Transcript

HEALTH INFORMATION TECHNOLOGY ADVISORY COMMITTEE (HITAC) EHR REPORTING PROGRAM TASK FORCE 2021 MEETING

July 22, 2021, 10:00 a.m. – 11:30 a.m. ET

VIRTUAL

Speakers

Name	Organization	Role
Raj Ratwani	**MedStar Health**	**Co-Chair**
Jill Shuemaker	**American Board of Family Medicine Foundation**	**Co-Chair**
Zahid Butt	Medisolv Inc	Member
Jim Jirjis	HCA Healthcare	Member
Bryant Thomas Karras	Washington State Department of Health	Member
Joseph Kunisch	Harris Health	Member
Steven Lane	Sutter Health	Member
Kenneth Mandl	Boston Children's Hospital	Member
Abby Sears	OCHIN	Member
Sasha TerMaat	Epic	Member
Sheryl Turney	Anthem, Inc.	Member
Steven Waldren	American Academy of Family Physicians	Member
Michael Berry	Office of the National Coordinator for Health Information Technology	Designated Federal Officer
Seth Pazinski	Office of the National Coordinator for Health Information Technology	Director, Strategic Planning & Coordination Division
Cassandra Hadley	Office of the National Coordinator for Health Information Technology	ONC Staff
Michael Wittie	Office of the National Coordinator for Health Information Technology	ONC Staff Co-Lead
Dustin Charles	Office of the National Coordinator for Health Information Technology	ONC Staff Co-Lead
Fredric Blavin	Urban Institute	ONC Contractor
Kathy Frye	HealthTech Solutions	ONC Contractor
Gary Ozanich	HealthTech Solutions	ONC Contractor
Christal Ramos	Urban Institute	ONC Contractor
Laura Smith	Urban Institute	ONC Contractor

Call to Order/Roll Call (00:00:00)

Operator
All lines are now bridged.

Michael Berry
Great. Thank you very much and good morning, everyone. And welcome back to the EHR reporting program task force. I'm Mike Berry. I'm with ONC and I serve as a designated federal officer of the HITAC and this task force. We really appreciate all of the task force members' contributions throughout this process and welcome everyone. And I just want to note that all task force meetings are public meetings. And all presentation materials we've posted in advance on the HITAC calendar on HealthIT.gov. As a reminder, we welcome public comments but they should be typed in the chat feature throughout the meeting or could be made verbally during the public comment period that is scheduled at about 11:25 Eastern Time this morning. You can also send written comments to ONC-HITAC@accelsolutionsllc.com. So, let's get started with roll call. So, when I call your name, please indicate your presence. And I'll start with our co-chair, Jill Shuemaker.

Jill Shuemaker
I am here. Thank you.

Michael Berry
Raj Ratwani is our other co-chair and he'll be joining us shortly. Zahid Butt. Jim Jirjis. Bryant Karras.

Bryant Thomas Karras
Good morning.

Michael Berry
Joseph Kunisch.

Joseph Kunisch
Good morning. I'm on.

Michael Berry
Steven Lane.

Steven Lane
Good morning.

Michael Berry
Ken Mandl is another task force member but he is off today. Abby Sears. Sasha TerMaat.

Sasha TerMaat
Good morning.

Michael Berry

Sheryl Turney, another task force member, is also absent today. Steve Waldren. All right. We'll check the incoming calls and take note of any task force members that I may have missed. So, with that, I'd like to turn it over to our co-chair, Jill Shuemaker, to get us started. Thank you.

Introductions (00:02:01)

Jill Shuemaker
Thank you, Mike. I appreciate your presence today. And, again, thank you to all of our task force members for your time and volunteering your expertise to help us with this scope of work. So, just an overview of our agenda. We are going to have some introductions, again, for those that weren't able to join us last week. We'll go over what we talked about last week as far as how we're going to construct our meetings, the process, and the assignments. And then, we're going to dig into our patient access measures and have a robust discussion around those. Next slide, please. And just as a reminder for those who weren't on the call last week, just an overview of our vision and what we're here to tackle. We will be reviewing 10 of the health IT measures that were developed by the Urban Institute under contract with ONC. We will be evaluating them and prioritizing them and giving our recommendations. We're going to consider different research and our backgrounds as far as our expertise.

And we're going to just dig into each of them. And we'll provide our recommendations for them to then present to the HITAC national coordinator by September 9. Next slide, please. These, again, are our task force members. And we are going to take just a brief moment, again, just to introduce ourselves. And when you introduce yourself, just really briefly, your perspective that you will be bringing to the discussion. And I'll kick us off and I'll start that. I'm Jill Shuemaker. I'm the director of clinician measures at the American Board of Family Medicine. I'm also a registered nurse and a clinical informaticist. I will be bringing the perspective from a measure developer, a measure implementer, and also multiple disciplinary workflow. And Raj will be here. We'll give him a chance to speak when he's able to join us. But Zahid, would you like to go next? Zahid is not on the call. Do we have Jim?

Michael Berry
I don't see Jim either, Jill.

Jill Shuemaker
Bryant?

Bryant Thomas Karras
Hi. I'm Dr. Bryant Thomas Karras. I'm an internist and fellowship trained informatician. I've been working for over 25 years in public health informatics and currently serve as the chief informatics officer for Washington State Department of Health.

Jill Shuemaker
Thank you, Bryant. Joe?

Joseph Kunisch
Good morning. Joe Kunisch. I'm the vice president of quality at Harris Health System. We're the third largest public health system in the country. And my perspective that I'll be bringing is from the quality measure

development role. My organizations have participated in quality measure development and then, also on the implementation side of data collection and calculating and reporting. Thank you.

Jill Shuemaker
Great. Thanks, Joe. Steven?

Steven Lane
Good morning. I'm Steven Lane. I'm a practicing primary care family physician and clinical informaticist at Sutter Health in Northern California, a large integrated health network. I've been in informatics for over 30 years. We implemented the very first Epic system in California 22 years ago in first patient portal, over 20 years ago, so I have a deep appreciation of EHR use and challenges. I've used Epic every day since then. And in my informatics work, my focus over the past 10 or 15 years has been on interoperability. I have the opportunity to serve on the HITAC and have served on a number of task forces. I also should share that I was a contractor for the Urban Institute work a couple of years ago and got to work with that team very closely. I did a number of site visits, etc., as they were collecting information to prepare the recommendations that we're now reviewing.

Jill Shuemaker
Great. Thank you, Steven. Kenneth?

