NATIONAL QUALITY FORUM

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INTEROPERABILITY 2016-2017
PROJECT COMMITTEE

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TUESDAY
MARCH 21, 2017

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The Committee met at the National Quality Forum, 9th Floor Conference Room, 1030 15th Street, N.W., Washington, D.C., at 8:30 a.m., Rainu Kaushal and Mark Savage, Co-Chairs, presiding.

PRESENT:

RAINU KAUSHAL, MD, MPH, Nanette Laitman Distinguished Professor of Healthcare Policy and Research Chair; Department of Healthcare Policy and Research Executive Director; Center for Healthcare Informatics and Policy; Weill Cornell Medicine New York-Presbyterian Hospital, Weill Cornell Medical; Co-Chair
MARK SAVAGE, JD, Director, Health Information Technology Policy and Programs, National Partnership for Women & Families; Co-Chair
JULIA ADLER-MILSTEIN, PhD, Associate Professor, University of Michigan
JOHNMARC ALBAN, MS, RN, CPHIMS, Associate Director of Quality Measurement and Informatics, The Joint Commission
A. JOHN BLAIR, MD, CEO, MedAllies
JASON BUCKNER, Senior Vice President, The Health Collaborative
HANS BUITENDIJK, MSc, FHL7, Senior Strategist

Interoperability Standards &
Interoperability, Cerner Corporation
SARAH DINWIDDIE, MSN, RN, American College of Physicians
MARK FRISSE, MD, MS, MBA, Accenture Professor, Department of Biomedical Informatics, Vanderbilt University-Vanderbilt University Medical Center
DAVID HIRSCHORN, MD, Director of Radiology Informatics, Chief of Informatics -- Imaging Service Line
DAVID KAELBER, MD, PhD, MPH, MS, FAAP, FACP, Chief Medical Informatics Officer and Vice-President for Health Informatics, The MetroHealth System
TERRY KETCHERSID, MD, MBA, Senior VP and Chief Medical Officer, Integrated Care Group Fresenius Medical Care North America
TERRENCE O'MALLEY, MD, Physician, Partners HealthCare System, Inc.
FRANK OPELKA, MD, FACS, Medical Director, American College of Surgeons
WILLIAM RICH, MD, President, Medical Director of Health Policy, American Academy of Ophthalmology
ROBERT ROSATI, PhD, Vice President of Data, Research and Quality, VNA Health Group
ROBERT RUDIN, PhD, Information Scientist, RAND Corporation
THERESA (TESS) SETTERGREN, MHA, MA, RN-BC, Director, Nursing Informatics, Cedars-Sinai Health System
JASON SHAPIRO, MD, Professor of Emer Medicine, Co-Director of MS in Biomedical Informatics, Mount Sinai Medical Center
BRUCE SIGSBEE, MD, MS, FAAN, FACP, Past President, American Academy of Neurology
ALAN SWENSON, Technical Coordinator, Epic
STEVEN WALDREN, MD, MS, Director, Alliance for eHealth Innovation, American Academy of

Family Physicians
MARIANN YEAGER, CEO, Sequoia Project *

NQF STAFF:

SHANTANU AGRAWAL, MD, President and CEO
POONAM BAL, MHSA, Senior Project Manager
JOHN BERNOT, MD, Senior Director
HELEN BURSTIN, MD, MPH, Chief Scientific Officer
HIRAL DUDHWALA, RN, MSN/MPH, Project Manager
JASON GOLDWATER, MPA, Senior Director
VANESSA MOY, MPH, Project Analyst
MARCIA WILSON, PhD, MBA, Senior Vice President, Quality Measurement

ALSO PRESENT:

VAISHALI PATEL, PhD, MPH, Senior Advisor, Office of the National Coordinator for Health Information Technology, U.S. Department of Health and Human Services

* present by teleconference

C-O-N-T-E-N-T-S

P-R-O-C-E-E-D-I-N-G-S

8:34 a.m.

MR. GOLDWATER: All right. Good morning, everyone. Thank you so much for coming. My name is Jason Goldwater. I'm the voice behind the webinars and I'm joined here by my colleagues Poonam, Vanessa and Hiral, also the voices behind the webinars. So it's great to meet all of you in person finally. I know that I know some of you and have known some of you for a while. I'm not sure what that says about me specifically, but happy to see all of you again.

So we are really looking forward to this, a very productive, very important couple of days to really begin to focus on the development of a framework to support measure development and interoperability.

I want to go over a few housekeeping items and then I'm going to turn it over to our new CEO who has a background and understanding of interoperability, which is terrific, and then

turn it over to our co-chairs Mark and Rainu.

As we showed you I think in the beginning of the slide what our access to Wi-Fi is -- can we go back to that slide? So the user name is Guest and the password is NQFguest. You're welcome to use your Wi-Fi whenever necessary.

We do ask that you do keep your ringers on mute. This meeting is being recorded. We will have a transcript at the end of two days that we're going to need to go over to make sure that we have collected all of the appropriate information, and there's nothing more annoying than having a variety of cell phone rings in the middle of the transcript, which has happened before. So please keep your emails -- your phone silent. If you do need to take a call; we realize all of you are very busy people, feel free to step outside and take the call as necessary.

For those of you that would like to know where the bathrooms are, which I'm sure is

all of you, if you go out and all the way to the end of the hall and make a right, the bathrooms are there. Feel free to use them at any point. We will be taking breaks at various points in time during the day.

We expect this to be a very interactive meeting, especially knowing the group the people we have around the table. So to talk to you about how we do this, you will all notice that you have tent cards in front of you. When you would like to speak, if you would just hold your tent card up like this. I will probably start facilitating at least in selecting who will be speaking as Mark and Rainu facilitate the conversation.

What we would specifically ask again is that when you want to speak, you'll notice that in your microphone there is a mute and a speak button. Please hit the speak button and talk directly into the microphone, and that way it is being transcribed accurately and we are

recording the notes accurately for our records. When you are not speaking, please turn it off. Right? Don't do what I just did.

(Laughter.)

MR. GOLDWATER: It's early in the morning. If there were -- if there are too many microphones that are on at the same time, then none of them work, and then we have to find out who is not actually speaking.

When you are done speaking, please take your tent card and put it down, because if everybody keeps their tent card up, we'll keep calling on you even if you have nothing to say anymore.

So we will be taking breaks at 11:00 for 15 minutes. At 12:30 we'll be breaking for lunch today. Lunch is provided by NQF. 3:15 we'll also be taking a 15-minute break.

And again, please mute your cell phone during the meeting.

Mark Savage and Rainu Kaushal are

going to be the co-chairs. They're going to be doing a large portion of the facilitation today and the discussion. The NQF staff will take somewhat of a back seat to this. We'll be taking very copious notes, making sure we have all the information as we present summaries at the end of the day and at the end of the meeting, but -- and we will interject in the event that we need to sort of clarify the scope of what we're doing or to answer any questions about the scope, which at this point I think hopefully is relatively clear.

So without further ado, I want to turn it over to our CEO who has a few comments before we begin this afternoon.

so, Shantanu, the floor is yours.

DR. AGRAWAL: Thanks, Jason. I won't take long. I just want to thank you all for participating in this committee. This is extremely important work. I have been astounded -- so I've been on the job for seven weeks and two days. And I'm going to stop

counting at some point, but not yet.

(Laughter.)

DR. AGRAWAL: And it's been astounding to me for all of these committees just the sheer expertise that is around the table that helps and facilitates this work. It would not be possible without the time that you volunteer, so we are deeply appreciative. It is also incredible to me the different areas of expertise that are represented around the table from academia to industry, patient advocates and representatives.

There's a couple of Ohioans here, which I always appreciate since I grew up in Ohio. Always great to see some Ohioans in the room, or at least on the phone if you're not in the room.

And this is incredible. I think the interoperability work, in particular being able to establish a framework for quality measurement and interoperability will I think drive our field forward for years to come. Thinking about what

quality measures are actually sensitive to interoperability that might actually be facilitated by different kinds of data sources will I think be a gigantic step forward. And I can imagine the endorsement bodies really picking up on the work and moving it forward.

I want to thank in particular our two co-chairs Rainu and Mark. Again, without their leadership I think this would not be possible.

So that's about it. It's just an appreciative message this morning. And I'm going to turn it back over to Jason.

MR. GOLDWATER: Thank you very much. So now I'm going to turn it over to both Rainu and Mark for them to introduce themselves briefly. Once they're done, I'll have the NQF staff introduce themselves and then we'll go around the room for very brief introductions. And then once Helen Burstin arrives, which should be shortly, we'll do the conflict of interest, which we have to do by requirement before the

meeting commences.

So, Rainu?

CO-CHAIR KAUSHAL: Good morning. My name is Rainu Kaushal. I'm the Chair of Healthcare Policy and Research at Weill Cornell in New York-Presbyterian Hospital.

A lot of people in the room -- my own research background has been in health information technology and health information exchange. Done a lot of work with John Blair over the years and with Vaishali, and it's really nice to see everyone here today.

I feel like we have an ambitious day-and-a-half or two days ahead of us and I look forward to the discussion.

CO-CHAIR SAVAGE: Good morning. Mark Savage. I am at the National Partnership for Women and Families. I direct the Health IT Policy and Programs team there, one of many health teams at the National Partnership because Debra Ness realizes that health IT is the

backbone of much of what we're trying to accomplish in healthcare delivery.

It is wonderful to be here. The interoperability work is front and center. I'm very excited to be participating in this conversation among all of us. Thank you.

MR. GOLDWATER: Okay. So as I said before, I'm Jason Goldwater. I'm a senior director here at NQF. I oversee most of our health IT work and work in the area of eMeasure development and overview. I've been at NQF for two-and-a-half years. Seems like it's been five, but two-and-a-half years.

Prior to my time with NQF I did consulting work for NORC at the University of Chicago and was with the Centers for Medicare and Medicaid Services for 10 years back when it was called HCFA, for those of you that can remember that far back, is what I often refer to it when it was called by its appropriate name as opposed to what's being called now. But and in that

capacity worked half with Medicaid policy and Medicaid state systems and the other half was in the Office of Clinical Standards and Quality helping stand up what then became the PQRS and the Inpatient Quality Reporting Program.

MS. BAL: Hi, I'm Poonam Bal. I'm a senior project manager. I've been with NQF for about three-and-a-half years and have worked on various projects throughout NQF. And I've worked with a few of you on this committee before.

MS. MOY: Hello. Good morning, everyone. My name is Vanessa Moy. I'm a project analyst here at NQF. I've been here for about five months, so I'm still very interested to hear all of your feedback and looking forward to this conference. Thank you.

MS. DUDHWALA: Hi, my name is Hiral Dudhwala. I'm also new to NQF. I've been here about four or five months, too, and I'm looking forward to the discussion today and tomorrow and working with all of you.

John?

DR. BERNOT: Well, good morning, everybody. My name is John Bernot. I am a family medicine doctor by training, but in a prior life I had done a lot of work on quality measurement. And we're a performance measurement system, so at that time we were on the receiving end of the lack of any sort of structured data and really trying to make sense with all these different INS systems. So I have a particular interest in both, the combination of the technology and how it impacts actual healthcare and healthcare deliveries. I think I mentioned I'm a senior director also, relatively new to the team. I've been at NQF about eight months now.

MR. GOLDWATER: So before we begin; I'm sorry to interrupt, Marcia, do you want to do the conflict of interest while we go through the introductions?

DR. WILSON: Sure, my name is Marcia

Wilson. I'm Senior Vice-President for Quality Measurement. Our chief scientific officer Helen Burstin is running just a little bit late.

So as is our custom here, we're going to combine introductions with the disclosure of interests. So when you were invited to be seated on this committee you filled out a disclosure of interest form, and today we combine introductions and those -- an oral disclosure of interests.

You all have considerable expertise, as Shantanu has pointed out, so it is not necessary to summarize your entire résumé when we do the introductions. What we're interested in is work that you've done that is relevant to this committee, whether it was funded or unfunded. For example, you may have been seated on an expert panel. So we're looking for oral disclosures of activities that are related directly to the work before this committee today.

And a couple of reminders: You sit on this committee as an individual, not

representing your organization. So for example, if I were to introduce myself, I would say I'm Marcia Wilson and I'm with the National Quality Forum. And also, just because you disclose something, it does not mean you have a conflict. We do this in the spirit of transparency and openness.

So what I'm going to do is start here in the room; I'm going to start with our co-chairs, ask you to introduce yourself, say who you're with and if you have anything to disclose.

And, Poonam, do we have any committee members on the phone today?

MS. BAL: (No audible response.)

DR. WILSON: Okay. So what we'll do is we'll go around the room first and then I'll call on the folks on the phone. So if we could start with our co-chairs?

CO-CHAIR SAVAGE: Good morning. Mark Savage with the National Partnership for Women and Families. I sit on the HIMSS ConCert for

Interoperability Committee. That would be relevant I think to this work, a variety of other things, but perhaps more tangential. Thank you.

CO-CHAIR KAUSHAL: Rainu Kaushal again from Weill Cornell in New York-Presbyterian Hospital. I've had a number of federal and foundational grants over the years, research grants, and have served in various leadership capacities for several national organizations including parts of AU.

DR. WILSON: Okay. Thank you. And if we could start with Vaishali?

DR. PATEL: So I'm Vaishali Patel. I'm with the Office of the National Coordinator for Health IT. I'm a senior advisor there and I work on issues related to interoperability measurement.

DR. WILSON: Okay. Thank you.

Next?

MEMBER FRISSE: My name is Mark Frisse. I'm associated with Vanderbilt

University Medical Center. My only possible conflict; and I don't think it is one, is working on a study of the value of interoperability for the Urban Institute. And I built the health information exchange in Memphis, Tennessee. And I'm an internist.

MEMBER ADLER-MILSTEIN: I'm Julia Adler-Milstein. I'm with the University of Michigan. I am a researcher, and so similarly to Rainu, have had a lot of federal and foundation funding on work related to interoperability and interoperability measurement. And also I do some work with AMIA and sort of several advisory boards. And I sit on the advisory board for QPID Health, which is a software company.

MEMBER SETTERGREN: Good morning. Tess Settergren. I'm with Cedars-Sinai Health System. The reason that I'm here is because I'm working with a national group of nurse leaders on interoperability of nursing data to generate new knowledge, but also for care coordination and

other purposes, including mapping nursing data to LOINC and SNOMED.

MEMBER DINWIDDIE: Good morning. I'm Sarah Dinwiddie with the American College of Physicians. I have nothing to disclose.

MEMBER SIGSBEE: Good morning. My name is Bruce Sigsbee. I'm a neurologist in practice on the mid-coast of Maine, not a bad place to be. I am chair of the Registry Committee for the American Academy of Neurology, which has involved setting up the registry, identifying appropriate relevant measures for neurologic practice and converting them to eMeasures and implementing them in our registry. And also as part of this trying to really keep the burden of measure collection down for practicing physicians.

MEMBER BLAIR: Good morning. I'm John Blair. I'm with MedAllies, a New York-based company that's a health information service provider that works on interoperability between

electronic health records and provider organizations. Also we do transformation consulting, part of the CPC+ effort and several other SIM, statewide innovation model, transformation projects.

The only thing that I'm currently involved in that would -- that's tangentially related is I chair the Direct Trust Board. It's an accreditation organization for the National Direct Networks. No other conflict.

MEMBER O'MALLEY: Hi, Terry O'Malley. I'm with Partners HealthCare in Boston and Harvard University, and I work on several ONC S&I framework committees that are tangentially related to interoperability. Thanks.

MEMBER RICH: My name is Bill Rich. I'm an ophthalmologist and I chair the -- our IRIS Registry, which has 80 percent of our practitioners, almost all on EHRs, and the IRIS Registry has 34 million people in it, 142 million charts. And we are integrated with 43 different

certified EHRs. And so we have a lot of experience and we've worked with ONC using their -- some of their tools to measure data exchange. And we also, like Bruce, have developed our own eSpec. And we've done a lot of work looking at the variability even on eSpecified measures from EHR to EHR. I think that's why I'm here. I have no conflicts and none of this work has been funded.

MEMBER OPELKA: Good morning. Frank Opelka. I am a retired colorectal surgeon, now employed by the American College of Surgeons where I serve in quality and health policy. There are lots of different activities that we have ongoing at the college, but those that are most directly related to these efforts deal with our registry work. And our base of activities currently involves the Health Services Platform Consortium, which is an opportunity trying to improve the semantic interoperability on a broad scale.

And additionally we have related to that project work with others in the Federal Government: FDA, the VHA and others, for building interoperability solutions in cancer where we currently run the National Cancer Database. And as we migrate that to the cloud environment we are building syntactic and semantic interoperability solutions for cancer.

MEMBER BUITENDIJK: My name is Hans Buitendijk. I'm with Cerner. I'm involved in a number of different interoperability activities in the industry that relate somewhat to this topic. I'm on the board of HL7, part of the Carequality Executive Committee, the Sequoia Project, EHRA. And within that we have a task force that I'm leading to identify what kind of interoperability measures our collective members would be able to consistently collect and provide. And other than that just generally focused on standards to improve upon interoperability.

MEMBER HIRSCHORN: Hi. Good morning. I'm David Hirschorn. I'm a radiologist, but don't hold it against me. I'm the chief of informatics for the Imaging Service Line in Northwell Health, which is New York's largest health system. And I also chair the Government Relations Committee for the Informatics Commission for the American College of Radiology.

