exciting and we're pushing forward. And, you know, there is always efforts to get new databases on it. You know, obviously the commercial payers aren't included in it yet but we're trying to get sort of other

things like shelter databases and shelter assignments and so forth for the homeless folks. So, you know, it's - and I think this is in response to being able to take kind of like a proactive approach on the part of state government so that's kind of exciting.

(David): That's great. Those are great ideas. Hopefully we can do more of that nationally. Okay let's turn to (Jesse). Go ahead with the measure piece.

(Jesse): Great, thanks and we're yes a little bit behind here so I'm going to go through this quickly hopefully not too quickly. But so we came up with six different approaches to measurement for these communication failures, specifically one asking patients for surveys and specifically, you know, having some patient reported measures. Two, the use of electronic trigger tools which has already been discussed multiple times on this call. This is mining data to see if there are, you know, some suggestion that something was missed, you know, linking business across time. The – that's currently being used in a research setting but there may be other ways to apply that to broader populations.

Third is interoperability which is also been discussed, you know, particularly in New York. That's actually an interesting model where you have interoperability of claims data which is actually a fascinating approach. The fourth is assessing the rate of delayed diagnosis which could be done with claims data looking at the rate of late stage cancers or with looking at specifically the time from initial diagnosis treatment, looking at missed opportunities and that sort of thing.

Fifth is more specific to the clinician which is the use of language interpreter lines which we saw in case two, inpatient preferred language. So we do have that work preferred in there. And the final one is doing chart audits for high risk findings to make sure that things don't get dropped the vertical handoffs

actually occurred so actually looking through the chart - and I forget who mentioned it but, you know, there's - all of this doesn't necessarily have to be the doctors or the clinicians going back. There could be other systems brought to bear that they can do a lot of this stuff. So let me just stop there and see if there's any questions, comments or other additions folks want to make.

(Joe): This is (Joe). Just wanted to talk a little bit about how you measure for your interoperability.

((Crosstalk))

(Jesse): (Unintelligible).

(Joe): I think a lot of that is actually happening right now with the recent CMS and OMC interoperability rulings. I know there's a lot of controversy with Epic right now going on about the ONCs. But that's all kind of already into play. And the other thing on the rationale I really don't care for the holding health systems accountable because so much of this is really on the vendor side in making systems interoperability. We have vendors that still won't work together when we need to exchange information and then we have to create these manual processes of getting the data out and then feeding it into another one. So I think at minimal vendors need to be, you know, cited in that piece of it. And then also around the regulatory stuff with promoting interoperability requirements, you know, again a lot of this is already being addressed at this time.

(Jesse): Okay good points. You know, still now things are often not interoperable so we're still I think a long way between now and for full interoperability but I do agree that, you know, things are moving in that direction. Other comments on measurement considerations?

(Greg Orbison): Can I just point out - so this is (Greg Orbison). So the interoperability in the case that we were talking about with the homeless element, that wouldn't help whatsoever because the patient was discharged prior to the formal read being in the EMR. And then it was trying to reach out to him to communicate with him. I suppose if we were talking about participating in an HIE with the interoperability as far as that goes that's a different topic and that gives us an additional way to reach a person. But by providing the data to the patient that for the OMC that would help us at all in that particular case.

(Jesse): Yes, I agree with that. You know, once people are outside the system often interoperability is not necessarily going to help.

(David): I think part of that point that illustrates -- this is (David) -- that of course, you know, each of these diagnostic areas are a little bit of their own little problem or hornets' nest. And the idea of multiple safety nets that came up before I think is a crucial idea that needs to be brought to the foreground in this whole thing just because no one solution is going to fix all these problems even for the - an individual use case which we think that is sort of one problem.

(Jesse): Yes okay. Okay so maybe any other final comments so it's just…

(Karen): Yes.

(Jesse): ...to discuss some of the other use cases any other comments?

(Karen): This is (Karen)…

Man: Yes I just wanted to echo the…

(Karen): Sorry.

(Jesse): Go ahead…

(Karen): This is (Karen). I…

(Jesse): … Karen.

(Karen): …had a couple questions. On a technical nature the medical - the measure concept at the very end of, you know, looking at proportional policies and procedures that structure handoff communications I don't know that that's a feasible measure concept. I don't know if it could be rephrased in some way. I'm not entirely sure that you can actually do that.

The second thing I wanted just to plant an idea that I don't know if NQF is open to or ready for but if you're looking to evolve new methodology in more modern concepts I think I would like to plant the suggestion to support the development of real AI and machine learning to surveil for – or is it real time. I think it's a really cool concept that's actually feasible. And I don't know it's not - I don't think it exists now in a measure but I wonder if as a visionary you could think about adding that? A more climatic thing that is certainly not outside the realm of what we could do is also add something like the proportion of critical diagnoses that start – or that have implemented clinical decision support for certainly for diagnoses that are commonly missed or high risk.

(Jesse): Good point.

(Karen): I know I sort of trying to get three ideas very quickly to get in under your time…

((Crosstalk))

(David): Yes and just (Karen) quickly that third one you would imagine for the earlier use case use case number one?