Michael Berry
Ken is off today.

Jill Shuemaker
Okay. Abby.

Michael Berry
I haven't seen Abby join yet.

Jill Shuemaker
All right. Sasha?

Sasha TerMaat
Good morning. My name is Sasha TerMaat. I work at Epic. I'm also an ex officio chair of the Electronic Health Records Association. And I hope to bring input from the EHR developer community about the reporting feasibility of the proposed measures here because I think choosing measures that are both practical to report and valuable to the stakeholders will be our challenge.

Jill Shuemaker
Great. Thank you, Sasha. We appreciate that perspective. And Sheryl is not on the call today. And I don't believe Steve has joined us yet. Is Steve on?

Steven Waldren
Hi, Jill. This is Steve.

Jill Shuemaker

Okay. Go ahead.

Steven Waldren

I'm a family physician and informaticist just interested in the physician and clinical perspective here and really also trying to marry the value from the burden and making sure we're doing that appropriately. Thanks.

Meeting Schedule, Process, and Assignments (00:09:11)

Jill Shuemaker

Awesome. Thank you, Steven. And just as a reminder, this is our current representation but as we dig into these measures, if we find that we need a different perspective, we will be bringing in additional voices to make sure that we are evaluating the measures thoroughly. We also have some folks on from ONC who will be here. So, if any time we have questions about specific details, they are on the call and we can call on them to give us some contextual information. Next slide, please. This is our meeting schedule. Again, today, we're digging into those three patient access measures. I always want to remind you that this is a tight timeline and so, there is a lot of work to do in a short amount of time. We still need some volunteers for our clinical care information exchange measures and the standards adoption. So, we're trying to get two to three people for each of those buckets. Those are the domains that we'll be evaluating the measures.

So, anyone who hasn't already volunteered could put in the chat or let one of us know if you'd like to join Abby or Ken in evaluating the measures on August 5 or August 12. Next slide, please.

Steven Lane

Steven Lane. Sorry. I put my hand up. But I already volunteered to work with Abby on the clinical care exchange and she and I have already set up the meeting to dig into that. Sorry if you didn't get that memo.

Jill Shuemaker

All right. Thank you. Great. Next slide, please. So, last week, we agreed on how we would structure our meetings and how we would tackle our evaluation of the 10 developer reported measures. The meeting notes will be distributed after the meeting. And you'll have an opportunity to provide clarification and additional comments through email. And Michael has also informed me that he set up a Google Docs. So, he'll send that information out later this afternoon on how we can access that. If you find that after our evaluation that the measure needs additional discussion, we do have an opportunity that we can choose August 19 to dig in to measure with more information. But we really want to try to see if we can maximize our time on each of these calls to complete the work and thoroughly evaluate the measures. So, as we've noted in the previous slide, we have task force members who have volunteered to lead the discussion. So, what they will do is they will come prepared with issues that they've identified populated on the template that will be presented during our discussion.

And then, we ask all of the task force members we ask that you would come prepared and familiar with the measures enough that you can contribute to the discussion and we can have a robust discussion. We will be pre-populating the template during the discussion. So, we'll try to capture your feedback and your perspectives during our discussion. And at the end, Raj and I will summarize what we have discussed and if there are any next steps that we need to address, we will mention that as well. Next slide, please. And as

a reminder, these are the initial developer reported measures that ONC has chosen as their priority. There are future measures but these are the initial set that are within our charge. And they are all focused on the interoperability. The measures are for certified health IT developers. And the developers will use these measures to report on as a condition of maintaining certification. And then, also just as reminder, these measures were created by the Urban Institute through market research, expert interviews.

They did deep dives into the literature and product reviews. They've also looked at existing measures. They review data processes that are used to collect information from developers. They had target stakeholder discussions and included individuals in measurement and technology. So, there has been a good amount of discussion that's happened up to this point. Next slide, please. We're going to dig even deeper into it. So, in the context of our charge, we've been given these lists of questions or criteria to use for our evaluation. The questions touch on different aspects such as measure specification. So, we'll be looking at the numerator and denominator detail, which includes the populations. We'll look at the mechanics of reporting, such as the frequency of reporting, the types of data that is included, etc. We'll also address feasibility of accessing or analyzing and reporting the data that's needed for each of the measures and its populations.

We'll consider how feasible the measure is both now and could it be feasible in the future. And finally, we'll review the measures burden and if there are any biases and if there is value to stakeholders. We're going to discuss the measure. And we can add points. So, as we dig into the measures, if it seems like there are additional points that we'd like to bring in and evaluate and we can definitely do that as well. So, these are not just hard and fast. And I still want to take a minute and highlight that the measures are developer reporting measures. They are not CQM's. The idea is that they'll be almost if not entirely collected and calculated and reported by the developers on the back end and pretty much invisible. We hope that they're invisible to the users and the providers. So, our lens is to also look and see if there is any burden on the providers and if so, to what extent. Next slide, please. And this is just a copy of the discussion template that will be used. So, you'll see it populated in just a few minutes. Next slide, please.

So, to get us kicked off, what I would like to do is have one of our colleagues that was part of the development to introduce this domain and the measures and give us the back story on this and what was presented. And I see Gary is there. So, he's going to give us some of that developer and how they got to this point. And then, I will turn it over to Steven who is going to introduce the discussion for the measures. Go ahead, Gary.

Discussion of Patient Access Measures (00:17:07)

Gary Ozanich

Thanks, Jill. And that was a very comprehensive review of our process. I'm also joined on the call by Laura Smith from Urban Institute who was very directly involved in identifying these patient access measurements. And we discussed this in the larger HITAC meeting a couple of weeks ago relative to the motivation. Clearly, patient access and potentially patient directed exchange is a key piece of interoperability, particularly under Cures with the introduction and requirements relative to third party applications. In terms of the measures we recommend, they're linked very much to the certification criteria that already exists under regulations. And in particular, the research questions concern how patients are accessing their health information electronically. That is sort of through traditional portal or third party apps. And one of the elements we heard

so often is that measures under promoting interoperability or meaningful use prior to that really were just dichotomous. Yes, they happened and there was really no understanding of continuation of their use.