I've been in this space a long time. Radiologists are typically an afterthought when it comes to EHRs. They're like, oh, who's that? Some guy in the back room in the dark and he doesn't need to know what's going on with the patient. So when I see EHRs and I see lack of interoperability, I'm a little dangerous because I'm a C/UNIX programmer. And so I see information; I take it for the benefit of patients. And so I'll hack my way in. I'll do whatever I have to do to get a radiologist the information they need to give the best care of patients. So I'm used to breaking down barriers

to interoperability.

MEMBER SHAPIRO: I'm Jason Shapiro. I'm an emergency physician at Mount Sinai and I've been doing informatics research for the last 10 years with a focus on health information exchange. I also chair the American College of Emergency Physicians' Informatics Section.

MEMBER ROSATI: Hi, I'm Rob Rosati. I'm from the VNA Health Group in New Jersey. We are a provider of home care and hospice services as well as primary care. My role with the organization is I chair a connected health institute overseeing technology and IT integration into the organization.

The only overlap I have with this group is I'm on the CMS Temp Committee looking at the impact measures on the transfer of information.

MEMBER KAELBER: Good morning. I'm David Kaelber. I'm an internist and pediatrician and the chief medical informatics officer for the

MetroHealth System. It's an integrated healthcare delivery network in Cleveland, Ohio. We just celebrated our 10 millionth patient document exchange earlier this month. I'm doing a lot of stuff in the health information exchange space both clinically as well as from a research perspective.

In terms of possible conflicts I sit on the Epic Corporation's Care Everywhere Governing Council to sort of help chart the Epic Corporation's health information exchange efforts.

MEMBER ALBAN: Good morning. I'm JohnMarc Alban with the Joint Commission. I manage the Center for Performance Measurement where our teams develop and maintain all of the quality measures that we use on the chart-based as well as the eCQM side that we use for accreditation and certification. I have no conflicts.

MEMBER WALDREN: Good morning. Steve

Waldren. I'm a family physician and informaticist. I work with the American Academy of Family Physicians, otherwise no other disclosures.

MEMBER BUCKNER: Hi, Jason Buckner with the Health Collaborative in Cincinnati, Ohio. So yet another Ohioan here. Work with Health Information Exchange in Quality Measurement for our community. We've been awarded several ONC grants over the years. No conflicts.

MEMBER SWENSON: Alan Swenson with Epic. I represent Epic on Carequality on the eHealth Exchange and related work groups under those two initiatives.

MEMBER KETCHERSID: Hi, good morning. Terry Ketchersid. I'm a nephrologist by training. Practiced for fifteen years. Spent five or six years as the chief medical officer for Acumen, a small office-based electronic health record. Potential conflicts, I serve on

the Renal Physicians Association Board of Directors. We operate a renal-facing QCDR. And I'm employed by Fresenius Medical Care as their chief medical officer for integrated care.

MEMBER RUDIN: Good morning. I'm Bob Rudin from the Rand Corporation -- with the Rand Corporation. Sorry. A researcher there. I've done some research on interoperability and I'm on an expert panel with the Urban Institute.

DR. WILSON: Okay. And I think we have one committee member on the phone, Mariann Yeager.

Are you with us?

MEMBER YEAGER: I am. Good morning. So I'm Mariann Yeager. I'm with the Sequoia Project. We support three interoperability initiatives: the eHealth Exchange, which involves sharing data across 47 HIEs, 4 federal agencies and quite a few healthcare organizations, as well as Carequality. And that effort interconnects different data sharing networks. So Epic,

CommonWell and many others. We also support -- the third initiative is work that we support with the Radiological Society of North America in support of their Image Share Validation Program to enable image exchange. I serve on the HL7 Advisory Council, as well as the Board of Directors for ConnectVirginia HIE, which is an HIE here in Virginia.

DR. WILSON: Thank you. And I think Chris Boone will be joining us later, but I just want to make sure.

Chris, are you on the phone yet?

(No audible response.)

DR. WILSON: When Chris joins us, he can do an introduction.

Is there anyone else on the phone who has not introduced them self?

(No audible response.)

DR. WILSON: Okay. Thank you for all those disclosures. And the only thing I would say in parting is that if at any time during the

meeting you feel like you have a conflict of interest or that someone else does, please bring that to the attention of the co-chairs or any of the NQF staff. What we don't want is for you to sit there and think someone is acting in a biased manner and not bring it to our attention. So based on what you've heard from your colleagues or any comments that I've made, do you have any questions?

(No audible response.)

DR. WILSON: Okay. Thank you very much.

MR. GOLDWATER: Thank you very much, Marcia.

Okay. So what we're going to do now is just turn to what the scope of today's activities are going to be and then to do a brief project introduction and then to do an introduction into what a measurement framework is, which is really going to be the end goal of these two days.

So apart from welcome and introductions, which we've done, we're going to do just a quick review of the meeting purpose, the objectives and scope; to talk about the measurement framework, what a measurement framework is, how it's composed, what it needs to be and what we need from you in order to populate that; go over the environmental scan and key informant interview results, which I know we have done in webinars, but just to do a quick review to see if there's any final thoughts before those documents are finalized; and then begin the process of identifying measurement framework domains and sub-domains; identifying measure concepts within those sub-domains; prioritizing those measure concepts; and then opening this up for public comment, which is how NQF typically ends most of its meetings. Again, Mark and Rainu will be facilitating a majority of this discussion.

Next slide. So the meeting

objectives: what we really need by the time we leave tomorrow. And I often say I'm not letting any of you go until we actually get to this point, but I have a feeling we'll get here well before 3:30 tomorrow.

One is to develop a measurement framework that addresses the measurement of interoperability and its impact on clinical outcomes and processes, to identify prioritized measure concepts within the framework that can be leveraged for future measure development. And then; and I know some of you completed this exercise already, so we will be going over the results, identify existing measures that are interoperability-sensitive. It could be enhanced through data from multiple sources.

So essentially constructing the framework for us so that we can then go and write up a report that's reflective of this committee. What we really do not want to have is any sort of ambiguity or any indecisiveness so that we

clearly know what this committee would like go forward with, because again the report needs to be reflective of all of your thoughts, which is why all of you are here.

Next slide. The project activity and timeline: Today we're having our first and our only in-person meeting, which will cover both today and tomorrow. I think all of the activities that we've done in the past have been webinars where we have introduced each other, gone over the project and talked about the work that we have done so far. We will be having another webinar on April 5th, which will be a follow up to this in-person meeting, and then another one in which the draft framework will be presented so that we can get some feedback from all of you on it.

Next slide. So at this point in time I'm going to turn it over to our chief scientific officer who has sat in on many, many, many, many meetings with respect to measurement frameworks,

and so there is no one better qualified to talk about what a measurement framework is and what it is not than Dr. Burstin.

So, Helen, I will turn it over to you.

DR. BURSTIN: Great. Good morning. Apologies for being a little late. My deadbeat son hadn't finished his physics homework and insisted on a ride to school. Frank tells me he had one of those and he's in law school now, so I'm hopeful --

(Laughter.)

DR. BURSTIN -- this teenager will eventually turn around, but for those of you with children, you can relate.

So thank you all of you for joining us today. We want to give you a little sense of how we think about a measurement framework. And again, we pretty much think about as a document intended to help at the end of the day. We don't want this to be something we're just going to stick on a shelf and say we've done it. The hope

would be what comes out of this framework provides a way to conceptually think about the issue, ensure that whatever you want to measure at the end of the day is actually reflected, has a place in a framework so that we can actually work through what are the key issues, the key domains, as well as the sub-domains.

And I often like to think about these as sort of a tree, that if a tree trunk in this case is interoperability and the big branches off of it are the four domains that you've already identified, then what are those key sub-domains, those key areas that you wouldn't feel it would be a complete approach to look at measurement unless you could identify what those different branches would be.

And then from that we're hoping you'll actually help us get even further in helping ONC and CMS and others to help think about what would those measure concepts then be? What would be those ways -- a concept in our mind is not quite

a fully-fledged measure. We don't have time for that today; many you know what developing measures is like, but can you at least come up with a measure concept that can describe the measure focus and the target population in words such that ONC or CMS could hand this off to measure developers and say of the top prioritized measure concepts that come out of this meeting, develop these five, because they will really allow us to chart our ability to see how we're progressing overall as a nation towards interoperability across those four domains.

So you'll work through this process today. I believe you've already got the four domains, thanks to ONC, directly out of the ONC Interoperability Roadmap, but then really beginning to think about how you'd want to think about what those sub-topics would be to ensure that at the end of the day again this is a useful document that can drive towards measure development.

Now this will not of course fix all of the nation's ills around getting to interoperability. We recognize that. This is not as far as -- I know many of us would love to go -- to drive towards it. The question is really if a set of these kinds of measures were available to track our progress, would that be useful in some way to drive further innovation, to drive further efforts to change, maybe moving beyond trying to hack into things, but trying to actually make it part and parcel of the project.

I do think that's the first time anybody's acknowledged hacking at our table, so thank you for that.

But really thinking about it from that perspective of having a set of measures. If you think about it sometimes going backwards, not even worrying about what the sub-domains are, but what would you think would be the most important thing you could measure at the end of the day that we could hold ourselves accountable to to

ensure progress as a nation across those four domains?

If it's helpful to work it that way and then figure out what sub-domains, that's just measurement stuff we could put in boxes later. We really just want to make sure you at the end of these next two days have a set of measure concepts you think would really be reflective of being able to look back and then gauge progress as a nation across those four key domains of the Interoperability Roadmap.

Questions? Thoughts? Is that helpful? Oh, I guess I didn't realize there's a whole set of these. So pretty much have worked right through these. But again, conceptual model. How to organize these ideas. And then really just a way to structure and organize the ideas.

Next? These are just some definitions we have for you. Again, as a domain, you've already got those. The highest level

categorization of what those ideas would be. Sub-domaining these groupings within a domain. And very importantly, thinking about what you wouldn't want to leave out in a sub-domain to reflect the overall. Sometimes for example those could be balancing kind of measures. Do you want to look at for example cost? Do you want to make sure access doesn't suffer? Not in this context, but things like that would be important to consider. And we've already gone through the difference between a measure and a concept.

So with that, Jason, do you want to give them a couple of examples from Telehealth?

MR. GOLDWATER: Sure. So just as an example, we just concluded a Telehealth Committee meeting, very similar to this one where we were coming up with a measurement framework, and I just wanted to point this out as sort of an example of what we're looking for.

So after a lot of discussion the four domains that those on the Telehealth Committee

deemed were important to sort of building under were access, financial impact and cost, experience, and effectiveness. And again, keep note that these are fairly broad because it can encompass a number of different areas.

The sub-domains under those included access for patients or families, access for the care team. For financial impact and cost the sub-domains were financial impact to care team or financial impact to society. Experience really related to patient, family and/or caregiver experience or community experience. And effectiveness we looked at system effectiveness, clinical effectiveness and operational effectiveness. A lot of this was generated from the literature that we found and then a lot of it was generated from the experiences of people on the committee.

So what we're asking all of you to do in the course of the next two days is to do something very similar, to come up with high-

level domains, sub-domains and then eventually talk about measure concepts that would fit into those. And then eventually we'll get into a discussion about measures we've already identified that you have stated could be potentially interoperability-sensitive and which ones would be included in the framework.

Next slide. Okay. So with that in mind, I think this is the point in time where we stop talking, which is always the point where Hiral, Poonam and Vanessa really enjoy, when I don't say anything. So we're going to just briefly talk about the goals of the measurement framework.

Next slide. And then we're going to turn it over to Rainu and Mark to lead the discussion.

So the issues we really need the Committee to address in the next two days: What are the most critical areas of interoperability to measure? What measures have the greatest

potential to drive improvement in interoperability? What measures could be implemented now versus those in the future, realizing we are not at a full state of interoperability yet? What's the data availability for these measures? And what gaps exist and how could those gaps be filled, both now and in the future?

And with that, Mark and Rainu, we will turn it over to you.

CO-CHAIR SAVAGE: So I just want to ask Helen a question since we've got the benefit of your overview. One of the things I've been reflecting on is that interoperability is something that's quite in motion, so we're looking backwards in some ways, but we're also looking forward. Things have changed quite a bit. The Interoperability Roadmap in 2015 for the first time talked about interoperability not just among providers, but interoperability with patients. We've been looking at data in the

clinical setting knowing that 85 to 90 percent of health status is explained by data outside the clinical setting. Now we're getting structures that are bringing in social determinants of health.

When we're looking at measurement framework and we are dealing with sort of backward-looking measures; at least the ones that have been developed so far, we're developing a framework for a future that's evolving quickly. Any guidance? Any insights about ways that we should be thinking about the task for these two days?

DR. BURSTIN: I think that's a great question, Mark. My sense of it would be you should be as future-looking as possible. Ensure the framework can flex to what you hope interoperability would be. I don't think it should be about the present tense by any means, but be as expansive as you think you hope interoperability will be such that you can

measure it going forward.

Yes, go ahead.

MEMBER BLAIR: So just to follow on with that answer, at the expense of getting things done now?

DR. BURSTIN: I think that's a question for all of you at the table. I mean, I really do think that. I mean, I would hope there would be a limited set of measures that would be useful for now so you can -- again, I think some of the goal here is to track progress. So if you have a completely aspirational measure concept, it may not be something you could track progress on for a while. And maybe that's okay to have really low levels of adoption, but it would be nice I think to have a blend with an eye towards this being more about the future than the now.

Please, go --

(Simultaneous speaking.)

MEMBER BLAIR: So, okay. That's what I'm -- so more toward the future --

DR. BURSTIN: Yes.

MEMBER BLAIR: -- than now?

DR. BURSTIN: Yes, I think so. I mean, again, I think this is a great question for all of you at the table, for ONC. To me it seems logical that we don't want to build out a framework that becomes obsolete or a set of measure concepts where the field will pass it, God willing, in two to three years. We want it to be something that could live and breathe and be expansive I think to that future vision.

Vaishali, do you --

(Simultaneous speaking.)

DR. PATEL: Yes, so I think from ONC's perspective I think a blend would be ideal, something that we can begin with now on knowing that interoperability is limited. The measures are crude right now, I would say, but at least it's something. And then thinking about the future as well. And that way we can build measures towards that or be able to monitor, but

as things evolve. So I would say a blend. And the balance between how much of the -- based on the evidence that's available now versus what we aspire towards I think will probably evolve as we go through the next day-and-a-half.

MEMBER BLAIR: Okay. I promise this will be the last and I'll --

DR. BURSTIN: This is really helpful.

MEMBER BLAIR: Okay.

DR. BURSTIN: It's perfect. Keep going, John.

MEMBER BLAIR: So I mean, from a political and policy standpoint, I think patience is running out on interoperability. So I worry a little bit about too much future and not enough now and being -- and not -- and being stuck in the quicksand and patience really running out and not having opportunities to do a lot going forward.

DR. BURSTIN: And that's why I think Vaishali's answer and my answer would be I'd keep

both of those in mind, have something that can flex with the state of the art, but at the same time have something now that allows you to measure progress. Complete agreement.

Bill?

MEMBER RICH: More of a philosophical question to follow up on John's. I think all of the domains and all the discussion we've had over the last couple months are -- have been great. The domains and things we selected are very, very high-level. And I think we can -- if you go back to the -- some of the wonderful handouts; and I thank the staff, on page 10 we have the -- actually ONC interoperability domains.

And No. 2 is availability of data to facilitate interoperability. None of our high-level aspirations are going to work if the data is not there. So I think that we -- I don't want us to lose that fact that none of the high-level things like the -- we have a lot of interactions with patients and families. We're stuck way, way

before that question arises now, so I don't want us to -- I want us to make sure that we have some measures that actually measure is the data there and how is it -- and is it available for transfer?

DR. PATEL: So I think to that point we don't want a framework that's going to sit on the shelf, because it's so aspirational that it's going to take some time to build. We identified those concepts because we thought they were important to measure now.

It's the impacts piece I would say that is more aspirational. Should be a mix of the aspirational because there's certain probably impacts that haven't been realized yet. So I would say that aspect of the framework.

And I don't know if there's a graphic of it or not, but in terms of the exchange, the availability, the usage. I mean, those are things that we can measure now and should be measuring now and should be reporting out on now. It's the piece that I would say is more

aspirational is the impacts piece.

Now there may be measures, more refined measures of exchange availability use that are aspirational in the sense that it'll take some time to develop those measures, but I don't see those as aspirational pie-in-the-sky measures because those things aren't necessarily occurring right now. It's -- I would say the impacts piece would be the more aspirational part, but we should be able to measure and develop measures that we can measure now in those domains. So maybe that helps clarify.

MR. GOLDWATER: You're next.

MEMBER O'MALLEY: Thanks. So echoing Bill's comment about sort of where we're at and where the data aren't, the standards around the information, its quality, its reliability, its mutually understood, the fact that itself is mutually understood -- so it's really the semantic interoperability. I think if we look at where interoperability has its -- among its

greatest challenges is the fact that we all speak a different language.

And the exchange of information that doesn't have any meaning to the next party over really has no value. We can exchange it. We can measure interoperability and the fact that you're getting the information, but if fundamentally the data aren't semantically clean and interoperable, then we're kind of getting ahead of ourselves. Is that what you said?