(Karen): Actually I don't know what case it applies to. I would put it where it belongs. I think…

(David): Okay.

(Karen): …wherever you think is best.

(David): Okay thanks.

(Jesse): Okay great. Well why don't we quickly moved to some crosscutting recommendations? We're not – I don't want to spend a lot of time on this because we're going to be moving to some of the other use cases. But part of this - and we are going to have a dedicated session but this is just to start your thinking that across all of these solutions there are a number of common themes specifically around engaging patients, giving us feedback directly, sharing information, certainly using technology as a measurement tool and also identifying how using outcomes to provide information on delayed diagnosis and subsequent harm and how that sort of approach can be brought to bear to try to reduce the incidence of future errors. Any other quick thoughts on cross cutting recommendations or commonalities you're seeing here briefly before we move forward to use case three and four?

(Mike): This is (Mike). I just wanted to echo the earlier comments and I think it is maybe cross cutting here is that to the extent to which we could help put

pressure on the EHR vendors to shoulder some of this burden of data selection and the technology development so that it's not just pressure on health systems or accountabilities to health systems but also to EHR vendors. I mean to the earlier point that a lot of these are human processes our patients, our society can't really afford to add more humans to the workforce in healthcare right now. So how do we be smart about how we're capturing that data and developing that technology?

(Jesse): Great point. So (unintelligible) accountability for - with vendors and other players. I agree with that.

(David): Okay did…

(Andrea Benin): I - this is…

(David): Go ahead.

(Andrea Benin): …this is (Andrea Benin). I think one of the things that I'm not sure how you want to fit it in but the, you know, there are some of the types of solutions that or whether they're really solutions but at least things that people have proposed to help with decision making like having decision ease and that kind of thing readily available or even having the ability to look things up be readily available so that, you know, the online textbooks, et cetera, et cetera, having support and that kind of thing be readily available.

That is - those types of things are often a part of process measures. If we think that there are things out there that are valuable solutions there – we may want to have some consideration. And I can see that a little bit in the write up around how we think about process metrics versus outcome metrics because not – until the field matures a little bit we may not always be able to

understand how to measure the outcomes but we may be able to know how to think about certain processes that people have decided are helpful or studied and are helpful in that. I don't I just don't know that we have elicited that in any of this and it's probably something that goes in some cross cutting piece of the discussion.

(David): So the use of process measures such as you're saying things like adherence to algorithms or using computerized decision support that sort of thing?

(Andrea Benin): I'm saying even just plain old availability of that kind of thing.

(David): Availability.

(Andrea Benin): Like there are places where you have access to an online textbook right? And different types of things like that, that are I think it's known that if you have the ability to look things up or if you have the ability to have another team member available to you or some of those other kinds of things in the decision making process, you know, are there process metrics around even just the availability of things that we think are good practices for helping to support decision makers?

(David): And this is (David). I might refer to those as structural measures in terms of what's actually available. You know, do you have an MRI scanner, do you have access to up to date do you have access to a radiologist 24/7? I think those are actually important things for us to highlight as part of the measurement strategy as appropriate to each of these use cases. That's a great idea.

(David): Good.

(Andrea Benin) Yes, I don't have any (unintelligible) for all I think that's fine.

(David): Great. So just in the interest of time if you have other ideas certainly email those directly to our team here but let's move on to use cases three and four with (David).

(David): So, you know, we've gone through this we started at the beginning by defining what our use case options were. We said that we were going to do four these. We picked the ones we were going to do first as illustrative. We picked one cognitive error one systems error. And those were, you know, we've gotten to this point with the development of those. Now we have to make the determination as we continue to refine use cases one and two off in the background which of the other three options that we identified which two are we going to focus on going forward.

Again these have been slightly renamed but they're the same as the ones that we started off with and then sort of agreed to as a group. One being the cognitive error around information overload in complex group, you know, outpatients where in essence the signals too high, there's too much information and sort of the weaker sorting the wheat from the chaff is a problem. The second one is this idea what we've called the dismissed patient. These are the people that are on these sort of prolonged diagnostic odysseys. At some point they start being thought of and treated as oh they must be psych patients or have, you know, fictitious disorders or some other thing. And they're, you know, sort of struggling through the process of being ignored because their women, or minorities or any other set of reasons why they're not being paid attention to.

And the third being some kind of delayed screening for kind of key health issues whether it's hypertension, or cancer screening or other things. And

rather than go through each of the individual examples on the subsequent pages and all the just sort of logic that we went through a few months ago in the interest of time let's just have a conversation about, you know, what people are focused on? Are we focused on A and B, do we think that C is more important and should displacement one of the other two? Where are people at right now?

((Crosstalk))

Woman 1: Option B is one of the examples just because it's sometimes connecting the dots that sometimes it's going to multiple specialists. And they actually do have a pathological conditions but maybe just not everything was processed together. So the in favor of status will be one of them.

(Helen): This is (Helen). From a patient perspective I would say A and B particularly B I agree with.