So, part of the research question is is usage really being sustained or is this just a one off sign in. And so, part of it is what has sustained usage, which has drop off after download and also our research question or measurement question is to what extent registered third party apps include comprehensive publicly available privacy policies. That is something we, actually, discussed quite a bit. And really the level of detail that that should include is one we look forward to hearing in the discussion with the task force. Next slide, please. So, the patient access measures themselves were explicated from those questions. And we've established numerators and denominators. I won't take the time to go through those since they've been distributed and discussed previously. And reporting elements, the extent to which visibility can be achieved relative to patient characteristics. The ability to report numbers, not just percentages so that actual aggregate numbers could be tracked over time. And then, one question is how often, as you saw in the cross cutting issues. What is the frequency of reporting? Next slide, please.

The other measure concerns sustained usage, which I described. And so, questions here in terms of the numerator and denominator, what is an appropriate number for apps. Is it one user? Likely not. Is it 1,000 users, 10,000 users? What should the numerator in terms of defining third party registered apps that are authorized and then, also a look at aggregation by developers. And you can also see the patient facing apps are those registered under the application registration requirements. Next slide, please. And then, the next is the privacy policy. And this is a question of whether the developer collects third party patient facing apps, available privacy policies, is that part of the registration process. And if that's the case, what are the characteristics of those policies? So, that's really at a high level. Laura, I don't know if you have anything to add or anybody else to the team that would like to add anything or if anybody from ONC would like to add anything.

Laura Smith
I thought that was good. This is Laura.

Michael Wittie
This is Michael. I think the results are good. The thing I would just emphasize with the privacy policy is that it is very tied to the regulatory language that we had previously for the certification criteria regarding a privacy policy. We haven't gone further than that. And a while ago, we had a little more detail on how you can link to what those regulation statements are. You can see the certification right there in 173-415G. That's really what we're trying, again, to tie this definition to the certification requirement because that's what people already have to do. And we don't want to add unnecessarily.

Gary Ozanich
So, Jill, we'll turn it back to you.

Jill Shuemaker
Great. Thank you. Thank you, Gary. That was a great introduction. I think that's really going to help with our discussion. I'm going to turn it over to Steve now. Steve and Sheryl did a lot of the pre-work to really dig into this. Sheryl isn't able to join us for the discussion but she has sent her feedback to Steven. And I

believe he's pulled that all together. So, Steven, I'm going to turn it over to you and get the discussion going. Thank you.

Steven Waldren

Thanks, Jill. Maybe what I thought would be good is on the introductory slide that talks about the measure domain, the motivation, and what the draft measures are supposed to look at is just a couple of things there. So, the first one was on this notion of were third party apps being used or not, I think another thing that we could think through maybe is measuring the ratio of access to patient portal versus third party apps and could that be some type of proxy around the ease of third party app integration. I think that would assume that third party developers would be interested in integrating in with an EHR. And that proxy is how well does the product implement the API's in an industry standard type of way. So, I think, again, this would be a lot of assumptions but it may just give us a sense of that level of integration because I see that as a potential thing that we'd want to be able to know. And then, the other thing when I talked about looking at the sustained usage, when we look into the actual measure, it looks to kind of drop off over time. And while that may be good, I think there are a lot of things we have to think through that go into what is going to sustain that.

1.) So, the integration ability with the app from the user experience, is it integrated well? 2.) Is the app experience good? 3.) Is the data, actually, available to do what the app wants to be able to do for the patient? So, there are a lot of things in there. I just didn't know if we wanted to talk a little bit about the limitations of that sustained usage as we get into that. I thought what we could do maybe then is if there are any comments at a top, high level around patient access, I'm happy to have folks talk about that right now. And then, what I wanted to do was to go through each of the three measures quickly and get people's commentary relative to that. Sheryl and I didn't have a lot of points but there are a couple of points with the different measures. So, maybe I'll stop there and see if there are an other high level points people wanted to make as they look through these measures and this motivation.

Jill Shuemaker

Steve, would you like them to display that Excel spreadsheet that has all of the cross cutting criteria on it? Would that be helpful for you?

Steven Waldren

I'm not sure I understand which one. So, those are the issues. I think that will be good in just a second. I just wanted to give people an opportunity if they had anything at this high level around the motivation and these questions.

Jill Shuemaker

Great. Steven Lane has his hand up.

Steven Lane

The first thing is I apologize for missing the first meeting in this group. I'm still kind of playing catch up here. The first comment I have just looking through the slides that we've been discussing under the patient access measure is there is a commentary on Slide 15. It says report overall and by patient characteristics. And they capture age, individual versus caregiver, and race and ethnicity. They don't capture gender, specifically, and they don't capture other social determinants such as socioeconomic data that we may

have. So, I think it's nice that we've started this list of items for breakdown. I think gender is, particularly, important. I think it's, generally, well known that there are differences in how different genders access healthcare and healthcare data. So, I think that would be helpful to add there. Certainly, when you think about the SOGI data that is starting to be collected and will start to flow under USCDI Version 2, there are some gender subgroups that are going to be worthwhile looking at. So, I just wanted to comment on that initially as we start in here.

Jill Shuemaker
Great. And we have Sasha.

Sasha TerMaat
Thanks. I have a set of cross cutting questions, which I think are, certainly, applicable to these patient access measures but that I may bring up, again, as we talk about some of the other domains. One of them is that I know many of you and you know I have a lot of experience with meaningful use. And one of the things that we've learned in meaningful use is that it was common to spend more effort developing functionality to measure it precisely than developing the functionality to do it. So, over time, for example, I think we put more effort in measuring the use of say view, download, transmit functionality according to the specifications put out by CMS for meaningful use and ONC and certification than we did developing the functionality that allows patients to, actually, view, download, and transmit their records. So, that leads me to think about potential measurements judicially because they, in some sense, mean that that's effort that's going into measurement that's not going into creating other features.

I look at the measures we have here and I say gosh, these look like pretty complex measures. There is a variety of stratifications, permutations, ambiguities here that I think, as a group, we're going to want to work on so that we can create measures that are, as I said, useful to the stakeholders and the intention of the program but feasible to implement. That's kind of a cross cutting philosophy of mine that I'll share with the group. My second, I guess, specific question across all of these measures is about the desire to have the developer report them. Some of these, for example, if we wanted to stratify the view, download, transmit measure, which is already part of meaningful use or now promoting interoperability and MIPS, we could presumably have providers stratify that as part of their reporting to CMS. I know from conversations with the Developer Trade Association that while some vendors have processes to gather feedback from their clients about usage of certain features, that's not pervasive across the whole population of certified health IT vendors.