MEMBER RICH: Yes.

CO-CHAIR KAUSHAL: I have a comment that actually feeds well off of what you just expressed, which is that there is aspirational components in terms of the effects of interoperability and there's aspirational components in terms of measures. And part of the aspirational nature of the measures is the quality, the systematic availability of high-quality data.

And so I guess a question I have for

both of you is I hear the answer on the balance in terms of aspirations for the effects of interoperability, the outcomes of it. How aspirational should we be in terms of thinking about what can actually be measured to the measures themselves and the quality of the data that influences measures?

DR. BURSTIN: Yes, I'm happy to start. I mean, I think again it's going to be a blend. I think you're going to want some measures that are going to be pretty darn aspirational, but I think the question would be if they're important enough -- for example, let's say it's a -- I'm just being heavy now. Let's say it's a measure that reflects patient-reported outcomes at three points in time in the future. That's pretty darn aspirational right now. It gets to Mark's point about patient engagement, right?

But at the same time it would certainly be the kind of measure that would potentially be very interoperability-sensitive,

to be able to look at it across time, across patient, across provider platforms. I think you'd want some of those. You'd also like to have some I think that are something that may even be measured now that really to do well on that measure you would also want to have interoperability to have that be improved.

So again, I think some of this will become very apparent as you start walking through it, but at the end of the day you should feel like what you've put forward is a way to gauge progress. And some of it's going to be very aspirational and some of it's going to be something to drive your understanding of where you are now and -- to John's earlier point, and what are the steps to make some of those next really important pieces happen to ensure you have the data to even move some of these things forward?

MEMBER HIRSCHORN: You seemed to have touched upon the issue of barriers to

interoperability, so that -- what -- meaning if we're trying to set our goals, what are the barriers that will make things realistic here and now versus aspirational, depending on how difficult it is to get there?

So just -- or just say -- just to say now from a 10,000-foot view, things that I see as barriers are security. So a lot of vendors and institutions will say, well, I'd like to share the information, but how do I know that you're you? How do I know that you're entitled to it? How do I know that it's safe and secure, especially when you have cloud-based systems where they suspect if someone hacking in there and doing something untoward with it? So then it makes it difficult.

Second is standards, like you were saying before, that to make sure that the information that you're getting is what you think it is.

And a third one, though, which is the

one that I get frequently from vendors, is performance. They say if I let you query my data, who knows what that might do to my system. I might come to a halt. So I can't share my data with you because you just might query -- you may do a denial of service attack on me. You may ask me for a million records even though I'm only asking for a teeny bit of information to take care of a patient. They kind of follow the Nancy Reagan approach and say just say no because they're afraid of the unknown of what could happen to their system if they try to share information.

So those are some of the barriers that I think can help us assess to what is -- that are -- if we can deal with them and address them, can help us decide what we can do here and now versus what we have to wait for later to we -- are we able to grapple with these?

MEMBER BLAIR: That's the problem with waiting for a few of these to go around, now

I've got several things I want to go over, but I'll keep it down to two.

A comment, then a question. So to Vaishali's -- the comment about we can measure exchange and usability now, I'm not quite sure I believe we really can well and meaningfully and understand it, particularly on a national level. So I think we could spend the next two days just on that and still might -- probably not even get this framework completed. So that's just a comment about that.

So I'm trying to -- how is this going to be scoped? So are we just going to go after all these measures and some will be aspirational and some will be short-term. Or is it going to be different buckets? How are you planning on scoping how we do this in the next couple of days?

DR. BURSTIN: I mean, the general approach to this is take all the ideas and then before you leave help us to prioritize them. Come up with a top list. And maybe some of this

will sort out over the next couple days of how many you want to have truly be completely aspirational for domain and how many you want to make sure reflect where we are now and where we need to go in the short term. So again, I think that's something I'd love to have the chairs help us with you think through over the next couple days.

MEMBER WALDREN: Yes, just real quick. So a couple things. I think we focus on the how, that -- when we share to be out of date by next week with the technology. But I think if we think about the what and the why, I think that makes it a little bit easier to be more aspirational around those things, because I think a lot of times when I hear about interoperability, we talk about, oh, exchange or connectivity. We don't talk about what does the patient really need to deliver good quality care for them, the coordination, the continuity and those type of things. So I think if we focus on

those things, that would be better for kind of future-proofing.

The next thing I would say then is, going back to John's point though, how do you start to back-cast from that? So if that's the thing we want, what's the thing right before that that you need? What's the thing you need before that? So you get back to closer where we're at and then we can start thinking about how you apply and put measures on those back-castings going back.

MR. GOLDWATER: So I've been having a brief sidebar with Mark, and I think just based on the tenor of the conversation that perhaps we need to spend some time on this slide ahead of us, and rather than questions being more declarative. So perhaps to go around the room and just get an idea of what you think are the critical areas to measure where very -- and again high-level, very brief can be now or aspirational that would drive improvement, what could be

implemented now. And I think this will start to set the course a little bit for the domain, sub-domain measure concept discussion. And it seems that just sort of based on where you all are that might be where to go rather than I think spending some time on the environmental scan and key informed interview, which will I don't think be a discussion that will take that long to do.

So, Mark and Rainu, why don't I leave it up to you and why don't we focus on that?

CO-CHAIR SAVAGE: And I just wanted to add one comment from the discussion we've already had. There's a -- sometimes we try to think about what needs to come first in order for the next thing to follow. I think the reason we're all around the table is that we need to be thinking sort of in parallel, multiple tracks. What are we -- that I think goes to aspiration. What are we trying to achieve? What can we do now?

Hopefully these questions in front of

us will help us tease out both what we -- what's not possible at the moment, but what may be possible in two years. We have the discussion about interoperability-sensitive measures because we only have what we've got at the moment, but we are also trying to measure interoperability. So I -- in thinking sort of with multiple tracks and not so much either or, but both and. I think that's why we're all around the table.

Rainu, do you have anything?

CO-CHAIR KAUSHAL: No, I think we should open it up for a discussion. So maybe we go around the table.

Julia, do you have some thoughts that you wanted to start with?

MEMBER ADLER-MILSTEIN: Sure, that's what I get for vigorous head nodding.

(Laughter.)

MEMBER ADLER-MILSTEIN: Yes, so ultimately I think that -- I mean, I guess I see

measures as a way to help us make progress, right? I mean, we've all seen what happens when you put a measure out there and it guides behavior. And so, I think I'm particularly excited about this project because I think if we can get the right measures, it will guide actions, it will address some of the barriers that were just brought up.

I think the challenge with measurement is that ultimately interoperability is best measured in the eye of the clinician or the eye of the patient. I mean, I think they know when interoperability is working or not working. And so, in my measurement work it's sort of been how close can they get to a measure that approximates that perspective. And I think it's actually hard. I don't think we can get as close as we'd like to get, but I do think that we have the ability to measure some concepts that relate to how often is needed information there? And again, you can ask clinicians that and they can tell you right away, or patients.

And I think similarly you can use our current infrastructure to say how much information was available about that patient and how much of it was available to that clinician in the moment that they were making a decision? That's not an easy thing to measure, but I think it's doable today. And so I think -- so for me that would be an example of a measure that I think we should pursue. And so that is availability.

I think we can also look at measures of actual use, right? When a clinician requests a piece of information, how often do they get it back and look at it, right? Those are things we can measure. And ultimately I think on the interoperability-sensitive measures these are all things we all have encountered, things like reducing redundant utilization.

I think that is the most sensitive of the measures, and there's going to be times when something is not redundant even though it was repeated, right? And only again the clinician

or the patient could truly say was that repeated or redundant. But I think that that measure is going to get us pretty close.

So I think there's a set of feasible measures that as I said don't get us exactly where we want to be, but get us close.

CO-CHAIR SAVAGE: Mark then Bruce?

MEMBER FRISSE: I always start with Julia.

(Laughter.)

MEMBER FRISSE: Yes, let's see. This is Mark. I always define interoperability kind of like you define the suspension of belief in a good play. You only know you don't have it when something breaks. And in the case of the clinician quandary though a lot of times they don't even know they don't have it. So that's why I just wanted to lend my very strong support to the process in the spreadsheet, because I think those metrics in the spreadsheet, the columns you had and the criteria for one through

three, nail about 90 percent of the initial work we have to do. We could disagree, but I just really like the way you teed that up because you really do talk about the marginal contribution of something. And so I just -- that's all I wanted to say, is I think the spreadsheet is our guide.

CO-CHAIR SAVAGE: Bruce?

MEMBER SIGSBEE: I'll have to -- interoperability has obviously many facets to it, and certainly I come at it from the standpoint of being able to access information that's critical for quality measures: numerator and denominator information, and can you get that? And I have become an enormous fan of measurement of care, and I've seen too many examples where measurement has actually improved the quality of care delivered, has improved outcomes. And how do you get at that data?

And if you think about it, an enormous amount of care is delivered in the ambulatory setting from solo practitioners to large groups

and how can you really access that data? And that's where I come into the interoperability realm is that can you find a way of interfacing with various EHRs and getting the data that you need, if it exists? You take the EHRs that exist, but can you get the data out of that? And there certainly have been barriers there. And how do you measure that interoperability?

And I think, at least from my perspective, if we're going to move forward with the whole area of quality measurement, it has to be done in a way that it's done electronically pulling it out of the EHRs and really improving our ability to do eMeasures that are meaningful to the care delivered by the physicians.

I happen to be on Epic. One of my quality measures is checking for smoking in every patient that comes through the door. And I know somebody did the same thing the day before. And that is an impact in the quality of care for that patient. Smoking's important, but am I asking

that question is doing it?

So how do we develop measures that are really effective and then be able to extract the data from EHRs? I would like to see us move in that direction at some point with a framework to really be able to do that going into the future.

CO-CHAIR SAVAGE: John?

MEMBER BLAIR: Yes, two things: One to Julia's comment, the redundancy thing, you said you think that's the main -- or a thing to look at first or -- because I mean, I think there's other utilization --

(Simultaneous speaking.)

MEMBER ADLER-MILSTEIN: Oh, sure, sure. No, I was -- it was an example of I think if you polled people and said what is the most sensitive measure?

MEMBER BLAIR: Yes.

MEMBER ADLER-MILSTEIN: There's probably five or six.

MEMBER BLAIR: Okay.

MEMBER ADLER-MILSTEIN: And we could come up with it today.

MEMBER BLAIR: Yes.

MEMBER ADLER-MILSTEIN: Like I think there's a common understanding of some of the measures that we think are most interoperability-sensitive.

MEMBER BLAIR: Okay. So there's more than -- okay.

MEMBER ADLER-MILSTEIN: Oh, oh, absolutely, yes.

MEMBER BLAIR: Because I think that I could give you some utilizations I think that -- okay.

So that first box, because I thought we were going to go around and comment on these. So I'm going to comment just on that first box, the most critical areas of interoperability to measure. I guess it depends on who you're asking. If you're asking somebody on Epic or that it's at a large integrated delivery network,

probably 95, 99 percent of everything they need is there. So I'm not sure about interoperability. Okay. Then 50 percent, whatever.

Because I'll give you another -- I see you shaking your head. Fine. That's okay. So, but whatever. I guess it depends on the integrated delivery network. So if it's Kaiser, maybe it is 90. Anyway.

But the point is if you're a large system that has the specialty primary care hospitals, etcetera, health plans, all -- as that organization, that's a different answer you're going to get from somebody that's in a multi-specialty group that's not connected to a hospital or a primary care provider that's in a 5 to 10-physician practice.

The person in the 5 to 10-physician practice, maybe 20 percent of what they're looking for is there, or 30. And the other, the multi-specialty group is maybe 50. In the large

IDN it's 70. So that interoperability measure is completely different between those settings.

And so, as I think about some of this stuff, how do you deal with that, because if you're asking people that are in these large IDNs, it's a lot different answer than an ambulatory primary care provider. I'm wondering if you fix the ambulatory primary care provider, you're probably going to take care of a lot of the others.

CO-CHAIR SAVAGE: Frank?

MEMBER OPELKA: So first thanks for teeing this up because I think it's kind of helps in giving us some clarity of purpose here, and it's an important discussion.

To me when I look at the question of interoperability, I don't really think of EHRs. I think of the patient and the data that may apply to the patient, and EHRs are just one data source. And I'm quite different from John. I don't think Epic has even 50 percent of the necessary data

that you need out there.

I think when I think of the EHR or the data environment, I think what I'm looking to interoperate are data that I need for specific key purposes that semantically are ready for me to use for clinical care, whether it's quality measurement or whether it's helping a patient set goals. Or whatever it is, there are multiple use cases.

I also think on the reverse of that I want the interoperable system to be able to have the data input to receive the data and I want to measure its ability to take data in and to then fit it to a use case at the point of care to whatever that end user is looking for. And to me redundancy is one. That's great. Data from all instance surrounding that patient, that's what interoperability is to me, wherever those instances are.

I don't think EHRs in their life cycle can keep up with what's happening in medicine.

We need clinical registry inputs, so we need to interoperate from the contextual owners of the science and be able to integrate that into the work flow at the moment of care. That's an interoperability standard far above what's in the work flows of EHRs and was never contemplated when EHRs were developed. But it is how clinicians think.

Additionally, we're seeing an enormous amount of activity in mobile devices, and those mobile devices are able to aggregate all sorts of information, none of which were ever conceived or contemplated and are far short of really reaching the point of care in an EHR. Those mobile devices need to be able to interoperate at the point of care, and whether that's an EHR or a cloud environment, whatever it is. And that's not that far in the future. People are writing the patient cloud environment now.

So if we're going to set standards

today that are going to be applied in three years and then we should have a life cycle longer than that, we've got to be talking about the entire data environment and not limit ourselves to an EHR environment.

CO-CHAIR SAVAGE: David?

MEMBER HIRSCHORN: Thank you. Okay. If I may, I'm reading the question: What are the most critical areas of interoperability to measure? And so I'm looking at this saying, well, I'm wearing my medical imaging hat, and if it's safe to actually dive one level into the weeds of what would I consider from an imaging perspective, advocating from my point of view in healthcare to what areas we would want to measure.

So there's a low-hanging fruit that's been out there for many years. We're in 2017 and all of your imaging data is digital and yet almost none of it is shared from one institution to another. And this is clearly not a technological

barrier. It is clearly other things that are getting in the way of being able to share image data. And it's estimated about 10 percent of imaging is redundant, so to your point before about getting to redundant things.

And redundancy, remember, in imaging, it's not just cost and not just time, it's also radiation burden on a patient. And that's bad. Because we want to help patients and not cause cancer when we don't have to. And this is -- and it's -- look at this, this is ridiculous. It's 2017 and I can't get the CAT scan across the street. So that image sharing, this has been a major focus with the medical imaging community for a number of years.

A lot of grants and things coming from NIH, things trying to push projects saying how can we get institutions to share images? And we've been doing this for well over 10 years and still can't find a way in the United States of America to share imaging data across the street.

And that -- so there -- that's a big area is image sharing.

And one that's very much related to it is radiation dose index, which again the American College of Radiology tries to -- has one and is trying to amass this information. Again, all the interests of looking for all kinds of population health things, but also trying to make sure that you don't wind up with too much radiation because you went to 10 different hospitals and none of them knew that you got the same CAT scan over and over and over and over again, and eventually we're going to give you cancer because no one knows that you had this done somewhere else.

So those are two areas I think we can focus on from the imaging perspective of critical areas of interoperability to measure.

CO-CHAIR SAVAGE: Bill and then Jason?

MEMBER RICH: Yes, this is probably going to drive Julia crazy when I say this, but

when you look at -- you're trying to develop a policy and there's many, many different attributes or parts of it, I think you can divide people's approach into being lumpers and splitters. Well, philosophically I'm a lumper, but this is a very complex thing and I think you -- we're going to have to think -- as Mark and Rainu suggested, a dual track.

If you look at the five boxes here, I think if you look at one and three, it'll help you actually develop -- one and four, two, three and five will follow.

The issue of imaging is huge because the files are often so huge. Even if you have a DICOM interface, the EHRs can't accept them. The files are too large. So we need a lot of work to do to get down to a number rather than a file with an image.

Let's go to something much more important is the exchange of a hemoglobin A1C. As an ophthalmologist we've decreased from

blindness from diabetes 70 percent in the last 18 years. A lot of that has to do with -- and do you recognize a state of retinopathy? And the treatment decision is based upon is there a current control, hemoglobin A1C and hypertension? I cannot get a hemoglobin A1C from another certified EHR. I can't. The patients bring me in a crumpled piece of paper. Someone calls. Someone says I think it was this. The doctor said it was okay. It drives other practitioners crazy. The current measure, less than nine, is not applicable at all for renal disease and eye disease.

So that's what I'm talking about. We have to get down to a very basic level. How do we get a hemoglobin A1C, which has a LOINC -- how do you get that back to the treating physician, whether they're an ophthalmologist or a primary care physician?

MEMBER BLAIR: I could tell you.

MEMBER RICH: Yes. Well, we all have

work-arounds we're doing. But I think we have -- again, I made this point before, but we have to find some way of having a basic measure of exchanging the data from on EHR into a registry or one practitioner to another.

Also, how do we import data from the patients for patient-reported outcomes and blood pressure management? We don't have a good way of important blood pressures from home into the point of care.