(Karen): I would agree with (Helen), this is (Karen). I put my priority is B, A and distant C.

(Cindy): Yes, this is (Cindy). I would also agree. I mean there's a paper we have with (Helen) and this is one of the commonest concern that comes up when we talk to patients.

(Lavinia): It's (Lavinia), (Helen)…

((Crosstalk))

(David): Go ahead (Lavinia).

(Lavinia): I was just going to say I'm in agreement. That's interesting that we're all so aligned.

(David): So let me just rather than asking everybody to step up to the plate and say I also agree is there anyone who disagrees. Is there anyone who wants to take the position that says no, you know, C is more important than A or C is more important than B and here's why?

Man 2: And I don't necessarily disagree with what people are saying but they're, you know, just from an (accurate) point of view right sort of missed early psychosis as a major driver of morbidity in my field. And usually, you know, it's a primary care doctor, or its pediatricians, emergency room folks that see it first. So in that case, you know, I see a case for C but I think that A and B are critically important too.

(David): So could I just ask on that point can you just talk a little bit about the context in which that happens because is it really a screening issue and/or is it a missed subtleties problem? Like if people are not putting two and two together that this person who has, you know, one sort of problem or another is actually becoming psychotic and it's missed early schizophrenia or whatever the underlying cause is?

Man 2: I guess it's a missed subtlety problem. You know, I mean I guess I think of it as a screening in terms of asking the questions but I guess you can see it as a missed subtlety problem, yes.

(David): Okay, well maybe that's the kind of things that we can highlight in use case one somewhere somehow and point to that some of these things are essentially screen failures in the sense of, you know, looking for child, you know,

thinking about child abuse or thinking about early psychosis maybe those are just sort of a class of missed subtleties that we should point to.

(Colleen): This is (Colleen). I was just going to say so I'm in agreement with everyone else. I think A and B would probably be the priority. But I'm wondering if B I mean we have it listed as a cognitive error but I wonder if it's almost both because it is, you know, and cognitive error to dismiss the patient. But as, you know, someone just mentioned it's also a systems error lacking the interoperability to say, you know, you saw five different providers to try to get a diagnosis. And if all of the information had been in one place it would have been possible to make the diagnosis but because the information isn't all in one place it's not. So it's I can see it being written as cognitive error but I think that there is such a strong system aspect of that, that I wouldn't want us to miss the system half of that by focusing only on it as a cognitive error.

(David): Great, great suggestion. We'll see if we can draw that out as we get into it. It sounds like that will be one of the ones that's chosen for sure. So (Meredith) I just - I don't want to belabor the issue. Everybody seems to be basically on the same page about A and B and not C. Are you comfortable with where we are with that? Is there anything else that you want to elicit from the group before we move on to the closing and the public, period?

(Meredith): Thank you. It does sound like the committee is in agreement that options A and options B are the strongest use cases to move forward. So hopefully in development of those we'll be able to identify some new diagnostic challenges and causal factors in addition to ones that overlap with the use cases from one and two. So I think we have all that we need to go ahead and move forward. And in our next Web meeting we'll spend more time to really tease out those use cases similar to what we did in December with use cases

one and two but we'll be focused on option A and option B for that discussion.

Okay, and with that before we proceed with the next steps we wanted to allow the opportunity for public comment. Is there anyone on the line who is not part of the committee who would like to provide favorite or input today? Okay, thank you. And I'll now turn it over to (Carol Leyland-Petewell) from our team to talk about the next steps for the committee.

(Carolee) Thank you (Meredith). So this slide provides the final dates and objectives for the upcoming web meetings. You should have hopefully received all of the Outlook invitations for these and if you have not please email us letting us know and we'll make sure to send those to you. Our next meeting will be taking place on March 12 and will be focusing as (Meredith) said on identifying and obtaining your input on use cases three and four.

As always if you have any additional feedback on the conversation that happened today please don't hesitate to reach out to us by email at diagnosticerror@qualityforum.org or by phone. And for any information meeting materials you can always check out the project page as well as the committee SharePoint page. So I'll pause there and see if there's is any parting questions?

Man: No, just thanks everyone, really great call.

(David): Yes great job...

Man: Thank you.

(David): ...great suggestions. Thanks everybody for your contributions, really appreciate it and obviously to NQF staff for all your hard work and getting these materials together.

Woman: Great, thank you so much (David) and (Jesse) for facilitating the conversation. I think we were able to have a really wonderful robust dialogue today. So thank you to the entire committee for your participation and engagement in that. For our next steps for our team we'll work on incorporating all of the feedback and suggestions shared from you all today as we continue developing the use cases.

I know we had a lot of dialogue in a short window of time. So if anyone on the committee does have something additional that they'd like to share whether it be related to the solutions or the challenges or the framing of the use cases please don't hesitate to reach out to our NQF team and we can have a separate conversation or we'll follow-up over email with you. We want to make sure we hear all the feedback from you possible. So thank you again and with that we can adjourn for the day.

(David): Thanks everybody.

((Crosstalk))

END