And, in fact, it seems to trend that smaller vendors, in particular, don't necessarily have those mechanisms. Even at Epic, which is where I work where we have a mechanism to collect that data, we sometimes run into healthcare organizations who do not want to permit us to use their data for a certain purpose. We're considering some similar measures, for example, for our real world testing program. But there are healthcare organizations who have declined to have their data be included in our real world testing metrics. And I think one of my questions here is what if the developer who is expected to report this is unable to gather some or all of the data because they don't have the permissions and the access. I don't have an answer to that. I think it's a conversation we'll need to have. My final thought and I guess this comes to Steven's point about some of the motivation behind these measures, some of these, to me, seem about products that are not the product doing the reporting. For example, Steven said, "Maybe if an app is unpopular, it reflects on the EHR it's integrated with."

But to the question earlier about how do we avoid interpretive ambiguity, it's also very possible that if an app is unpopular, it's simply not a very useful app or maybe didn't provide a lot of value to its patients. And so, I think we'll want to think about does the measure of that nature provide enough unambiguous data to be valuable to collect in this way.

Michael Wittie

This is Michael. I'd like to just quickly jump in. Great point, Sasha. To the first thing you noted, the question in terms of the developers reporting, the reason that we're going to be having the developers reporting is because that's Cures says we have to do. And, of course, we can only have the certified developers reporting because, obviously, they're the only ones who are certified who would be required to participate in this program. So, we're trying to think of measures. And there was a lot of discussion in the development balancing of what can be measured now in terms of data that intrinsically has to exist in the system. But it would be very interesting to hear the feedback on how much access developers have to locally install systems and what would be involved in getting access in the future when that becomes necessary. I don't know if Jeff Smith or one of our regulatory folks is on and wants to jump in there.

Sasha TerMaat

Sure. And I think there are going to be two domains there, right? I think there is a technical question of access. I'll work with the EHR Association to develop some examples of the technical barriers there, particularly, for small providers. There is also simply a legal barrier. For example, I mentioned that we are planning to use some metrics that are kind of similar to this in our real world testing. But when we presented a description of our real world testing plan and asked healthcare organizations to sign that they were okay with their data being included, certainly, not all of them did or they haven't yet at least. Maybe they're going to turn around and do that soon. And so, I think there is also a question of does this mean if you're a certified product developer, you have to compel each of your users to share their data with you. What happens if I got to a healthcare organization and they say, "No, I don't want to?" Do we under report? Do we extrapolate?

If the requirement is on the developer but the developer does not have direct access to this data, I think there needs to be some thought to what that means.

Steven Lane

Doesn't it seem, Sasha, that as these metrics get defined and put into rule making that developers should be able to include with their contracts with customers the requirement that this data be made available because it is now a requirement of the developer themselves? I appreciate that you run into challenges today with voluntary sharing of data. But it seems like when it's required by a federal program that we could just require the sharing of that data. I know that's easier said than done, of course.

Sasha TerMaat

I think that's possible but then, we should talk about that this is, actually, requiring that. It's requiring a re-negotiation between a certified HIT developer and each of their clients to permit a degree of data sharing that may not be currently the case and is, in many cases, not the case. And that's to the question of is that feasible for each developer to do. I think when developers give feedback on the burden of this type of reporting, re-negotiating each of their contracts about data usage could have a significant nontechnical burden.

Steven Waldren

Maybe what would be good is if we went through, not just the set of patient access measures but the other measures, and Sasha, if you could help with your colleagues in EHRA, and identify those data elements. And then, towards the end, we can take a look at those and say is it a couple of measures and do we want to rethink if those are appropriate measures that we want to include or not or do we have to deal with all of those issues you talked about with compelling and those types of things. But I think, at this point in time, maybe it makes sense to dig in a little bit and understand what those data elements are because it may just be better to decide as a group let's not include those because there is not enough juice for the squeeze.

Sasha TerMaat

Yeah. I think it would be good to talk about each of these specifically.

Jill Shuemaker

Thank you, Steven. I want to just pause a second and ask that before you speak, if you will introduce yourself so that we know who is speaking and we can capture that in our notes. And then, also Raj Ratwani has joined the call. And I just want to give him a brief moment to introduce himself. And he's going to help facilitate this discussion piece as we break each of these measures down. So, go ahead, Raj.

Raj Ratwani

Thanks, Jill. Can everyone hear me okay?

Jill Shuemaker

Yes. We can hear you.

Raj Ratwani

I think I know most of the people on the call but nice to meet everybody that I haven't met. I'm Raj Ratwani. I serve as the director of the National Center for Human Factors in Healthcare, which is part of MedStar Health and I'm the vice president of scientific affairs for the MedStar Health Research Institute. And I'm sorry I missed the kickoff in the first half of this one. But, hopefully, we'll be back on track. I'm looking forward to working with everybody.

Jill Shuemaker

Bryant, has had his hand up and so I want to give him an opportunity to talk and then, I'm going to totally turn it over to you guys to continue.

Bryant Thomas Karras

Thanks so much. I just wanted to second Sasha's comment. As you all said, even if it becomes part of a federal rule and thus an obligation that doesn't necessarily force people to do it. There are a number of institutions that will still drag their feet on sharing those measures. And, potentially, you end up with just a representative subset of the population of EHR users. So, we should think about whether or not that makes sense. Or, alternatively, is there a way that these measures could be designed so that it's not mass sharing of the line level content but some type of metadata that can be more freely agreed to sharing? And I'm projecting ahead to the immunization registry discussions that we'll have in next week's meeting that there are several states where it would be against the state law, not federal law, for the provider to share

immunization information with an outside entity that would be a restriction on that information becoming part of an aggregated measure.

So, we may need to think carefully about how these measures are constructed. Thank you.

Steven Waldren
There is nobody left in the cue. Maybe we can move to the first measure. This was the percentage of patients who accessed their electronic health information using different methods. So, again, the issue is who is accessing and how they are accessing it, portal versus third party. So, looking in my notes, one of the things we both looked at was the definition of active. We probably need a little bit clearer definitive of what that means. Is that patients with a visit within a year? Is that only office visits? Does it include telemedicine visits? And if so, then what if the telemedicine visit is not being done by the cert? What does that mean for the developer? Who is going to record that? So, I thought there was some need there to be a little bit more specific around what's an encounter and what does active really mean. And then, the other thing I looked at was 1C when it says, "neither" then, it's like well, how are they still accessing that and do we need to give a little bit more clarity on what that means. Is that that there was a request for information and it was presented as a PDF?