So I don't want us -- I think we have to be aspirational. I think we are going to have to take two tracks, but we have to have some very basic measures of how data is exchanged.

CO-CHAIR SAVAGE: Jason?

MEMBER SHAPIRO: Yes, I just wanted to sort of echo a little bit of what John was saying earlier, and I think the degree of interoperability is dependent somewhat on what type of system the patient's being seen in. But I think fundamentally what we really want to see

is what percentage of the patient's outside data is both available, structured and of high enough quality to use at any given visit no matter where they're seen. What percentage of the patient's data is actually following them as they transit the healthcare system and cause fragmentation, which is really ultimately what we're trying to solve.

And then I think after that, as Julia mentioned, is usage, because just because the data is available doesn't mean that the practitioners are going to actually use it. And we've seen some studies showing less than 10 percent usage in the ED because the doctor doesn't feel they need the data or they don't know that the data is actually available because there's nothing flagging their attention towards it.

CO-CHAIR SAVAGE: Hans?

MEMBER BUITENDIJK: Actually I want to echo a lot of what you just mentioned when

looking at the first question, that as part of the aspirational interoperability availability, semantic interoperability; Frank just mentioned it, the usability of it, and then the impact. Those seem to be the four areas as we flow through it that we want to have a look at them, see what kind of measures are there existing in each of those areas.

So that ultimately I think one of the questions is is that if we want to use other clinical indicators to look at the impact of interoperability, then we need to have something at the front end to see is something going up or down. Is the amount of the volume of interoperability going up or down and what is the effect? What is the semantic level that we have? Is it fully structured? Lots of free text? Do we use a common terminology set or not? The vocabularies that we are using, are we in sync on that or are we still talking past each other? I can be syntactically structured, but if the

semantics are completely different, we might as well speak different languages. And we could today with the number of people, if we wanted to.

So from that perspective I think we need to start look at those kind of areas and what can we already attain in there?

Availability in many ways is probably the easier one. What kind of volumes are flowing? And we can talk about what kind of sources are available. Are we connected or not? So the number of areas that it's easier.

The further we go down the path on those four areas, the more difficult it becomes.

Impact. Well, the number of the measures in the spreadsheet that we were looking at, how much are those truly just impacted by more data available on the patient versus more data available from knowledge sources, or the fact they could just see the patient right there and then? That's enough. And trying to isolate out interoperability as the contributing factor

to improvements becomes more challenging for a number of those metrics. But that doesn't mean we should not try. It's just a matter of the further we do from availability to impact, the more difficult it gets.

And so those are the -- kind of the areas that I would be looking at to see is that how can we parse this apart? And recognizing that we don't want to stop with the easy part, but we really want to get to the tough part. But there's a couple of other steps in between that are not going to be easy either. How do we measure semantic aspects of it that we're all sufficiently structured? How do we measure that? Everybody using LOINC? I don't know, but we might have different opinions about that.

CO-CHAIR KAUSHAL: So I'd like to try to tie together several of the comments that have just recently been said, and I'll pull it back to some experiences that we had that many of you in the room were involved with in New York State 10

years or so ago now.

So New York State embarked about 10 years ago in the Heal New York Program, which ended up being an almost billion dollar investment in health information exchange of various types. Some of it was in the EHRs, but most of it was in interoperability.

And we had a large group, a consortium of several universities that was dedicated to trying to evaluate the effects of the interoperability component on healthcare, so very similar to the types of activities that we're engaged in today. And the conclusions that we came to over several years of studying were very similar to what's being discussed.

The first was was that the initial set of things that we could measure were -- surrounded data. Was data available? How was it structured? The issues that you're raising. Was it standardized or not? Was it actually accessible to the end-user, whether that was a

clinician or a patient?

It seemed to us then that the next set of things that we were able to measure were, Julia, something that you stated, which was the perceptions of physicians and the perceptions of patients. Did they feel like there was some tangible difference in the way in which they were receiving care? Was it -- or delivering care. Was it better? Was it -- was interoperability there or not according to their perceptions?

The next set of things were what we thought of as patient safety, and this hearkens back to redundancy. It's the radiological imaging and repeat radiological imaging and the effects on patients. It was a lot having to do with drug interactions or drug events that were occurring because of lack of knowledge about medications and so on. But we categorized that entire area as safety.

And then what we really wanted to get to, which is what I think we're talking about as

aspirational here today, is how does it affect the quality of care that's being delivered, whether that's measures like hemoglobin A1C or measures that might be even more sensitive to interoperability? And then how does it affect the cost of care and the efficiency with which we were delivering care?

So as I look at these questions that are in front of us in these boxes in terms of the measurement framework, Helen and I just had a sidebar which I would agree with, which is that we may want to structure the questions in the way we think about these questions as first what is the data availability for measures? That's a very here and now question. What are the most critical areas of interoperability to measure that we can do today? Again, a very here and now question.

And then the next three, the remaining three are the real aspirational issues that I think it would be terrific if we could spend some

significant time addressing as well, which is what are the things we really want to measure? How can those measures be implemented? What are the data needs that we have to start looking at those types of questions and how can those gaps be filled?

So with that, Mark, let me turn it to you. And I wonder if we should go down -- I feel like most of this side got to comment. I wonder if we should go down this side now. But, Mark, let me turn it to you first.

CO-CHAIR SAVAGE: So just when I look at these questions in front of us, I'm drawn first to the critical areas. And I think about interoperability not as a thing in itself, but as a means to an end. So my answer to critical areas are things like care coordination, patient engagement, the ability for patients to actually contribute information, patient-generated health data. I think about the more aspirational, but we've got a -- we're thinking about a -- as we're

building systems a research component and a learning health system. So that's in the back of my mind.

I'm thinking about work that I'm doing now with 10 communities across the country to build in social determinants of health, where they're looking at multiple sectors. So it's not just the clinical setting, but it's school clinics, it's jails who are also providing patient care. So when I think about what are the most critical areas of interoperability to measure, I'm actually thinking of the uses.

And from there I then get much more real. What data is available to measure there? What are the measures that we have right now? But for me the starting point is what -- is sort of what am I aiming for? And things like care coordination and patient engagement are the things that come to mind.

And then it helps me to focus -- to decide what measures are available? Well, what

am I measuring? What measures are available for something like care coordination or shared care planning that involves both patients and providers? I mean, that's what comes to mind when I look at that.

MEMBER KETCHERSID: You're right, this waiting for the tents, you have to scroll back.

I think as I look at that first question, we each bring our own experiences to the table. And as a nephrologist I contrast what I and my colleagues do every day with what my wife does, who's -- she's a primary care provider, right? So yesterday she saw 30 patients and probably five of those were what she would call walk-ins, right? Those are patients who woke up Monday morning and had some simple symptoms that needed to be addressed.

Those walk-in patients and my wife, their needs, their interoperability needs are substantially different, right, than the patients

that I would see when making rounds in a dialysis facility, right, where half the patients have three or more comorbid conditions and on average they're taking 12 different medications.

And the care coordination piece that you mentioned, Mark, is incredibly important, because they're in the hospital 1.6, 1.7 times per year.

And I think the other thing to -- that we should contemplate as a group -- again depending on your perspective, meaningful use is kind of what brought us to where we stand today, but importantly a number of the important venues of care were not part of that original framework. So nursing homes to some degree, behavioral health, certainly the dialysis units. So those patients that are in and out of the hospital 1.3, 1.4 times per year actually can't get a discharge summary until six or seven days when 10 percent of them are actually back in the hospital. So I think it's important.

When I look at that first question, I think about the care paradigms because I -- as a group this framework that we're building is are we swinging for the fences and planning to encompass an interoperability framework that works for everybody or are we going to focus instead on the large percentage of the transactions that deal with primary care? I just hope we don't marginalize the patients that are out on the extreme. Lot of comorbid conditions. Extremely expensive patient population. Very vulnerable.

MEMBER WALDREN: So I guess I think one of the issues here is that we're trying to take a multidimensional space and put it down into one of the domains, because I've heard multiple different ones. The patient type, the provider type, the data type, all those different things, too. So it may be helpful for us to think about more than one dimension as we think about interoperability.

The other thing that I was going to mention though is if we look to people that have tried to solve this before, some of the electrical and engineering, they think about it as layers. So instead of thinking about it as different pathways and stuff like this, I think that it's really a set of layers where each one has to be there to be able to build upon the next one.

And I think Hans laid out what could be our OSI model in healthcare? I would say impact is probably not one of those layers. It's more of an outcome. And we may want to think about that. So think about the physical layer. And the OSI model is really about moving an electron or an electromagnetic wave, but in ours it's really like are the dots connected?

So if two people want to exchange information, is there a tunnel for them to do it? Then you could go at the next layer above that and say, okay, at the transport layer. Well, how

easy is it? Is there actually protocols to be able to do that? And then you think about the next layer above that. Okay. Well, is there syntactic structure to that saying, oh, I can send you stuff. Or I know there's a med list and there's a lab piece.

The next layer above that is do I have the semantics? Okay. Well, I know what those are. And then to the next layer, which I think Frank was -- and Bill was getting to with the registries, is that you have a deep understanding of what that data really, really means. So we may want to think about it as a layered approach as well.

MEMBER KAELBER: I guess just to add on that, I mean, a paradigm I think about in clinical quality improvement is sort of process measures versus outcome measures. So think about the diabetics are the one is -- are you getting the hemoglobin A1C versus what is the hemoglobin A1C? So I guess I'd just throw that out in the

discussion of sort of thinking about process measures for interoperability, which is more just around some of these layers, just is the data being exchanged maybe versus outcomes? Are we really decreasing the redundant or repeat imaging?

MEMBER BLAIR: Okay. So a few things: Just I wanted to get back at Frank since he seemed to disagree with everything I said. No, I'm kidding.

(Laughter.)

MEMBER BLAIR: But I'll let you know I actually agree with everything you said. That's okay. I'm a surgeon, so I'm used to bickering with other surgeons.

The comment about -- first of all, the Epic statement I was making was much more about care settings. And the percentages were arbitrary that I threw out. But I do think it's very different. And when you get to the smaller primary care provider, the degree of

interoperability that they need versus others really starts to drive all these different -- some of these different things we're thinking about, at least provider to provider.

And when Frank mentioned the EHR versus registries and the whole environment, that gets back to what I was talking about on the -- or even a little bit what you were saying about the layers. Which are we going to go at first? Because if we -- and I don't disagree with what you said about the EHRs versus registries, but I do think there needs to be some expediency on starting to show interoperability, because again I think patience is wearing out.

And that's really what we've got right now, and that's what, at least politically and policy-wise, people that are -- make the decisions I think about what gets funded and doesn't are looking at. So I do believe that even though it's imperfect on EHRs with interoperability, that becomes a pretty important

focus for right now.

And then the other comment I -- there was a comment about primary care versus more specialty care. When I talk about the primary care, I'm really thinking about that 5 to 10 percent that are the complex patients that are exactly what you're talking about. Even though -- I'm not thinking about the walk-in with an earache. I'm thinking about the complex patients. And it all comes together there on that for the primary care.

MEMBER SWENSON: So I guess looking at some of the questions here -- so John had commented earlier when you look at what are the most critical areas of interoperability to measure; and it's going to depend on who you ask, I think it's going to depend on what the question is, right, and how high-level you're starting. If the question is what do I as a provider need to know in order to treat my patient, or do I as a provider have the information that I need to

know, then it doesn't matter who you ask because what the radiologist needs to know versus the ophthalmologist versus the nephrologist versus the family doctor.

If the question is do I as a provider have what I need to know, then I'm -- they're all going to need to know different things, but I can -- I'll answer, yes, I have what I need to know; no, I don't have what I need to know. So that gets into the question of availability, of what's being exchanged.

Dr. Kaelber, David mentioned that MetroHealth is up to 10 million patient records that have been exchanged now, and that's looking at IHE transactions, CDA documents. I think one of the interesting areas that could be better to find is how do we measure what is being exchanged? Ten million patient records is a big number. Within Epic we count that as a patient record, not as transactions or documents. If they were counting individual documents, it would be at

least five or six times that amount in the CDA documents exchanged. And I know other systems that even count it in transactions, which would be double that.

So when we look at is interoperability happening, first we need to figure out what are we even trying to measure? Like what are we measuring as interoperability just happened? MedAllies you can obviously count a transaction just happened. Somebody pushed through the HIST to someone else. Interoperability just happened.

We need to define how are we going to count what is happening as interoperability before we can figure out what does everybody need to know? And are CDA documents the answer? Oh, not necessarily. If what I care about is an image, if I'm a school nurse and all I care about is my patient's -- my student's allergies and what medications they have to take when they have -- when they touch a peanut or something, then I

don't need a CDA document.

So we need to figure out what does everybody need? And now are we actually addressing those needs with the interoperability that's happening? And then we can start looking at the impact of now that I know what I need and how to get it, what's the impact of having that information?

MEMBER BUCKNER: I'll address the third box on the right there, which measures can be implemented now versus in the future?

So just a brief little example on the importance I think of normalization of data. We did a study of the data that flows through our health information exchange for a 12-month period of time and we looked at patient class. So this is I, O and E, inpatient, outpatient, emergency. HL7 has a few more that are listed in there. We had 62 variations of that value.

Now all those were Epic hospitals. This is not an Epic problem. This is an

implementation choice at health systems. So they have a variety of reasons for creating a large set of codes, but if you just want to know what are my emergency patients or ambulatory outpatient, you can't quite figure that out.

So when we talk about measuring complex things, I can't even get patient class identified properly, much less we start talking about using LOINC codes. And the ONC, one thing I'd like to say is I'd really like to see that standards advisory not become an advisory and become mandatory, because that granular level really drives everything that we want to do within measurement.

And then when we talk about the why, we want to push this up to another level, and what Steve was saying is understand what's the purpose. Why are we trying to measure something, right? And so there's got to be sort of a carrot or stick there for -- to instigate someone to change their work flow and say, well, I'm going

to take the effort and get rid of all these and map them into the proper codes that need to happen.

It happened a little bit with meaningful use. You saw some more LOINC going. But it's still the Wild West out there. And we've got to give providers a reason to do that.

So I'm really curious if we had planned on taking these potential measures and saying here's why we want to do this. Does this -- are each of these going to try to the triple AIM? Do we want to say there's improvement in patient care if you can get above this level? I think getting back to that level to me makes a lot of sense because otherwise it's just going to be another measure that means more work for an institution that they don't want to take on.

MEMBER O'MALLEY: Yes, this is a great conversation. I'm struck on several different levels. One is obviously the complexity of exchanging information across a really diverse

and complex system, the multiple different users, the different uses of the information that's being put to. And it's just sort of this daunting complexity.

But if you -- I think if we take it back, as several folks have mentioned, to the issues around clinical care and taking care of an individual, taking care of the patient that's in front of you, then I'm struck. I'm a geriatrician, so I take care of old people with long medication lists and longer problem lists. And to Mark's point, 90 percent of really matters to them is not in the medical record. It has to do with their social supports, their transportation, their availability of nutrition, how integrated they are in the community.

These are all issues that are critical to patient care and they're all issues where there's another diverse set of stakeholders and folks who can provide this information who are not part of the eligible provider, meaningful

use, Epic, EHR, access. They are the community-based service providers, the people in the home who, (A) don't share our vocabulary, don't share our common vocabulary and don't have any electronic way of exchanging it even if they did. So I get information from the home health agencies with a phone call, of it's really sophisticated a fax, but -- and occasionally an email, but never part of an EHR that I'm part of.

So I think -- so the challenge -- to pull that loop all the way around, I think the challenge for interoperability I think has to be clinically-driven. And for me it's really trying to get information that's critical for the care of the patient from any particular source. And it doesn't have to be electronic, because I'll aggregate it. I mean, I'm sort of the electronic source. And then I may distill it and put it into an electronic system. But I'm not basing care on what I find in my EHR. I'm basing care on what comes from multiple sources.

So I think of our challenges in interoperability is how do we engage the other folks who are not part of meaningful use in the process of exchanging information that's critical to patient care? How do we bring that group in? Because they're dark. They have no electricity out where they are and they're not electronic interoperability, nor will they ever be. But without them the impact of interoperability for the rest of us in the clinical world is much, much less.

And I think we need to build this much broader base, much less complex base, agree on some critical elements that we all need to know. How do I know you're you would be one. So individual identification. And then we can begin building clinical use cases and what are the components that we need to do our work?

MEMBER SIGSBEE: So at least trying to look forward and how do we move forward and develop a conceptual framework that we can really

make work to come up with what we're supposed to come with by some time tomorrow? And thinking about this, I think there are -- we really have to; and I think Bill suggested this, too, do two parallel efforts.

One is surrounding the patient. And patients are different. What they want to know is different. What they need is different. And not only the examples that were given, but they want access to online information about their disease process, where can they get reliable information, appointments, all those kinds of things that are part of a portal, or maybe not part of a portal, and resources that they can access to help take care of their disease, which typically is not in the EHR.

And then physicians and what do they need, whether it's a specialist or a primary care physician. What do they need in terms of access to really care for that patient? That obviously is the lab data, the imaging data, the actual

images, to best practices and what are quality guidelines, pharmacy data? Not only are you prescribing the right thing, but what's the patient's compliance with those medications? And that's not typically in EHRs. And how do you capture all of this?

And I think those are really two parallel tracks. and I think you can start thinking about how do you measure those two different things. If you think about those two tracks, it's going to be really difficult to I think develop measures if you're trying to blend those two things together.

CO-CHAIR SAVAGE: Is this conversation feeling useful to folks? Should we continue talking about these five questions? Should we instead move to picking up on Bruce's comments?

I see a tent.

MEMBER FRISSE: Again, I'm finding great comfort in believing most of these opinions

can be represented in the framework on the spreadsheets. I think it's all kind of there. We're all processing our own internal views of that, but I'm still hard-pressed to find something I don't think can happen when those discussions take place, but maybe a bunch of broad discussions are important first. I don't know.

MEMBER YEAGER: Well, this is Mariann Yeager. Sorry, I just wanted to weigh in. I think the conversation here has been really interesting.

I'd like to introduce a slight variance I guess in some of it, and I wonder if it would be helpful to also measure the progression. So I think it's been noted that there's sort of the perception, well, now there are computer -- digital records are computerized. They should be interoperable out of the gate, but not recognizing that there is a progression of before you can really get there.

So is it beneficial to -- for instance based upon the desired impact to identify the extent to which -- it's even -- the environment's even digitalized, the percentage of adoption of the standards and then looking at percentage market penetration for connectivity. Is it even possible for it to flow?

And then the use of that connectivity, whether it's the number of transactions or the percentage of time that data are available. And then looking at the progression of, okay, well, once you've done that, then you look at the usability, the value of the data and the outcomes.

So sometimes I feel like it seems like policy makers sort of set the expectation that, well, once you have a computerized system in place, then the outcome should just be available, when actually it's a progression over time and just really to have benchmark of how you're doing at that point in time.

So I don't know if that really changes the conversation, but I just wanted to share that perspective.

MEMBER RICH: Yes, to help a little bit, I'm going to ask our ONC colleague, doesn't ONC have some tools; are they widely used now, to measure the ability of an EHR to respond with a CCDA file with the elements of well-established PQRS measure and outcome measure? I know that we've actually run some tests on different EHRs and the performance range from D minus to B plus. Are those tools readily available, or was that just a test exercise that we were part of?

DR. PATEL: That's a good question. I mean, I think that's -- the specific thing that you're talking about is in the test environment. I mean, the measures that we have, which I think I briefly presented on in one of the webinars -- I think to John's point, they're pretty crude. I mean, they're national survey measures of hospitals, of physicians and of consumers.

So we have survey-based measure where we can ask things about perceptions, and we do, about interoperability and their abilities and including the availability of information, the uses of information from outside -- that they receive from outside sources, so some of the key domains that we talked about. But they are crude measures because they're self-reported and they're not from systems themselves.

So they don't really tell us necessarily -- they tell us indirectly about the -- whether the information is in a structured format and that kinds of things, because there's only I think so much you can ask. A physician who works in a large practice might not even know what we're talking about when we're talking about structured. So there's some questions that are just hard to ask.

So in terms of what is available now that we have at a national level, it's basically meaningful use data, which we know on the

physician side is going to evolve now with MIPS, but -- and these national survey data. That's what we're -- that's what we have right now at the national level. Obviously there's data from other sources like direct trust or other things that we can talk about as we get into more of the nitty-gritty of how can we measure exchange of information? What's available at the national level? I think there's a lot of rich data that's available at the local/regional level, but how you get that at the national level is more challenging.

And Julia's also working on some work that's trying to get at measuring -- developing a patient, more patient-centered measure of interoperability that looks at claims data, does some survey work as well. And maybe when the time comes she can kind of describe that, too.

So we're trying to move the needle on some of this measurement work, getting beyond just survey-based measures, but it's a challenge.

But I think the work today could help identify with regards to exchange availability, what it is that we -- we know what we have right now, which is the survey-based measures and MU, which is all self-reported, but are there measures that we could develop of exchange of interoperability looking at the impacts that could be generated from the systems themselves and provide more I guess concrete measures of information exchange that could be going on that we could report up at a national level.

MEMBER RICH: I think that the testing phases would address several of the issues, like box 1 and 4. We've used it and it actually amazingly reflected what our experience is, because we've had 142 million exchanges, and not simple data points, but very complex measures with many data points for each measure. And we find actually just looking at something like a cataract pre and post-op vision much less patient-reported outcomes and patient

satisfaction. Massive variability from a well-established PQRS measure.

So I think that where you're going, actually if you draw back a little bit, you'll -- we have found that there's tremendous variability even in well-established 10-year-old measures. And something like that I think would address what's in box 4. And I think that would address some of the issues that Bruce and I have made.

MEMBER BLAIR: Listening, I'm thinking about Steven's comments on the layers and then Mariann's about the different components of connectivity, transaction usability, and I can't remember -- and I agree with both of those. They're different a little bit. One's more of the system. The other is the usage by the provider.

And I'm thinking about Class, that organization that rates vendors, came out with something in the last year on interoperability. And I can't remember it, but it's something about

availability, which means the transactions are going place to place or you can pull them in. Usability, which is usability of the EHR. And then something about being able to reconcile or incorporate the data. I think those are the three components.

And it started with maybe 30 or 40 percent on the availability. Usability dropped it down to about 15 percent. And being able to do all three was under 10 percent. And then they looked at each vendor along those lines.

And when I think about our experience, when you think about direct, for example, I think there's 700,000 or so physicians that are connected. And then I think -- and so if you look at where we do our Comprehensive Primary Care Initiative work with 600 practices at this point, they're all connected. They all can transact. And about 10 to 20 percent of the transactions are going electronically. So they're all connected, but they're not doing it

because of usability.

But then if you drill down to what we're doing at the practice level and provider training and EHR configuration level and transitions of care, and get in there and teach them how to do the referrals and incorporate the documents to get the discharges real time so that they're actionable by the care managers and stuff, it goes up to 70 or 80 percent across those practices. So they're all connected. And it's that in-the-office configuration usability making those EHRs useable for them that gets that interoperable.

So I think getting back to what Mariann was talking about a little bit on connectivity, transactions, usability, etcetera, makes some sense.

MEMBER ROSATI: So listening to this conversation has been really valuable, but one of the pieces that I feel maybe needs to be brought into play in this framework is about settings,

because just thinking about the environment that I'm in and some of the challenges we have with the exchange of data.

And to give you an example of this, in home health; and it's certainly an issue in hospice, timeliness of care is very important. So when do we get in to do that first visit? It's both important for the care we deliver, but it also is important to patient experience. But I will tell you that discharge planning will make referrals to home care and hospice, but hospitals wont' inform us when patients are actually discharged. So here's a very simple ADT piece of information that does not move easily from the hospital environment to the post-acute setting.

And we've been told you could get that out of the HIEs and what you see there are discharge summaries that are sometimes two weeks old. So that's not really relevant. And if were to try go to the approach of direct, not everybody's using that and then we would also

need to think about how we'd direct that to the right provider.

So I think that here when we talk about this idea of exchange, we need to think about whether or not -- if it's happening in a meaningful way is really -- is something to measure in itself because without the data flowing we really can't come and impact our further measure down the line, which is that timeliness without that capability being in place.

So I like the idea of this layered approach and thinking about just the basic technology and then what needs to be above that, but I think that's the challenge with this framework is thinking of all those pieces that are interplaying here. In a way it's a matrix that has to work in all dimensions for us to see an impact on outcomes.

MEMBER O'MALLEY: Just following on both of those, John's comment and your comment,

and Mark's comments about sort of major use cases. And I think maybe if we drilled down to a set of very specific use cases and just said care coordination is one, transitions of care are another. And those are probably the two fundamental use cases for the entire system of care, because all of our patients -- no matter what our specialties or where we are in the system, we're a part of one or both of those processes all the time.

And if we looked at those as sort of the critical use cases, then begin to dissect those out, then what are the critical pieces, components of those use cases? And then in kind of a systematic way go through what do you need to build those components? What do you need to exchange those components? What do you need to reconcile them? It might give us a way to approach interoperability and focus it on just sort of some critical components of the system itself and sort of how the system works.

MEMBER SWENSON: So I think one of the things looking at the long-term vision future of this -- I think the ideal state of interoperability is that we stop talking about interoperability, right? It's just when I'm a provider and I need to know a hemoglobin A1C trending over time or I need a CT scan or whatever, it's there. And it doesn't matter to me if it was done locally within my health system or if it was done across the country when the patient was somewhere else. It's just there.

And that's where some of this perception and measuring based on provider-reported measures gets difficult, because if as an EHR we're making it so that the information is just available, the provider ideally doesn't know that interoperability is even happening because it's just there when I look at it. So that's essentially where we need to get.

What I would love to see on some of these measures looking more at the exchange and

the availability is measuring how that information gets exchanged in order to drive industry changes. One of my focus areas is on patient consent, authorization requirements. A lot of what we're talking about here is already covered by HIPAA, but various states have additional regulations, or their lawyers have interpretation of state regulations anyways, that limit the information that gets exchanged because they require patients to do something, to sign a form.

I would love to see some measure -- and there have been things published about the impact of that, but some measure of how much of this exchange is being prevented because we're asking the patient to do something that they don't really need to do anyway because it's already covered by HIPAA and use that information to then drive changes to allow interoperability to happen more, which then gives us more data to measure the impact.

MEMBER OPELKA: So I don't know if we're starting to around in circles a bit, but we need to tighten this up at some point, but to -- I like the concept of the layered approach because I think it's how most of this is structured, but to me it still -- to me there's an EHR world and then there's the world beyond the EHR, and we are very fast moving to the world beyond the EHR. I think the now is the EHR interoperability, but within two years we will be out of the EHR interoperability world.

So the patient cloud environment needs to be able to take data from multiple disparate EHRs, because patients see multiple different providers and have multiple different instances of their data. That data, once it's in the patient cloud, currently as those clouds are trying to deal with that data, it's completely non-interoperable.

And CDAs are a thing of the past. They're relatively useless. And it's like giving

me this entire package on a patient and when I open it up and spill it on the desk, it's confetti. I can make nothing out of it. Fire is too narrow. It gives me a lot of solutions, but not enough solutions.

So how do we actually structure this so that in this patient world that's emerging -- and it's a non-HIPAA world -- the patients own their data and they have an opportunity to do whatever they want to their data, and they're going to find out it doesn't interoperate. We've got disparate systems that are not acting in the patient's best interest.

How do we measure that environment where all the data now sits and it has an ability to be structured and pulled together to the benefit of that patient and anybody treating that patient. That's going to happen in three years. It's going to take us a year to come up with this. So we've got to be thinking of EHR transmissions today, CDA world, but we have to be thinking

beyond that in this other world, and we've got to do it now.

CO-CHAIR KAUSHAL: I'm going to suggest that we move on to -- that was a terrific discussion. I'm going to suggest we move on to the environmental scan and key informant interviews.

Jason, do you want give a brief overview of that or --

MR. GOLDWATER: Sure, I can do just a brief one.

So I think all of you know that we have spent probably the last six months on key informant interviews and doing a fairly comprehensive literature review and have gone through a few iterations of the document. We -- the purpose of the literature review was to identify through literature key measure concepts that would align with those initial four domains of use, availability, exchange and impact. That addressed both current and future problems of

interoperability. And then to provide at least a basic foundation for identifying potential measure concepts and/or existing measures to be used within the framework.

And within the scan we were able to tease out concepts through the literature. And then we were also then able to follow on the work that Rainu had done and others to identify existing measures. And then from that form a framework within the spreadsheet to help take some measures that we were able to grab from the literature and have you all evaluate to determine the level of sensitivity and the impact interoperability would have.

The literature, as many of you know; and I know there's a lot of health services researchers in the room that have done plenty of this work before -- the literature does not always address all of the issues, so we then decided to proceed with interviewing a number of key informants across a host of areas, both

payers, providers, vendors and so forth.

The purpose of it was to supplement the information data found within the literature review. We wanted to obtain information and details on interoperability measurement we were not able to find through the literature.

And through discussions with -- we interviewed eight people. I'm sure most of you know them. And we identified existing and future measures and possible data sources ranging from public programs such as Medicaid, to private programs, to what hospitals are using, to what health plans are using, processes and outcomes that were enabled by interoperability. And they were very upfront about sort of taking into consideration the current realities and implementing the framework.

And a -- I think one of the major key themes that sort of came from that was a lot of what Dr. Opelka was talking about, that it's a very changing framework. Interoperability was

initially addressed through whether EHRs could exchange data and the processes that goes through in order for that data to be exchanged, but that over time it was evolving into something far more different, that it was talking about patients' access to data, patient engagement, digital health and other areas.

The recommendations for the framework -- and I think that as we now start to move into the area of identifying domains, sub-domains and concepts, really keeping in to mind a lot of what you all have discussed, the framework again is to really organize measure concepts and potential measures of interoperability.

So we're probably going to take the rest of today and a good portion of tomorrow and identify some of these core domains, keeping in to mind the topics you all have already brought up, and sub-domains of interoperability and align the outcomes and/or process measures for them to

identify the concepts and measures that individuals will then in time build systems toward.

We need you all to help identify and prioritize those measures. I think that was something that was very clear in your discussions, particularly looking at two tracks and also looking about aspirational measures versus those now that could be used currently, but to really identify and prioritize them and include all the community-reconciled data prior to visit, really examining the use cases that would be relevant.

Those measures that would be -- or measure concepts that would be aspirational, to base those on completeness of record and the timeliness of its availability -- whether it's an EHR or another data source -- to create a test environment to validate these interoperability-sensitive measures and the data sources the information comes from, and then finally to

prioritize what would have the most impact on clinical quality, patient experience and reduced cost. So that is the -- some of the objectives ahead of us.

CO-CHAIR KAUSHAL: So I'm going to suggest we keep going on to slide 26, which are the measurement framework domains.

These were the four domains that we had come up with, which are exchange of data across disparate systems, availability of data to facilitate interoperability, use of interoperability to facilitate decision making, and the impact of interoperability on health and health-related outcomes.

And I think what might be useful is to first talk about whether there are any other recommended domains that we think should be considered and to start going a little bit more deeply into each of these stated domains to make sure that we understand and can conceptualize what we're trying to discuss within each of

these.

DR. PATEL: Point of clarification. So these domains were identified in the Interoperability Roadmap, ONC's Interoperability Roadmap, as key aspects of interoperability that we would want to measure to assess progress. That doesn't mean that these are the be-all-end-all, but I just wanted to provide that as a context background. Totally open to other suggestions on this, but these were identified as part of the roadmap process as assessing progress related to interoperability.

DR. BURSTIN: Just a comment on that. I guess the only question is, based on what you've been talking about for the last couple of hours now, is there anything you don't think could potentially fit in one of those four buckets considering how you might layer it, the use cases you might use? Is there just another big category that's not captured by these four, is really the only question for domains. And then

we'll let you have a break.

MEMBER BUITENDIJK: Just a question is that I think most of what we talked about fits in there. I'm just curious now looking at these -- again in this -- in light of this discussion to clarify the first one maybe a little bit more because I'm curious whether that actually can fall under one of the other two that are -- or other three that are there. So can you clarify just the first one a little bit more? It seems to be able to fit in the second one, and I'm curious whether that's true or not based on our conversation this morning.

DR. PATEL: So we had conceived of exchange and availability as separate kinds of domains in terms of whether information is transmitted or not versus whether the provider -- it's available to the provider like, as John I think was saying, within their clinical work flow. So information could be transmitted, but it's not readily available to make use of.

So I think that was the distinction there that information can be exchanged, but it might not be readily available necessarily, depending on I guess the clinical work flow and the user interface. Is it easy to -- is it actually available to the provider? As I think Alan was saying, is it really seamless kind of way? Does the provider perceive it to be available? So I think that would be the distinction between the two, and we identify those as separate things that we would want to measure just because information exchange doesn't necessarily mean it's readily available to the provider or to the patient.

CO-CHAIR KAUSHAL: And just to clarify, I'm getting some clarity from our NQF colleagues here, we're not wedded to these four domains. And so if we want to change the domains, we can change the domains. So it seems to me that we may want to first have a discussion about what are the domains that we'd like to

include; and four or five would probably be a good set of numbers, and then understand whether or not they map against the ones that the roadmap came up with.

CO-CHAIR SAVAGE: And I'd just add, we have some definitions up here on the screen, but if "exchange" or "use" means something different to you, feel free to mention that as well.

DR. PATEL: I mean, Jason, I don't know if we have the roadmap, because there was like a very -- like one-sentence-kind of definitions there. I mean, if we could pull those up.

MEMBER BLAIR: Yes, so to Helen's question is there an area that's left out, I think usability is not there.

And to Vaishali's thing, I actually had the same question you had, Hans, I thought they were kind of the same thing.

But as I listened to you, Vaishali, I

started to think, no, maybe it's not. You could have -- you can have the data moving and getting there -- and I'll just give an example, a poor patient matching capability within the EHR so it never gets to that patient record for the provider to even use it. So I went from thinking they are the same to maybe they're not.

MEMBER WALDREN: And I went the other way. I thought they weren't the same to begin with and then after Vaishali talked, I thought maybe they are the same, which is funny.

(Laughter.)