What if it was printed out? Does that count? What if it was, actually, viewed in the EHR? How does that count? And it probably can't count if we're going to have the developer only do the reporting. And then, the last thing I wondered about was do we want to try track the number of patients. And we probably can't do it by patients but it's rather the apps that were not granted access because of security concerns. So, do we want to try to capture that to understand that there are, actually, some apps out there that there are system integrity issues on the cert side for some of these apps and be able to record that? I wonder if anybody else had comments about this specific measure. And I can't see the hand raises or I don't know how.

Raj Ratwani
I don't know if these are still active but I see Sasha.

Sasha TerMaat
Yes, thanks. Steven, I agree with some of the concerns you raised. I also wondered about the denominator. I think it needs much more specificity to be reported consistently. I was also thinking about it from an Epic perspective. And I thought if a patient has both an office visit and is admitted to the hospital and then, they go access their portal once or they connect an app once, do I report that under the Epic care inpatient certified product or the Epic care ambulatory certified product or both? We would need to be thinking about some of the denominators in terms of the scope of products that might be certified. Whether it's a telemedicine encounter, like you said, and whether that is in certification or not, ambulatory visits, inpatient products but then, also app usage may not be specific to particular product domains and certification. So, this numerator doesn't necessarily align with particular products as we think about reporting. I also agreed with your second point of 1C.

I don't really understand what that is. I first read it as just the denominator minus 1A and 1B. But then, it doesn't really line up with the numerator description of patients that are accessing their information. So, I think 1C either should just be struck like those patients didn't do anything so we have no number to report or it needs to be much more clearly defined. And then, 2C, I think, would be the same. If they didn't access,

we have no 2C really as far as I can tell. My third point overall goes over to the characteristics that we talked about on the right. And I know Steven Lane suggested some others that we might think through. I think, in general, as we think about adding characteristics or permutations that we want to put into this data, we just want to think about picking our most important priorities because each permutation or stratification that we add increases the complexity, the potential sensitivity of the data to be shared by the healthcare organization with the vendor because they're sharing more granular information than they were before.

And I think picking some stratifications that are of significance to the industry and this initiative doesn't fundamentally seem unreasonable. But each one, potentially, significantly changes the complexity. We'll also have to think through, and this is just me getting into the weeds, but when you say age group, do we care about the age group of the patient or the age group of the person doing the access getting into the individual and caregiver. When we say race and ethnicity, again, are we thinking about the patient or the user when they may not be the same person? Gender, if we do that also. I'm assuming this is all going to be about the patient and their race, ethnicity, age, or gender. But we'll need to make sure that that's specified.

Steven Waldren
It does say patient characteristics so, hopefully, that's what that means. Otherwise, it would be extremely difficult, I think.

Sasha TerMaat
Yes.

Steven Waldren
Raj, are you trying to jump in?

Raj Ratwani
Yeah. Great points. Thanks, Sasha. I think I just want to highlight that piece about the specific characteristics. As you said, it just gets unwieldy really quickly. And I think unless people know the nuances of that, it's easy to make a laundry list and assume that it's going to be really simple to get this. I see three others right now. The first one that I had was Joe if you want to go next.

Joseph Kunisch
Yes, hi. Good morning. A couple of things. I think there has been a lot of really good points brought up in the previous discussions. And coming from a quality performance improvement perspective, I always look at things as far as measure. The first question that comes to my mind is what are we trying to achieve with this measure because working in this domain so much, a lot of times, you get asked to produce a report or something and then, everybody looks at it and says, "Yeah, that's interesting," and then, moves on. So, what is the end goal? Are you going to, actually, use this data to improve something? What exactly is that end goal? And then, looking at the specific measure, I just see a lot of challenges in it from a personal perspective. And I'll give you an example. I just recently healthcare systems where I work. So, in my previous one, I had my primary care physician that was on an EHR vendor that had their own portal. So, I had some information in there. I changed my primary care during that period who happened to be on a different EHR vendor, which then, I had to sign up with that portal.

And so, now I had disconnected information. And now, I'm in a new healthcare system. And guess what. They're on a different EHR so I have to access now a third portal. So, if I want to go back in my historical, I have to determine what time period and then, go to that portal and access it. And so, when you look at things like did patient use a patient portal, authorize access and all of that, you're getting a lot of duplication just from one person that may have that challenge. And then, if it's even possible where I find a third party application that I can aggregate all of that for me then, it really brings in just another layer of complexity to capturing and reporting what is really a true picture of what I, as a patient, am doing as far as authorizing access or, actually, doing the access. So, those are all of my comments.

Raj Ratwani
Thanks, Joe. Appreciate it. Perhaps, worst of all, is you have to remember all of those passwords, which I can never do. Steven Lane, I think you're up next.

Steven Lane
Thanks, Raj. And nice to see you. It's been a while. I think Sasha made some really good comments. And I think they're worth responding to. I appreciate where we're going is with specific recommendations. I think as Sasha raises these key questions, we should at least think about whether we want to suggest some recommendations in response to them. I think, Sasha, you initially raised the question of active patient. I think, Steve, you, actually, did this. What does that mean? It seems, to me, pretty straight forward that you can say that an active patient had an encounter within the reporting period. I don't think we have to get too complex with regard and say was it the year before or this or that. I think that seems pretty intuitive. Sasha raised the question of what about a system like a large system that covers both ambulatory and inpatient and they have multiple certified products. It seems to me there, again, pretty straight forward. If a patient has an inpatient encounter and then, they access the system then, that should track back to or give credit to the inpatient system.

If they have an ambulatory encounter, it should track back to the ambulatory system. If they have both, it can track back to both. You can't make it any more perfect than that. But I think we may want to have that clarification. I agree, Steve, with your interpretation on the issue about the patient characteristics. It says patient characteristics. I think it makes sense for it to be patient characteristics as opposed to proxy. I think it just makes it way too complicated and doesn't add a lot of value. And then, the other one was the whole question of sustained use. In the numerator, it says more than once. I think multiple accesses within a single day, to me, does not represent sustained use. We might simply say different days. I think what we're trying to get at here is use over time. So, we might even want to say different months. But it seems to me that those would be the two options. I don't really think of use on Monday night and Tuesday morning as sustained use. So, I would tend to opt for uses into different calendar months during the reporting period.

Again, not that any of this is going to be perfect but I think we can make some recommendations to make it better.