MEMBER WALDREN: So when I heard about availability to facilitate interoperability, to me that meant that the data was available to be exchanged. So this was on the source side, not on the recipient side. So are you collecting the data? Because if you're not collecting the data and structuring the data in a way that could then be interoperable, that could really be a problem. So you could have an EHR, for example, that could

be able to do the exchange, but you're never putting it in the EHR, so it's not. So that I think if -- that piece of it, I would keep that separate from exchange.

MEMBER BLAIR: Well, so, yes, it's availability on both sides.

DR. PATEL: So I'm just reading from the -- I have -- he has a copy of the roadmap here. I wrote this a while ago now, two years ago. So exchange -- I'm just going to read what it says here and then we can discuss whether -- however the group thinks it's appropriate to group, to reorganize this, if necessary.

So exchange of electronic health information. "It is important to assess how information is moving electronically, which involves the measurement related to the extent to which individuals and providers along the care continuum can electronically send, receive, find and use priority data elements in an interoperable manner. For example, identifying

a reduction, even in the amount of paper-based exchange methods such as fax, could be an indication that providers and individuals are increasingly using electronic interoperable methods to exchange data."

So now availability of electronic health information should be -- "Electronic health information should be available to both providers and individuals when and where they need it. The electronic -- the availability of electronic health information from outside sources, starting with the priority data elements listed in the roadmap, will serve as key indicators of the degree to which information is accessible and interoperable. It is also important to assess the extent to which data is made available to appropriate parties outside a healthcare provider's organization such as patients, providers and outside organization."

And then the use of electronic health information and decision making. So that concept

is defined as: "To achieve desired clinical and health impacts, electronic health information should be used effectively. Measures in this domain will assess whether electronic health information from outside sources is used to inform decision making in managed care. Measuring usage will enable us to understand how information from outside sources is used and valued."

So I don't -- maybe that helps clarify the distinction between those three concepts, but again, totally open to the Committee kind of reorganizing it or reframing it in a different way. But that's the original -- that's why originally it was availability and exchange was denoted as separate.

MEMBER SHAPIRO: I just wanted to comment on the availability part, and I think maybe this is implied, but perhaps it should be more explicit, and that's that the data is not just available, but it's also structured and of

high quality and semantically interoperable. And there's lot of data available that is being exchanged, but it doesn't have those three elements, which decreases the usefulness of it, especially for secondary use cases.

It's one thing to display a lab value on a clinical portal for one doctor seeing one patient, but if you want to try and do anything where you have to aggregate lab values and make comparisons or trend them across time, if it's not mapped to a standard, you can't do it.

DR. BLAIR: Yes, just I see these three as given the CDA, data are exchangeable. And when I receive it, it's moderately to highly inefficiently available and it's rarely useful. So I think they're very good to define them in all three ways because we do have a lot of things happening here in each one of these steps. And whether it's the syntax or the semantics, they all need to be ironed out.

MEMBER RUDIN: I wonder if we're

limiting ourselves a little bit in these domains to assuming a certain type of data exchange like a point-to-point data exchange. I'm hoping that whatever framework will capture ability to -- for interoperability to support more complex use cases such as these patients where it's not simply having some medical record available, but having some back and forth and communication among members of the care team, including the patient. And that means having interoperability supporting not just simply exchanging or having data available and exchanging it, but supporting these care processes. Just wanted to bring that up as maybe we should put some kind of domain in there to capture that type of thing.

MEMBER SWENSON: I guess the one that I'm wondering about is availability. It seems like some of the examples of availability, the structured data thing could be measured in exchange. Like is exchange happening? Here's some number of interoperability that happened and

what is being exchanged is all kind of in that same bucket, I view it. And the fact that it's discrete information: LOINC codes, RxNorm codes, etcetera, would be in the exchange bucket.

Availability seems like that's a problem of the system receiving the information and how they handle making it available to somebody, right? So if Epic does it one way, Cerner does it one way, whoever, that's kind of an EHR or a recipient system problem. I don't know that that's something that's measured across everybody. What's measured is do the providers -- are the providers able to use it, right?

So what's being exchanged? Is exchange happening? Is it discrete so that it can be used? The EHRs then have to do something with it to make it useable. And then is it being used? And is it being used is again something that we can now measure. And that's regardless of how the recipient system presents it to the

provider. Are they using it?

DR. PATEL: I would ask Julia actually. So, Julia and I came up with these domains when we put this together, so I guess one question is do you think that this -- I mean, we've been measuring availability and exchange as distinct measures. Do you think they could be basically conflated or is it valuable to measure those two as separate concepts?

MEMBER ADLER-MILSTEIN: Yes, I think separate --

DR. PATEL: Yes.

MEMBER ADLER-MILSTEIN: -- does make sense, because I do think that there are different things that impact. I mean, I think there have been several examples given of different influences on what shapes whether exchange happens and what shapes whether information is available to the user of that information. And so I do think they are distinct.

And I mean, I think we wind up with different measures of them, whether we've put them in a same category or not. I'm not sure it matters, because I think at the end of the day there will be different measures that are needed to -- because of that distinction between whether it arrives at the door, and whether once it arrives at the door it's being used.

I think, Alan, to your example, I mean, how vendors are treating that information differently -- I mean, we need to measure that, right? That's an important dimension of interoperability. So I think to me what you said actually reinforces that distinction.

DR. PATEL: I mean, one thing I'll say is that in studies that we've done with the national survey data where we do measure the sending, receiving, finding, integrating piece separate from the availability piece is that there is a strong association between those measures of exchange, so the sending, receiving,

finding, integrating and availability, but there is a gap between the two. And so -- and there -- then there's a further gap when we look at the usage piece.

And so -- and we've looked at some of the reasons that providers have reported as barriers to the use piece, and it relates to clinical -- a lot of it relates to clinical work flow, not having the information available at the right place at the right time kind of thing. Like within the EHR is part of clinical work flow. So in my mind those are probably important.

There are various reasons why there might be the difference between the exchange and the availability piece, but there is -- there does some to be value in measuring those as distinctly and --

CO-CHAIR SAVAGE: And just to check, isn't that where the issue of sub-domains could help tease that out, that you have good availability in one situation, bad in another.

You want to know that it's good in one area and bad in another. That's why you want to measure 1 separately and differently, because exchange may be working well in one sub-domain but not in another.

Mark?

MEMBER FRISSE: I'm a big lumper and not a splitter. And I see that we have some breakouts along the way. And I would just say if you pick four buckets and in our breakouts we throw things in there and see what fits and what doesn't, we'll find pretty far -- because at this -- the level of the ONC thing does give you some wiggle room about where you put certain things so that utility and usability can all fit. But how that will come in the breakouts -- but I think it's important to do a few buckets and look.

And I would also remind people of the literature review result studies where you looked across four major areas, which weren't really -- aren't overlapping, but really more drilled down

into point 3 and 4 of ONC, too. Interoperability behind the healthcare continuum, interoperability to enable processes, system-generated data, existing measures, sensitive outcomes. I mean, they were four other valuable points.

So we've got a bunch of lists sitting around here, maybe three or four sets of lists of three or four things. And I think that's maybe leading to some confusion, but I think if we just arrive at a bucket and you have this one, great. Can we talk about that in smaller groups? I don't know if that's the agenda or not, but that's where this stuff can get worked out and then we can come back and validate the framework more efficiently.

MR. GOLDWATER: Just to very briefly interject, so that is the point is to take the larger domains and break them out and see what fits inside. And so perhaps the exercise is if after that there's still something that's

missing, then we think about maybe adding a domain or two.

MEMBER BUCKNER: So I would just add that I think all of us need to wrestle with this question of is some exchange better than zero exchange and should that be measured or not? So even if it's sent as a PDF and viewed in the PDF, is that greater than zero? Well, yes. Right. And my opinion is yes.

And so, I think that's -- it's not just about the source or the destination, right? But discrete is always better, but I think we need to account for the low-hanging fruit. And so maybe that's our easy one back to the beginning of this conversation.

MEMBER SWENSON: So I agree definitely with Mark's point. I mean, some of this will all be fleshed out as we look at the sub-domains within each of these domains. I think availability though is still one that seems it's a good one when we're looking at provider-

reported perspective. Do I view the information as available?

But if we're now trying to look at measures that can be systematically measured by the system and reported on, if the exchange is happening and we're looking at the numbers there, how one vendor versus another makes the information available would be measured in how well the provider uses it. Because if the provider is using it, then it must have been available to use it. And the provider doesn't need to know this was available information from interoperability. We're just measuring: are they using the information that is available regardless of where it came from?

MEMBER SIGSBEE: One aspect we -- that I can't see getting captured in these domains is that of the patient perspective and their access to the information as well as being able to provide information to the healthcare delivery system. And I can't see even in a sub-domain

that that would fit in there. And I don't know how you -- maybe you could define it as the patient has access and can provide information critical to their shared decision making in healthcare, or something equivalent to that.

Maybe people could wordsmith it better than I, but I just don't see that being captured in the domains that we are here. And through the discussions -- and Frank and others have pointed out how critical that is going forward -- if you look at those three domains we have, they're very much dependent on the current EHR environment, which I do think is going to change as we move forward.

MEMBER BUITENDIJK: And so as you explained the three that are currently on the screen and the combination with the discussion this morning, initially I thought that exchange and availability here were more -- meant the same, but the more I'm hearing it, it's more sounds like the availability and use are the same

and there are some other things there.

But, so I'm curious what -- just as an offer of a slightly different way of getting to the three: availability, usability and impact, is that the availability can have sub-domains of syntax, of semantics, of a variety of different aspects of how available is this? Do I have connections? Is it readable? Things like that. How do I get to it? Useable is on the other side saying is that -- now I got it, is it something that I can work with? And the third, which is ultimately what we are trying to figure out, is there an impact?

So to me they seem to be still capturing all the aspects that we have, but allow for a little bit easier pushing off of sub-domains and measures in there, and then agree that if we find other, then create other. So that's just a consideration.

MEMBER WALDREN: Yes, so I was kind of along the same lines. So I thought the four

categories for me is -- one is to make available or capture. I hate available, because I mean when my patients would tell me, oh, yes, it's in the chart, when I have this big huge paper chart and say it's available, my concern would be that the EHRs would say, oh, yes, that was available. It was in there. It was buried. So I hate the word "available," but I think that one capture piece.

The next is exchange, so actually being able to move from point A to point B.

The third being useable. The data, once it's received can actually be used.

And then the fourth I had support, care, delivery, but I think I would change it to impact, going to Hans' piece. You have is it captured appropriately to make it interoperable, so it's available, is it exchanged appropriately, is it useable once it's been exchanged, and does it actually impact the care that we want it to be able to impact?

And then the sub-domains you could have like syntax, semantics, work flow. You could have patient or particular provider types in those sub-domains.

MR. GOLDWATER: Okay. With that in mind, why don't we take 15 minutes, and then we'll decide how we're going to break out into groups.

(Whereupon, the above-entitled matter went off the record at 10:49 a.m. and resumed at 11:08 a.m.)

MR. GOLDWATER: All right. So, I've been told by my illustrious staff -- and I know many of you, some of you have been on these committees before. So traditionally at the end of the first night there is a dinner for everyone, so we have arranged a reservation at Siroc, which is at -- it's five minutes from here. It's just down -- two blocks away, right? So it's terrific. Highly recommend it. And no, we're not paying for it, Julia, so --

(Laughter.)

PARTICIPANT: Yes, what time is it?

MR. GOLDWATER: 6:30. I'm just kidding.

PARTICIPANT: We are paying for it. He's giving you misinformation.

MR. GOLDWATER: Yes, okay. Because I've known her long enough, I can get away with that. So 6:30. All right.

Okay. So I'm going to turn it over to Poonam to just sort of explain to you sort of the exercise we're going to do in the breakout groups and then Mark will provide some context.

MS. BAL: So, we're just pulling up the slides, but we did rephrase the core domains a little bit just based on the discussion.

Okay. So just rephrased it a little bit. Hopefully this provides a little clarity. And as -- based on what we talked about earlier, there are different layers. And so while these overlap, we want to see all the different layers represented. And again, we're going to do the

exercise of sub-domains. And after that point if it becomes clear that there is a domain that's missing or a domain that should be combined or so on, we will have that discussion after the sub-domain discussion.

And so first the exchange of electronic health record information. That's really just that information has gone from one point to another. Availability, that is available for -- someone can access it and see it.

Use and usability. So we did add the word "usability" to that definition based on the -- there, so that's really saying that someone can use it. And that can be the patient. It can be the physician or some -- another care giver.

And then the last one is impact of that information on processes and outcomes. So maybe it's useable for decision making, but did it really make the impact and improve care, which

is really the end goal of all of our work.

And so those are the domains that we're focusing on, and hopefully that provides a little bit more clarity about the differences, but again after we go through the exercise, if there still comes -- there's still confusion, we can definitely change those.

CO-CHAIR SAVAGE: So I just wanted to add, as we're going to look at sub-domains, I'm wondering if that's where actually a lot of the conversation this morning is going to end up. Somebody made the great point about multiple lists, so there are lists of different kinds of stakeholders that might actually be their own separate sub-domain, depending upon the conversation within the breakout group.

So patients might be a sub-domain under availability. Clinicians might be a sub-domain under availability. Similarly, under exchange and usage. So stakeholder or something like that, people using -- users may be one kind

of a list as a way of thinking about what -- how to identify sub-domains.

Another might be use cases. Care coordination. We've had a conversation about that.

Somebody mentioned research. That may be a different sub-domain. We have precision medicine, learning health system. Depends on what the group thinks. But the use cases may be another way of categorizing sub-domains.

Data sectors in the -- I mentioned already the work that I'm doing with the 10 communities across the nation. The categorize information by which data sectors are trying to exchange information. So that's where things like housing, criminal justice, homelessness, management information systems, data sectors may be a way of thinking about sub-domains. Data types may be a way of thinking about sub-domains. Not meant to be exclusive here, but to think broadly about categories, and that may help us as

we identify which sub-domains are really important.

I think Jason was telling me that we can come up with whatever want, but ideally not more than 10. So we will -- as we brainstorm we will perhaps come up with more than 10, but then the winnowing process will help us identify which ones are the most important.

Rainu, did you have anything you wanted to add?

CO-CHAIR KAUSHAL: Nope, that sounds great.

MS. BAL: All right. So thank you for that clarification, Mark.

And then just to explain what we'll be doing now, and I'm just going to read a couple of these things just to make sure. We're really trying to be consistent with the main domain. Think about when you think of that topic area what's underneath there. And then also sub-domains where we can actually come up with

measure concepts. We don't want to come up with a sub-domain where there's really no way even if we think all future there's no ways to measure that aspect.

And then once we -- and we'll go through the setup, but we do want to actually narrow it down. While no more than 10, 10 is still a lot. So trying to really think what are the most important sub-domains? Where do we really need to focus, and so on.

Next slide, please. Oh, actually that's -- never mind.

So the setup is going to be we'll have four groups, and they're here. Your name will be found next to exchange, availability, usage or impact. Each team member is assigned to be with you, but we're really there just to answer any questions that you have and help you with note taking. It's really -- we want it to be committee-driven. And so we ask that you -- once you get together, pick one person to be your

representative. That person, when we come back together as a group, will basically present on behalf of the group and say what sub-domains they came up with.

The first 45 minutes of -- you'll have a full hour to meet as a group. The first 45 minutes, we really want you to focus on what -- just kind of brainstorming, getting the ideas out there, talking through it, but then using the last 15 minutes to come up with those exact sub-domains you want to present. So kind of narrowing it down, really using that time to -- here's the big list that we came up with. Now what is really our focus? What do we want to actually be the sub-domains?

And then we'll be meeting in different rooms, so we'll have group -- the exchange group will be in that corner. The availability group will actually be in a separate room with Jason. Usability -- Jason gets the fun group. Usability will be in that corner, and the impact group will

be meeting in the back.

And so once we part for that, please go to the different section that you will be for your group. Again, exchange. Availability is going to follow Jason. Usage will be in that corner and then impact will be in the back.

(Off microphone comment.)

MS. BAL: Yes, and we'll have this up.

And then could you just put up the slide with the examples? It was earlier in the presentation.

And I just wanted to show the examples one more time to get an idea. I think Mark gave a couple examples, but just to go back to that example slide of what do mean by a sub-domain? So you'll see here under access it was access for patients, and then access for care team, and so on. So it can be those different options.

And so with that we are ready for the breakout groups unless there are any questions about the ask.

MEMBER SETTERGREN: Could you go back to the domains list that we're using today? And the only reason, I just want to make sure that I'm clear. For me, use and usability is more than decision making; it's being able to drop a problem onto your own problem list, a med onto your own med list, and re-fill it from there. So I'm just wondering if decision making makes it a little bit too narrow. That's my question.

CO-CHAIR KAUSHAL: I think that's a good point. So why don't we do exchange of electronic health information, availability of electronic health information, use and usability of electronic health information, and impact. I like that. It's cleaner.

MS. BAL: Okay. Were there any other questions?

(No audible response.)

MS. BAL: Okay. Thank you. And then please go to your separate sections. And if you have a question about where you need to go, let

us know. We'll be pulling up the slide with the different locations.

(Whereupon, the above-entitled matter went off the record at 11:17 a.m. and resumed at 1:04 p.m.)

MR. GOLDWATER: So thank you all very much for the breakout groups and participating. I know we had a very active discussion in our private room off the middle of nowhere, which I couldn't find. But it was a very active and productive discussion. I heard that most of the other ones followed suit.

So what we're going to do now is let Rainu and Mark sort of lead the way and talk about the different sub-domains you all came up with under each of the domain topic categories, and then we'll probably proceed to try to winnow them down perhaps.

CO-CHAIR SAVAGE: So what you want from us now is to just sort of report out from the different groups? Excellent.

Who was reporting out for the exchange breakout group? Excellent. You want to take us through what you want to report out?

MEMBER WALDREN: Sure. So we came up with four sub-domains: who, what, how, and when. And then we spent 45 minutes -- no. All right.

But those are our sub-domains. And underneath the who, for example, we talked about who are the parties of exchange. So what are the different categories of exchange, and are you exchanging with whom you should be exchanging is a part of that. What are the capabilities of those individuals to be able to do exchange?

Underneath the what, we talked about what is the quantity of information being exchanged, both from the standpoint of who is sending it, how much ends up being received. We also talked about what's the quality of that exchange, so what level of syntax and what level of semantics does that exchange content have?

And how is it fitting a particular

need? So we talked about the examples that were discussed earlier in the day around referrals and transitions of care, access to ADT type of fees.

And then we spent a lot of time on the how, and we talked about a lot of different stuff. We talked about the security, of how secure the exchange was. Was it utilizing standards? What's the mode or initiation of exchange? Is it push, pull, or some combination? We talked a little bit about kind of end users, as well, so was training available and was it completed? Was the configuration, once something has been installed, actually completed? What's the level of automation inside of the exchange, and what effort is needed for the front line? And, finally, kind of what are some incentives, and are they in place to actually facilitate exchange?

And the last one was when. We just kind of talked about things being timely, but we didn't get into a lot of detail of what that

meant. I thought that's what we'll do when we get into our measure concepts.

So happy to answer any questions, or, if any of my other colleagues have something that I missed or misconstrued, please jump in.

CO-CHAIR SAVAGE: So just to check in, in terms of sub-domain names, that would be who, what, when, and how?

MEMBER WALDREN: Yes.

CO-CHAIR SAVAGE: Excellent.

CO-CHAIR KAUSHAL: We thought that was particularly innovative.

MEMBER WALDREN: And if you want to write a story about it, you know.

CO-CHAIR SAVAGE: It tells itself, right? Thank you so much.

So I'll go next. Yes? What happened to the why not?

So I was ordered to report out for the availability, the availability domain. We looked at, we looked at different kinds of ways

of sort of categorizing sub-domains, and I'll sort of share them with you the way that we talked about them.

So I think most of our time was spent around maybe role or user and whether it was available to a particular role or to a particular user or stakeholder. Patients, family, caregivers being one of them. Clinical providers, we settled on that as a broad category but including hospitals, specialty, even certification bodies. Third, payers and purchasers, saw that as including pharmacy/PBM data. Fourth, public health. Fifth, research, including things like PMI, industry-specific research, like pharma. Sixth, certification bodies. Then, seventh, non-clinical settings or non-clinical providers, again as a role or as a user, also mentioned for professional associations and for government.

Then we talked about external data sources. So all of these are sub-domains but

just different ways of organizing them. And we talked about social determinants of health. We talked about patient-generated health data, and we talked about personal health records, PHRs.

And here I'll flag a question that came to mind for us. We didn't resolve it, but we wondered if there was, in thinking about, say, PHRs and the way we were talking about it, the way that patient-generated health data was used and integrated, if there weren't something especially important about mobile access, not just any availability, not just any access, but mobile availability.

So I mentioned that because it was a question in our minds, but we didn't lift up mobile as a separate sub-domain, but I just wanted to share that.

And we did have a discussion also about data types. This did not emerge as any special sub-domains, but, picking up on the comment that any availability is better than

none, and so a PDF can be better than nothing, we talked about PDFs, structured text, that kind of availability. Very good conversation.

Is this the time to share the ones that got the most attention? Okay, okay. So we did go around the table and just poll people on what they thought was most important, and I'll save that.

CO-CHAIR KAUSHAL: Questions or comments for Mark? Anybody else who was in the group that would like to add to it? Please, go ahead.

MEMBER OPELKA: So I'm looking at what's on this list. Is this your list that's up here on the screen?

CO-CHAIR SAVAGE: That's a part of the list that we developed.

MEMBER OPELKA: And the only question I had was government.

CO-CHAIR SAVAGE: Yes. Professional associations and government did make it on the

list.

MEMBER OPELKA: Okay, thanks.

CO-CHAIR SAVAGE: Yes.

MEMBER O'MALLEY: Mark, you had also mentioned non-clinical providers. Did you drop it?

CO-CHAIR SAVAGE: It appears to have been dropped from what's on the slide but, yes, non-clinical. When we talk about alternatively, sometimes it's non-clinical settings, sometimes it's non-clinical providers. So the way we wrote it out was non-clinical providers/settings.

CO-CHAIR KAUSHAL: Any other comments or questions for Mark? Okay. On to our use and usability group.

MEMBER ADLER-MILSTEIN: That's me. So our group broke usability and use up separately and then actually are going to propose renaming use in a moment. And our high-level conceptual model is that usability comes before use, so the information needs to be usable and if

it is usable it is going to lead to increased use.

So we started with usability and I think quickly decided that usability is really about the quality of the information, as well as how it is formatted and presented. And so these are dimensions of information quality. So is the information accurate? Is it timely? Is it complete? Is it relevant and novel? Is it coherent, which means sort of if you pull it all together does it make sense as a whole, individual pieces of data? And is the information valid? And then the sort of format and presentation piece. Is it presented to me in a way that is not cognitively burdensome to process? And we recognized that, again, these will vary by setting, by user, by use case, but these characteristics will generally describe whether information is usable.

And then when we moved on -- is there a next slide with the use on it? Okay. So we

moved on then to use and really said that use is a process. Use is taking that information and doing something with it, and we broke this up into sort of two ways that are sort of applications of information. One is human where a human is looking at information and deciding to do something with it, and the other is that it's computable, that an algorithm or something else is looking at that information and deciding to do something with it.

And we then started to come up with some perhaps examples or proxy measures of, you know, what would human use look like? Well, that would be was the data viewed, or perhaps does it lead to an action, though I think in some cases we said you could look at information and the right answer would be not to take an action, so it doesn't necessarily mean an action but, in some ways, influences a decision. And is information used in a computable way? You could say did it feed into some kind of clinical

decision support or other algorithm? Was it used for a quality measure? So, again, these are measures of how information could be used in a computable way.

We then, I think, got concerned about whether usability and use were going to be confusing just as terms because they sound so similar. And so we did talk about some alternatives to use that might be better, and we actually thought that application might be a better terminology for this bucket. So we have usability and then application, which conveys a sort of active use of data for some kind of purpose.

So that was our framework and, again, recognizing that this, too, will vary by use case, user, context, etcetera. But these were sort of the right high-level concepts.

CO-CHAIR KAUSHAL: Anyone from Group 3 that wanted to contribute? Questions for Julia or the group? Okay. On to the impact group.

MEMBER RUDIN: To come up with our list of impacts, types of impact, we pretty quickly realized that we needed to answer the question of impact on whom, so we started coming up with a list of the key stakeholders who would be impacted by interoperability. And here's some subset of the ones we came up with.

In addition, and this isn't on the screen, but we also, as I think was mentioned a couple of times previously, the impacts are going to vary by the use case, so the what of interoperability. And we came up with a few use cases to help us think through, which we might talk about later.

Now, for our domains, for the next slide, I think we got the award for the most number of domains here. They might be able to be consolidated, and some of them are huge categories. So we didn't try to break up health outcomes into subcategories, even though, clearly, it could be reduction and duplication of

imaging in labs, cost savings. There's a potential to reduce hospital admissions or reduce visit volumes from improved clinical decision-making, increase the appropriateness of patient follow-up decisions. There's a bunch of safety-related categories. There's the potential to help reduce omissions because of omissions in clinical decision-making. Better adherence to guidelines. There's -- medication management is a big category. Potential to improve drug-seeking regulation, impacts on efficiency.

And then we have a few which are either potential unintended consequences or negative impacts of interoperability, or we weren't sure. I think some of these other ones are also potential unintended consequences. So there's potential to propagate misinformation if the data is inaccurate. There's a potential to improve data quality for research analysis. Also, it might go the other way. And then it has the potential to change referral patterns in some

interesting ways, which we weren't necessarily sure if that was a good thing or a bad thing.

MEMBER O'MALLEY: We did have one question that came up, and that was sort of what is interoperability? Because it depends on who you're talking to. So let's throw that one out to the group.

CO-CHAIR KAUSHAL: I'm going to turn that one back to you. What do you think it is?

MEMBER O'MALLEY: We passed it on first so --

MEMBER HIRSCHORN: I'd just point out that, by default, we're thinking of interoperability as information that I don't have within my walls that I need to get from outside, be it from like the one thing that came up about from police records letting you know that someone died, you know, or some other, you know, some other healthcare setting perhaps that, you're right, it doesn't come to my walls in my institution to have that information available.

But then there's also the internal stuff, you know, where I have, you know, I have the data, it's in my systems. My systems just don't talk to each other, you know, and that's also a level of interoperability. It's not all just about things that I don't have because they're outside. They're inside, but they just don't talk. And if I understand correctly, that is also an aspect of interoperability.

CO-CHAIR SAVAGE: So just to add on to the question about what is interoperability, there is an interoperability roadmap definition which is the ability of a system to exchange electronic health information with and use electronic health information from other systems without special effort on the part of the user. I'm not sure if that raises more questions than it answers, but that's, that is a definition that has been out in the public space for a couple of years now.

CO-CHAIR KAUSHAL: David, I

appreciated the nuance of what you just said because I think that the morning started off and even our subgroup started off a little bit thinking about interoperability as defined as external to an organization. And I think the point you're raising is a good one -- that, even within an organization, there can be such fragmentation of electronic systems that the information is contained but not usable.

MEMBER HIRSCHORN: Yes. A real-world example we have where I watch this go on every day, and I just shake my head, and I know it will get better eventually, is where I have a scheduling system, it's an enterprise scheduling system that says we do scheduling so wonderfully, this is great, so what happens when the patient comes in? They said, well, then you have to enter all the information all over again with your other systems to actually get the exam done. And I said you're kidding me? Why not? Why should I have to enter all the information about

who's the patient, what's the exam, and all this stuff all over again, and they said because that's a different system. And I just shake my head, and I'm like this is insane, this is madness, you know. And they're looking at me like, no, this is normal, you know. I said this is not normal, you know. And one of the challenges they have is that the scheduling system is cloud-based, and they said so you can't query our database because it's not in your data center, you know.

And so I said, well, can you get the data, and they said why would you want that? I said so I know how to protocol an exam about a patient that is coming in a week from now and not only find out the day of, you know, and to find out at the last minute that they can't get this exam because it's contraindicated because they have metal in their body or they have some other contraindications. This is absolute madness.

And these are systems that are

enterprise systems, quote/unquote, within our walls. But they're not really within our walls, and they don't give us a web API address, and they're worried about security and all this other stuff. And even if they were within our walls, they said still these systems don't need to talk to each other and we have to, like, get it through their heads that, yes, we do.

So, yes, this is a real-world problem we're dealing with right now about trying to get our systems within our walls to talk to each other.

CO-CHAIR SAVAGE: Terry?

MEMBER O'MALLEY: Just a longer-range issue. Assuming that we want interoperability to increase and multiply, what are we going to be doing that helps either provide guidance or incentives for those who do not exchange electronic information now but, yet, have valuable clinical information for the rest of the system? So it's really what sort of standards

are out there to help guide non-electronic users to become electronic users? And is that part of our, is that way out of scope?

MR. GOLDWATER: Sorry. I think that sort of ventures a little out of scope. Just a little.

MEMBER FRISSE: Only because it's difficult to solve.

CO-CHAIR KAUSHAL: So let me pose some questions for us to reflect on. So each of our four groups reflected on sub-domains and we'll soon be moving towards understanding measure concepts when we know sub-domains. So this feels to me like our opportunity to comment on the entirety of these sub-domains. Does this list of sub-domains across the four domains, are we touching on the important things? Is there a lot of cross-cutting issues that we could start thinking about how they might relate to each other before we break down into our sub-groups? Are there important areas that, now that we're

looking at our four domains and the sub-domains, feel like they're missing, so are there perspectives that, you know, the impact group might have for the exchange group that you think we didn't consider when you start to think about your sub-domains and how you want -- what kind of data you might want to have available to measure them and so on? So, Vaishali?

DR. PATEL: So one thing that I noticed across the different groups was the list of stakeholders, so the who. And I think it's, I mean, the list that people came up with was pretty consistent across the different domains. And so I guess this is a question to put out there is is that something that it's more about who we're measuring it across, you know? So it's like a cross-cutting type of thing, as opposed to a domain onto itself. Like within each bucket, it's like the same list of stakeholders, you know, patients or individuals, providers, different, you know, researchers, payers. It

seems like these concepts should be applicable across all of these, and there may be different ways to measure, I guess, across all of the different groups, but it seems like the groups were roughly consistent across the different, you know, the larger domains that we talked about. So that's just a --

CO-CHAIR KAUSHAL: You're saying that the groups of users.

DR. PATEL: Well, if you want to call them users or stakeholders. Yes. I mean, like researchers, public health. I mean, you know, that list, you know, was consistent across each one of the domains. I think that was -- like, you know, the exchange, availability. It came up under, you know, the usability and use group, as well as the impact group. So I'm just wondering whether that's more of a we want to measure this construct across these groups because it's relevant to all these groups, as opposed to the who is a construct onto itself.

I don't know if that makes sense, but maybe that's more of an NQF. I mean, I don't know, in terms of your experiences with creating these measurement frameworks, whether we specify, okay, this measurement framework is applicable to these groups or these settings, these groups of individuals or settings, and then this is who you would want to measure it across, as opposed to having it who be the construct that we are measuring within each domain.

CO-CHAIR KAUSHAL: So does anyone want to comment on Vaishali's point? Mark, go ahead.

MEMBER FRISSE: Speaking as an individual, but I think there's a consensus on this, you get to the same place. You get to a sparse matrix kind of users and functional roles or value. The important thing, I think, that was being said was that the applicability of information is very broad: clinical, administrative, consumers, a million different

places, each with different importance.

Second, so that depends on the context and use then for the value. And out of scope was raised during the meeting and also what are the role and responsibilities of the individuals to contribute the information in the first place, but that was all out of scope. But we went both back and forth on which way to go because it's kind of a tree, right? But it gets you to the same place, so I think it's just important to recognize some broader extent of users, broader extent of context, and that the value of certain standards of certain people will be different. That's all.

CO-CHAIR SAVAGE: Terry?

MEMBER KETCHERSID: I just wanted to get back to something that Julia's group brought up, which almost sounded like splitting the sub-domain into usability and applicability which I thought was intriguing because now so you have, you know, you sort of have the exchange, the data

is moving. You have the availability, it's there or it's not there. You have the usability. Somebody is acting on it, and then maybe it had an impact. And it's almost as though, by adding that, we're basically stating that we're not entirely sure it is going to have an impact if you act upon it. So I think if, consciously, we're collectively good with that, maybe that should be a completely separate sub-domain.

MEMBER ADLER-MILSTEIN: Can I briefly respond? So I think this has been an issue that maybe has been relevant to me throughout the day, which is, like, if all we think matters is the impact and everything else sort of goes in lockstep upstream from it, then why are we just only measuring impact and we sort of assume that the rest will fall in place? And my sense is that we're not comfortable with that because we do think that you, that there's sort of not a direct A-to-B causal relationship. And so that is why we have to measure each of those along the

way because we're just not at the point yet where we know for sure that, if you see the impact, that's because we had exchange, availability, usability, applicability.

But I struggle with that, as well, because a part of me feels like this should only be about the impact because the rest has to come upstream.

CO-CHAIR KAUSHAL: I'm actually going to go back to Vaishali's comment for a second because I think that the list that your group came up with, which is the availability group, was the same list that our group, the exchange group came up with when we were thinking through the sections of who. And I do think it's true for exchange and for availability that those, the list of people are the same, or we should have one list of --

DR. PATEL: And we came up with the same list for use. We just didn't list it as, you know, a list of who. We talked about it and

we came up with the list, but we didn't, you know, which was the exact same as the other two groups.

CO-CHAIR KAUSHAL: So there's a couple of things that that is sparking in my mind. One is do we have a list and have agreement across those three groups on what that list is, and that seems to make a lot of sense. But the other question I would have for groups one and two is are exchange and availability sufficiently different to have two separate domains? I feel like I sparked something down there at the end of the table. I'm not sure what. But in our group, talking about exchange, of course availability is such a central concept to exchange that I don't think we can really tease that apart. And I don't know if for you with availability, for the availability group, I don't know if exchange was so central that it's hard to tease those two domains apart and whether it's meaningful to tease them apart.

CO-CHAIR SAVAGE: I don't think we had

much discussion difficulty teasing them apart, except for a conversation about, we've already heard about, what happens when there is, you know there's data, but it's just not available to use. So was that an exchange issue? There was an example of dialysis information, but it had been built separately with different standards, so it doesn't fit into certified or into other sources. Is that an availability problem? Is that an exchange problem?

So we did have, we did have some conversation about that. But, generally, I think we did okay with just talking about it as availability.