Sasha TerMaat
I think I want to define encounter with at least a series of examples if not a set of CBT codes or something. And I think, Steven, maybe as a good example, not to pick on you, but the complexity from a reporting and development perspective of reporting whether something happened twice versus reporting whether it happened at least twice in two separate calendar months is significantly more. So, as we think about

changing metrics in those ways, we do have to know that's using some of our complexity tokens. If that's the most important place to use our reporting complexity tokens, we can sort of spend them there. But sometimes, we throw out these permutations. And I want to give the context from a developer perspective that that is not necessarily trivial in the complexity token way.

Raj Ratwani

So, I want to make sure that we provide Steve Waldren enough time to get through these. I know, Bryant, you've been patient with your hand up. And I know we have two more measures to go through. So, why don't we give Bryant an opportunity to ask his question.

Bryant Thomas Karras

I'll be really quick.

Raj Ratwani

Perfect. And then, we'll go to the next one and maybe try to do seven minutes each leaving some time for the last few sides.

Bryant Thomas Karras

I was just going to say I want to make sure that, from a population perspective, we make sure that we're thinking about measures that make sense. Obviously, from a clinical perspective, one thinks about those complex patients that would be accessing that multiple times, multiple months throughout the year. But from a population perspective that healthy individual who has a once a year or once every other year wellness check, the fact that they only access their follow up results from their lab screening tests once in that calendar year should not necessarily be counted against the developer. That's appropriate use. So, I want to make sure we're not overthinking and focusing in on the sick individuals that we care for as opposed to the population as a whole, which may make up the bulk of the individuals in the records. And then, I wanted to dig in a little bit on Steven's comment on SOGI. I think that would be really an important addition.

Sexual orientation and gender identity as well as do we need a meta measure of the completeness of that race and ethnicity and gender identity information in the systems because we're seeing a lot of empty records reporting to us in public health where the race is either left blank or described as other with no additional information so it can be analyzed. And perhaps including in the patient access measures a recognition of whether or not the patient can edit and self-identify their race and ethnicity, which may have been recorded and collected incorrectly elsewhere. Thank you.

Raj Ratwani

Thanks, Bryant. So, just to make sure we are keeping on track, Steve, why don't you take over and why don't you go through the next two measures and then, we can save questions for the very end.

Steven Waldren

Sounds great. So, one thing I did want to mention on this one though is where it says aggregated by developer, of course, to Sasha's point, I think we should think about aggregated by product. And the other thing, too, when somebody said something about this measure against the developer, I think we also need to be very clear about these measures. I don't think I would be able to be specific enough to say that there is a good or bad associated with where the metric is at. It's just where is the trend. Where is the market

headed? So, the next measure, No. 2, sustained use. And I think this one is something maybe we should have a roll up at the level of more of an industry than the individual developers just because of the complexity here and not being able to be very specific about what we're measuring. And then, the only other thing I had was ability to try to find out this notion of the denominator. So, looking at the HIT module authorization server and maybe this is something Sasha and EHRA could help us better understand is when does an app get registered.

Is it when they want to integrate or when you think the cert has said integration is done, we're all good, we're all set, now let's put it there so it, actually, is now something that could be used by the patient? And depending on when that registration happens, we may be able to understand some of those products that are struggling to be integrated into product. Again, it may not be the cert developer that is the hindrance there. It may be the actual application developer that can't get it integrated from their side. The other measure then looks at the privacy policy integration. And Sheryl and I didn't really have any commentary relative to that to add to this. So, again, is there a privacy policy public available? And then, the other measure is does it contain the components that are part of the cert rule that says that these are important pieces? So, I would say go back to the first one. But any commentary on either two of those measures. And, again, can someone help me with the cue since I can't see it?

Raj Ratwani

Sure. Bryant, I see your hand is still up. And I'm assuming that's from the last comment but if it's not, please let me know. Any comments from folks on the second measure? That's the one currently on the screen, sustained usage. I guess I have one question and I haven't had time to dig into these as much as I'd like. How is this relating to the last part of Measure 1 that Steve Lane was just giving us some insight on?

Steven Waldren

A little bit more flavor of what you're asking.

Raj Ratwani

So, Numerator 2 under the first measure was the number of individuals that accessed the data more than once. Steve Lane had talked about maybe that's a monthly thing. But that seems to be more in depth into the second measure here. So, I'm wondering whether there's a way to just bring that all together.

Steven Waldren

It almost seems like maybe we should just remove it from the prior measure and just have the sustained all be part of one measure.

Sasha TerMaat

I would think that 1A here but authorization of an app is going to match one of the parts of two, although I've lost track of which one it is now that I'm not staring at two on the slide. But there was a question on two about how many apps are authorized. Although, I guess one is focused around the number of patients and this is number of apps. They're going to be measuring, essentially, the same behavior but maybe counting patients versus counting apps here. Registration, to Steven's point, happens, hopefully, when an app thinks it's ready to have live users. So, after it's completed, it's testing and it's launching and going live. They would register to be available for live use. So, that's, I guess, the concept. There are a lot of things that register, in our experience, that are called things like Steve Test App, which makes me think that maybe

they're registering and they're not, actually, ready for live use or are, in fact, something like one person is using for testing.

So, that may be a humorous example but an indicator of how it's going to be, potentially, difficult to translate this data because, from my mind, I'm like should we count something called Steve's Test App in the denominator? Or if we don't, how do we know which ones to take out? And if we do count it, obviously, it's inflating the denominator with something that I'm inferring from the name of it was not ready for patient usage.

Raj Ratwani
Good points. I'm still grappling with the analysis of the registered app level versus the individual level, which I do think are tapping two different important pieces of access and usage. And a really good point about the test app issue. Are there other thoughts or comments for Measure 2 or Measure 3?

Steven Lane
My hand is up, Raj.

Raj Ratwani
Oh, sorry. Go ahead, Steve.

Steven Lane
The numbers over on the right, thousand users, ten thousand users, there is really only one app out there that has those kinds of user numbers so far. And we've seen a lot of apps in our organization with one user, two users. They use it in one calendar month and then, nobody every uses it again. I think that there is a big difference between fewer than 10 users and more than 10 users. I don't think we have to go all the way to 1,000, at least at this point, in the uptake of these apps to find things that are being utilized. So, I think those numbers are probably more inflated than they need to be. And then, a couple of other thoughts came to mind, which really applied back more to Measure 1 but they popped into my head so I apologize. We didn't get, I don't think, to patient versus proxy use of either the portal or the app. I don't even know if there's a way to know if it's being used by a proxy. But, certainly, when you think about pediatrics and adolescents as well as adults, proxy use is, obviously, important.

During adolescence, you sometimes have both patient and proxy use and that's, obviously, onward into adulthood. I don't know whether that's important enough to be included in a first iteration of these measures but it's, certainly, something worth considering. And I also wonder whether there might be certified health IT developers that offer portals and they don't capture proxy use or they don't offer proxy use. And I think that would be an important thing to find out and it might be discovered unless that's already part of certification. This might be the first way we could start to discover that.

Steven Waldren
Steve, I like your point about the groups of how many users. It makes me think now, especially with Sasha's comment, about the test app. So, if it's, actually, testing does the app work versus is it an app that, actually, helps you with your laboratory tests, you wouldn't be able to know that. But if the reporting was any apps that had 100 or more users then, it would, hopefully, take care of a lot of those issues around if it's just not a production app but it's being put into the server for some reason.

Steven Lane

Yeah. I would suggest each order of magnitude. I'd do 10, 100, 1,000, and 10,000 because for test users, generally, it's going to be a pretty small number. I'd be surprised if any app had more than 10 test users. That's just my thought.

Raj Ratwani

Thanks, Steve. Joe, I've seen your hand up.

Joseph Kunisch

Yes. Joe Kunisch. So, I'm looking at Measure 3 on that one. And, again, I go back to what are we trying to accomplish and how this information can be used to improve something. I'm somewhat struggling with it. It appears to me that Numerator No. 2 number of registered third party facing apps that have those data elements, those five elements, in them is what the end goal is to assure that all of these third party apps have that publicly available privacy policy. So, going back to what if you did, actually, collect this and find that third party meeting Numerator No. 2 was only 10%. So, what's your action going to be? Then, to somehow penalize those that don't, build this into a certification requirement. And if that's the case and this is what your end goal is, why not just build that right into certification requirements saying if you're a third party app, to be approved under ONC that you need to meet these as part of the requirements? I'm, again, struggling to see the value of this particular measure. Thank you.

Sasha TerMaat

I wonder how it would be reported. So, thinking from my perspective, when an app registers with Epic, there's a field and it says, "Link your privacy policy here." And, hopefully, they do. Although, again, to the point, some people fill it out with Steve's Test App, they might link www.google.com. Myself and my colleagues aren't going through to confirm that the privacy policy aligns with the five elements described in ONC's Cures Act. I kind of don't know that that is something that the EHR developer would routinely do. Numerator 2, to me, seems like something that we ought to get reported from apps, not from EHR developers about apps that register with them.

Bryant Thomas Karras

And it's nearly impossible for the developer to know, even if it was compliant with all five elements at launch, what's to prevent them from modifying their privacy policy down the road and what would be the trigger for the developer to recheck. It could be tricky.

Sasha TerMaat

Right.

Raj Ratwani

I think the way we could use a similar number of users to tackle the issue of test apps. But I agree, overall, this seems maybe out of purview of what the vendors can report. The other issue I have with this one is it's pretty easy to throw up a privacy policy. What's harder is to make one that's, actually, digestible by a normal human being. If anyone has tried to read some of these, we did a study on this a while ago, it's absurd. It takes lawyer interpretation most of the time to understand, which I think is more important than is it just available. It's about being available and, actually, comprehensible.

Bryant Thomas Karras

We launched an app and translated the privacy policy into 32 languages and made those all available. And now, we want to go back and change it. Oh, my God. What a pain. I hear you. Making that accessible to all and legible at a reading level is tricky.

Raj Ratwani

So, we have about 15 minutes left. I think the next slide if we just want to go to that is an example that I'm not sure we really need but people can see it. And if we can go to the next slide, Slide 19 is what I'm seeing, there are a few more discussion questions. And then, there are also a few questions in the chat if people are looking at that. Maybe I'll just give people a quick minute to read Slide 19. And if people have any comments or thoughts on these that would be helpful. Are there any thoughts on these? Steve Lane, I see your hand up.

Steven Lane

So, I think we talked about number of users. I'd go by **[inaudible] [01:12:46]** 10, 100, 1,000, etc. Reauthorized users I'm not sure but isn't the frequency of reauthorization determined by the app developer? Does anybody know? Or is that specified by the certified EHR?

Sasha TerMaat

No. It would be a combination. So, typically, the app developer would have like a reauthentication process at some interval to refresh the data.

Steven Lane

Refresh is different than reauthorize, right?

Sasha TerMaat

Although often, they would go together.

Steven Lane

When I read the word reauthorized, not living in the app developer world myself, I assume that means that the end user is asked do you really want to still let this app get your data. That's what I think of reauthorize as opposed to it's been a day or a week or whatever and I'm going to go back and refresh your data. Is that a common understanding of the term reauthorize?

Sasha TerMaat

I would agree the duration at which reauthorization is required is probably set by the data holder. It might be the decision of an app if they were to decide to reauthorize more frequently rather than simply refreshing the data. So, there is, I think, decisions on both ends that would influence how frequently it happened.

Steven Lane

I think we're using the reauthorization as a proxy measure for continuous use. The idea that somebody is saying yes, indeed, I want to keep using this app. Have we developed any standards or best practices on the part of the data holders, which would be, essentially, the EHR's as to how often they feel that patients should be asked to reauthorized, whether it's monthly, quarterly, annually?

Sasha TerMaat

Well, the certification criterion that we're pointing to here, G10, has expectations build into it for persistence of access. So, I think that would be the baseline expectation in my mind.

Steven Waldren

I've got it up there. It's in there somewhere I'm sure.

Sasha TerMaat

The other question, I guess, I would raise for our discussion here is we talked about three different measures and a whole variety of different permutations. Which of these do we think are the most useful to the industry? So, if we were going to prioritize, for example, what goes into a first wave or where should we measure it first or if we had to pick how to spend our complexity tokens on this, we've talked about some of these being hard to interpret or not sure what we do with it. Should we, as a group, star ones that we think are the most important or the most valuable or indicate any sense of prioritization that way?

Raj Ratwani

Are there any thoughts on Sasha's question/comment? And then, just a quick heads up that we have public comment now as well.

Steven Waldren

This is Steve. I would think, based on some of the commentary we've had today about the privacy policy while that's a critically important piece, I don't know that measuring it here is a priority. I like the commentary earlier about using a different lever to have the third party apps have some type of accreditation or certification or acknowledgment that they would have to show they have that as opposed to having a developer do that. I think the measures to be able to identify what percentage of patients are accessing their data, either that be by a portal or by an app, in my opinion, is probably the most important piece. And the second one is the number of registered apps and the patients that are, actually, leveraging data based on that. And I don't think we need to have the multiple different levels by 10 patients, 1 patient, 1,000. I think if an app has over 100 patients then, it gets reported. That would be my commentary.

Public Comment (01:18:04)

Michael Berry

This is Mike. Let's pause here and we'll take public comments and we'll go back to the task force comments momentarily. Operator, can we please open the line for public comments?

Operator

Yes. If you would like to make a comment, please press Star 1 on your telephone keypad. A conformation tone will indicate your line is in the cue. You may press Star 2 if you would like to remove your comment from the cue. And for participants using speaker equipment, it may be necessary to pick up your handset before pressing the star keys. One moment while we poll for comments.

Michael Berry

And while we're waiting, I just want to remind everybody that the task force will reconvene next Thursday, July 29 at 10:00 in the morning Eastern Time. So, we look forward to seeing you again. Operator, are there any public comments?

Operator
There are no comments at this time.

Michael Berry
All right. Thank you. Raj?

Raj Ratwani
Great. So, I think we left off with Sasha's open question. So, while people are noodling on that, I'll go to Joe who I believe has his hand up.

Joseph Kunisch
Yes. Joe Kunisch. I like that idea of scoring or putting these as saying this would be priority. If we had to select one out of these three measures, I would say Measure 1 would be the patient access to electronic health information because representing the provider domain that would be valuable information if I could get it for our health system as a look at who is, actually, accessing these third party apps and how often and so forth. So, we could, actually, use that information maybe to do some targeted marketing or something to promote it. That's all. Thanks.

Raj Ratwani
Are there any other questions or comments?

Steven Lane
Sorry, Raj. I'm trying to raise my hand.
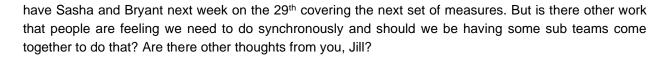
Raj Ratwani
Go ahead.

Steven Lane
I wanted to agree with Joe. I think that the three measures are, actually, listed in a natural priority order with Measure 1 being perhaps the highest priority and most useful, Measure 2 on sustained usage being secondary to that. And the privacy issues, I think, are just going to be particularly difficult to parse out. So, I think that's slightly behind No. 2.

Final Remarks (01:21:06)

Raj Ratwani
Thanks, Steve. We have a few minutes left. So, if there are other comments or questions, please feel free, if you can, use the hand raise feature. I'm going to continue to try and monitor it and I know the ONC folks are as well. Jill, I just want to surface the conversation that you and I had I think it was yesterday. I can't remember the days now. But we were talking about the aggressive timeline in front of us and how much work needs to happen. So, I just want to open the question of do you feel like the weekly cadence of this is enough to cover the material. There is going to be some homework that's coming out of this. I know we

have Sasha and Bryant next week on the 29ᵗʰ covering the next set of measures. But is there other work that people are feeling we need to do synchronously and should we be having some sub teams come together to do that? Are there other thoughts from you, Jill?

Jill Shuemaker
Yeah. I've really enjoyed the discussion and the perspectives that everyone was bringing forward. I thought that one thing that we didn't touch on that I think is really important is the value. Joe touched on it just briefly and he brought up the point that information is valuable to him as a health center or a provider to know what apps are being used, etc. But we didn't really touch on is this information valuable to a patient. We go into part of what we're trying to show is being able to have transparency and information in the hands of patients that they could make good decisions. So, I do think that there are some topics and some issues that are in that list that we have not had time to touch on.

Raj Ratwani
So, are there thoughts from anybody else in the work group on how we're doing our work in between these weekly meetings?

Steven Lane
I had my hand raised, Raj. Oh, go ahead, Bryant.

Raj Ratwani
Steve, why don't you go ahead. I have you at the top of the cue. Steve Lane, why don't you go first and then, we'll follow with Bryant.
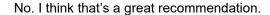
Steven Lane
Sure. I know that as a task force co-chair, it's hard to watch those hands. I just wanted to plus one Jill's point about keeping the patient perspective in mind. I think we should really endeavor to do that as we go through each one of these steps. The other thought I had, again, just as a prior task force co-chair is it's nice if we can develop the draft recommendations as we go along. If the teams that are prepping us might want to even jot down recommendations that they would have that would come out of the discussion for their section and we have those up in a Google Doc and we can reference those in real time. Most of us have two monitors and can keep up with Google Doc on the other monitor. And then, the folks who are responsible like Steve and Sheryl here could then, go back and update those so that when we get to the August 19 meeting, we've, actually, got some draft recommendations that have been out there that people had a chance to review and make comments on. I think that can facilitate the workflow.

Raj Ratwani
I like that idea a lot. And so, we'll talk with the ONC team offline to see how we can begin to synthesize some of this. And then, Steve and Sheryl, maybe we'll pass some synthesized data back to you for some refinement. And then, maybe at the next meeting on the 29ᵗʰ, we can start with at least some presentation of those and make sure those are available to folks. And then, Steve Lane, I love the idea of trying to do more of this in real time. That's a really good thought. Jill, is there any additional thinking on Steve's comment?

Jill Shuemaker

No. I think that's a great recommendation.

Raj Ratwani

And I'm seeing Bryant, you were next.

Bryant Thomas Karras

Raj and Jill, I wanted to make a suggestion or ask if you think this is appropriate. One of the things that I'm seeing consistently over all of the measures that we're considering is a dependency on race and ethnicity information and extrapolating having proper demographic information on these patients consistently recorded so that they can be rolled up to identify gaps or inequities or access issues in geographic deserts of access to information. I'm wondering if rather than addressing these measure by measure if people who are interested in discussing that join in, too. Ken is not on the call so he can't confirm if this is one of the standards adoptions and conformance measures that he's looking at. But I'm wondering if completeness of demographic information and accuracy of SOGI and race and ethnicity could be part of that standards adoption session or if we need a separate session dedicated to that.

Raj Ratwani

Yes, good point. So, we'll ping Ken on that and see if that's going to be brought into his thinking for the August 12 meeting. If not then, maybe that is a separate session. So, we're right at time. And I don't see any other hands up. So, why don't we adjourn for today? And we will see everybody on the 29th. And if anything comes up in the interim, please don't hesitate to reach out. Thanks, everybody.

Adjourn (01:27:25)