CO-CHAIR KAUSHAL: For people in the exchange group, do you think that we were distinct enough from availability, or do you think that there was a lot of overlap?

MEMBER WALDREN: This is Steve. I think they're distinct. I think about them again, going back to the layer piece, that you

have to have exchange first because if the data is not moving then it can't be available at all. And then once you have availability, then it actually could be used. And if it can be used, then you can actually apply it appropriately. And if you can apply it appropriately, then you have a chance to do the impact.

So as I was thinking about these, you almost think that, like in the exchange, once they get to some threshold and we just arbitrarily said 90 percent because the meaning for use seemed to be 90 percent. But give us some threshold. It's like, okay, we don't even measure that anymore. What we want to do is we want to go up the layer of the cake. So now we want to say, well, okay, well, now we know that exchange is happening. Is it actually available? Well, yes, it's available. Okay. Well, if it's available, then is it actually being used and if so, moving up?

But one thing I hadn't thought about

and I think it's really important when Julia mentioned that that assumption is that those are all causal, that if you have that then you'll be able to move up to impact. And I don't think that's completely correct, and I think that was a good point.

CO-CHAIR SAVAGE: So, Bob, you had your sign up. Are you taking it down, or do you have something you want to share?

CO-CHAIR KAUSHAL: Yes, this topic is done.

MEMBER RUDIN: On the topic of cross-cutting themes, the stakeholders I agree is clearly a cross-cutting one. One thing that we started to do was have a big grid with stakeholders at the top and use cases on the bottom. And for our impact, we started to go through for a specific use case and each stakeholder what is the anticipated logical impact, which is kind of what, you know, starts to build toward a logic model based on specific

use cases. And we identified three use cases, and we got through one of them and then we ran out of time, but I think that grid might be useful for all of these to go through as an exercise because the stakeholder and the use case is going to affect every single one of these.

And also we haven't talked too much about contextual factors, so, you know, for any one of these we have, like, the impact is going to be mediated by a whole bunch of contextual factors, like the payment model and those type of things. We might defer that for a little bit, but I wanted to put that grid idea out there.

CO-CHAIR KAUSHAL: Steven, you had a -- well, first, does anyone want to respond to Bob's comment?

MEMBER BUITENDIJK: Just to add on a little bit more to Bob in response to Vaishali's comments, I think that, depending on the area, the domain that we're looking at for stakeholders have a slightly different meaning because in an

impact area it was very helpful to start the conversation by what does it mean if I have a case for this particular stakeholder and impact, what kind of impact, versus another stakeholder has a different impact or there is no impact, versus if I'm hearing the conversation around exchange and availability, same list of stakeholders perhaps, but I'm looking at it from a different perspective. Can I get the data from this stakeholder group or not?

And then I'm hearing a third one that you raised in your comments is that do I want to do all the measurements across the board at some level of aggregation or not? Is it okay to just do it within a particular stakeholder group or not? What is the scope of interoperability?

So I think we have to be very cautious that we are not ending up with one stakeholder group that we look at exactly the same way across the board. They all have a different purpose in the context of the domain based on what I'm

hearing so far.

CO-CHAIR SAVAGE: Hans, you had your card up before. Does that -- okay.

MR. GOLDWATER: All right. So I guess before we get on to some additional questions, I just wanted to chime in here about past frameworks. And I know a couple of you have probably sat in on meetings like this, and these are always the issues that arise whenever we do frameworks like this, that there's always cross-cutting issues. You can develop domains or sub-domains and they cut across a whole swath of categories. It's extremely difficult, if not altogether impossible, to come up with a sub-domain that is just going to uniquely represent one stakeholder group in one particular element. That is virtually impossible to do.

So having done telehealth a couple of weeks ago, you know, the biggest issue for every one that was there, and, like you, they had years and years and years of experience building,

implementing, maintaining telehealth systems, and access is always the dominant issue because they believe that having telehealth environments in rural or under-served areas or even in urban environments increased access to care to people that otherwise would not have those services. And that entire framework could have been built just simply around access, and every issue they came up with related to access and all the stakeholders that are affected by access. So it would be patients, it would be providers, it would be specialists, it would be payers, it would be purchasers.

But the way it moved forward was what is really important to measure in the framework? As Mark said, it all comes back to the same thing: every concept or every domain, sub-domain, and concept was going to come back to the patient and the provider. It was always going to get us back to that place. But the group, the committee,

ultimately decided that, even with the issues being cross-cutting, that access is one issue, but it was also very important to measure financial impact, it was very important to measure experience, experience of the patient and the caregiver, experience of the provider, experience of the community. It was very important to measure effectiveness, system effectiveness, operational effectiveness. It all could tie into access. You could make an argument that they all relate to access. You could also make an argument that they all relate to a patient and, to some extent, a provider. And while it all gets back there, the way they broke that out and the way they came up with the sub-domains and the concepts was, even taking apart interoperability and just focusing on the aspects of availability or exchange, what really becomes important to measure, what really becomes something that, in time, whether now or in the future, would become a metric that would, A,

align with what ONC's objectives are but also would be something to measure in the future.

And so telehealth, when they set up that framework, was what they really wanted to measure and assess now and in the future, and that's sort of the way to think about it.

CO-CHAIR SAVAGE: So I'll call on myself next as the next tent up. On the comment about whether it's all about impact, I just wanted to share one thought that came to my mind, which is in my work we often think about the range of patients, the range of consumers. They're not all patients. Some of them are well. So, in some sense, just having access to your health information can be important, but there's no clinical impact.

So, anyway, I just wanted to share the thought in my mind is that it's still good to measure some of these other things, especially now since we're building a system that isn't fully functional yet, and not to just measure by

impact or outcome.

Steve Waldren, you had your card up. You done? Okay. John? I had John B., and I don't remember. Okay. Alan?

MEMBER SWENSON: Sure. So in our grid, I guess this kind of goes back to the topic of the whole who and cross-cutting stuff. So in our grid, we kind of did it based on the assumption that the other things were there. So if we just assume that interoperability has happened, that the information has been applied, etcetera, now what's the impact, and we have the grid of what's the impact to the patient, the impact to each of these going across all the who.

What we potentially would change on that, I guess what I'm thinking now is how we handle those who's going up the line. We were looking at it from the case of if the provider has this information and did all this stuff, what's the impact? If the patient had all this information, what's the impact. But what if you

start crossing the who's? And that's where I wonder if we change things. What's the impact to a provider if a patient has access and the patient acted on something, the patient used it? What's the impact then to the payer, if that changes things if we have all these different who's at different levels and now we're trying to cross between the who's.

MEMBER O'MALLEY: Alan, I mean, that's an interesting concept because when you think about interoperability it really, it takes a payer. And so different payers lining up will have different needs and will require different things to underlie their interoperability.

So in many ways, that sort of is the next level of complexity for this. Once we iron out access and efficiency and impact, it's going to be drilling it down to the actual trading partners and then what happens when there are three or ten or fifty, you know.

CO-CHAIR SAVAGE: Vaishali?

DR. PATEL: I was just going to say that, I guess similar to what Bob described, in the usability/use group, we also had thinking about use cases under which, you know, interoperable data is used. You know, there are an infinite number of use cases potentially, so that was something that we talked about.

So I think that that, again, that grid thing, that rubric I think applies across these different domains. And one thing that we tried to do was to come up with concepts that would be generally applicable across all, although how one might measure it would be different for each group or each use case.

So I think that might be something worth, I don't know, maybe revisiting in some of these domains is, if we together, as a group, decide that, okay, some of this measurement is going to vary across the types of individuals and the use cases, then, you know, what are some of the distilling some of the key concepts within

each? Like, for example, like how we did looking at information quality within usability, you know, that could be measured across different use cases, you know, the relevance of those different, accuracy, timeliness might vary across different use cases and you might measure some of those concepts for some but, you know, some of those use cases, but it might not be applicable to all of them.

So, anyway, that's another point to consider as we move forward.

CO-CHAIR SAVAGE: Robert?

MEMBER ROSATI: So this is a comment about the potential overlap between availability and exchange. And the reason I bring this up is I think if you thought of the sub-domains as a hierarchy, in some ways I think availability has to precede exchange, so if the data itself doesn't exist it can't be exchanged and then we can't move on to the next stage of usability and then it's -- so I suggest that because I think

what happens is, when you look at availability, it can be interpreted from the fact is it information that didn't get exchanged or could it be perceived as information that doesn't exist? And that means it couldn't even be moved.

So I think this is a general challenge with the overlap between those two sub-domains, if that makes sense. So just a point I wanted to make.

CO-CHAIR KAUSHAL: So I brought up the theme of availability and exchange. You've brought it up now, as well. Anyone else want to weigh -- I felt like there's a lot of people who didn't feel like there were significant overlaps, so Mark and -- go ahead.

MEMBER FRISSE: One solution, because we kept delving into the responsibilities of various people to contribute to that because we're also highly interdependent in this game. So maybe one thing to do is, before you get to exchange, we've got these layers, is have another

labeled contribution or something like that because there's clearly an act of contributing data and there's the act of exchanging it, then there's making it accessible, then there's usability. Otherwise, we get all tangled up because the people in the end are also people that have to contribute. But if you separate the contribution in the process so you have a real value change from contribution to impact, then it might be the same people in both but they have different ways you can measure it. Are you entering immunizations into the registry, for example?

Maybe I'm just arguing should there be a label saying contribution part of this?

CO-CHAIR SAVAGE: Bill, did you have a comment you wanted to share?

MEMBER RICH: Yes. To go back to David's point, our group discussed this in availability. If the data is not there, and that does happen, and we debated is this part of

exchange or should this be addressed specifically, and we decided not to address it specifically, but this was discussed extensively in Mark's group.

CO-CHAIR SAVAGE: Jason, did you have a comment? I saw you raise your tent and put it back down.

CO-CHAIR KAUSHAL: Mark has eagle eyes, so be careful.

MEMBER BUCKNER: All right.

CO-CHAIR SAVAGE: I just have a list, that's all.

MEMBER BUCKNER: So I was just thinking about the impact and Alan's comment, and it's often how we measure things where I'm at now. There could be a patient impact, there could be a clinician impact, there could be a cost impact, which is why we typically will report back on the triple aim impact because you could have more than one area, to your point, being impacted and, actually, most often you have

more than one point being impacted. The patient is getting better, which typically impacts the provider, as well.

So I like your concept, and I don't think it's like the next-level super complicated thing. I think this is an easy nut to crack. You have a measure, and you want to have an impact, you can have multiple categories where you show that there's an impact.

CO-CHAIR KAUSHAL: So calling on myself as next, the one thing that Alan's comment raised for me was maybe I said to myself, a-ha, do we have an assumption here that everybody should have access to information who needs it without asking the question does having that access create an impact.

So I just throw it out there. Is that an assumption underlying our work that people should have and should be available to everyone who needs it or should be exchanged with everyone who needs it without questioning what the result

of that is? I don't know the answer. I'm just throwing out that that occurred to me.

CO-CHAIR KAUSHAL: Does anyone want to respond to that question? I can respond a little bit from our group, which is the first group on exchange. As we started to think about denominators of, you know, how we would measure various metrics, our inclination was to measure everything, not whether or not it would ultimately create an impact. But I think it's a valid question and an important one.

CO-CHAIR SAVAGE: Alan?

MEMBER SWENSON: Yes. Mine is related on that but kind of based on Mark's comment earlier about the contributing being the first part. I think there has to be some amount of underlying assumptions because we're ultimately measuring interoperability and the information being exchanged. So we have to assume the information already exists somewhere. Otherwise, there's no exchange happening, there's

no availability, there's no use because it wasn't there in the first place.

So on some of this, there have to be some assumptions made at the beginning before we can even get into measuring what happens with the information we're assuming is there.

MEMBER BUCKNER: So yes. However, you get the data. You'll have a lot of organizations that will have the data electronically but will have a limitation, whether it be risk adverse, whether it be technical challenges, whatever, that does not permit them to share that or they choose not to share that.

And so I like that, you know, in the world of a health information exchange, it's all about who's willing to give me data and then who connects that data, and those are very distinct lines in that space. So your point is well taken, Mark.

CO-CHAIR SAVAGE: Julia?

MEMBER ADLER-MILSTEIN: Sure. So I think on this issue, is it captured, right? Is it even in electronic form, and is it contributed? And then we sort of head into the value chain that we've been talking about.

And so I think, for me, capture is out of scope. I think we sort of take in interoperability at that moment in time, given what is digitized. And, obviously, we want to move towards broader digitization, but that, to me, feels a little broad for what this group is doing. But I think after that step, we should maybe think about picking up this contribution piece because I do think now, after hearing this, that that may be an important part that's missing.

So, anyway, that was just sort of one distinction that I wanted to comment on. I also wanted to briefly comment on the exchange versus availability. And to me, I do see those as very distinct. I guess I see the exchange as a

technical phenomenon, and I see the availability as once you have introduced some of the human processes and factors because I think, again, something can technically be exchanged, but if you have not designed that in a way that a human or an algorithm sort of knows that it's there and is available for use, then that's a different state.

So I do think that they're important to differentiate because of that. Again, sort of what can be done from a technical perspective, that only gets us so far and may not get us to that next step of availability. So those were my two comments.

CO-CHAIR SAVAGE: Mark, is your card still up from before or -- okay. Frank?

MEMBER OPELKA: Just so I understand this conversation that's going on right now, to me it's captured, and that's a great point that someone is raising, but it's also was it captured as per a standard ready for exchange? So it

could have been captured, but it may not be in a format that they would wish to have or should have captured it as per standard to allow for it to exchange. And then there's the ability to exchange it, and then there's the willingness to exchange it.

CO-CHAIR KAUSHAL: So can I ask a question of the availability group? So I think what I'm hearing is different definitions of availability, and when I looked at the four, the order of the four groups, I had assumed that it was availability of information to the end user that had already been exchanged. But I'm also hearing a theme here of a different type of availability of electronic health information, which is the availability of health information that is ready to be exchanged or that is able to be exchanged. And I think we need to explore that a little bit more and get consensus about what we're defining as availability. So let me pose that as a question.

CO-CHAIR SAVAGE: So for the availability workgroup, we did talk about it in a way when we talked about picking up on the point about any kind of information that's available is better than none, so the point about the PDF and that it may not be structured. So we did talk about it in part, but it did not, it did not inform the sub-domains that we identified.

CO-CHAIR KAUSHAL: I think the question I'm posing is are we talking about availability of data that is ready to be exchanged or availability of exchange data that is ready for use? Mark?

MEMBER FRISSE: That's why I come back to, and I'll be assured by my colleagues across the way, that you look at information blockage and we blame the vendors, but, as we all know, it's more than that. And so if I'm a provider and I have something I'm withholding for unnecessary reasons, I'm not contributing it, that's a foul right there, okay?

So I think it's very clean to separate that availability, calling it a contribution and making it available to the exchange from that form of availability, the receiving end of getting it to use it. So that's why I keep coming back to this contribution because I hadn't really thought of that before until this discussion came up, but, you know, darn it, when people don't play nice and they're supposed to, that's a foul right there. That is a root cause. So that's why I like the idea of actually separating that notion of contribution of data you need to do, like immunization registries or something, public reporting, from availability once it's in there to getting it to the right person.

CO-CHAIR KAUSHAL: The exchange group did talk about that concept of whether someone is sitting on data and not contributing it. So why don't we go around the room to other comments? Bill?

MEMBER RICH: Yes. I think that you

actually defined the issue very clearly. Sometimes, the data is just not there when it should be there. For instance, an electronically-specified measure that's been in PQRS. Sometimes, the data is just not there in EHRs, and we probably have more experience than everyone else calculating these measures. And, indeed, in some EHRs, it's just not there. So that's one issue. That stops exchange, that stops everything.

And then the next question is, as Frank pointed out, is it in a usable form? Is it structured data? Is it in text? But sometimes the data is just not there, and one of our exchanges, I think it was an email exchange, I think there should be a measure that we have that actually is very well established. Maybe it's an outcome measure. And, actually, that should be a measure of whether the data is there or not when it should be. Those are pretty easy to define. Like a cataract, blood pressure

measure, those things I think are pretty well established now, and I don't know. I'll defer to my colleagues to see if the measure, the defined measures, the Million Hearts measures, are always available.

But there are some outcome measures that, shockingly, they're not there. The data is just not there.

CO-CHAIR SAVAGE: Steve?

MEMBER WALDREN: So I was under the assumption that it was availability of exchange data, but I also agree with Mark that notion of the contribution piece of it. And that's why I talked about capture before we broke up.

But one thing that I think that -- this is in context of creating a set of measures, so two things. One, is there a performance gap? So are people, is there a real gap in the marketplace of people putting data in a format that can be exchanged or not? I'm assuming that there is.

The next would be do we care? Because if they're not putting the data in in a way that can be exchanged, they're going to fail the exchange measures, right? But what I think we want to do from a measure perspective, going back to the point that a PDF is better than nothing, is if there's a real market need to demonstrate that they're putting the data in, they just can't overcome the challenges for exchange. Then we should have that kind of availability at the source as another domain.

But if we're thinking about the information blocking, I see that as completely separate because I think those should be penalized because they can't do exchange, so if we use these as performance I'm fine with not having any other measures because they should be penalized. There should be no exception for them.

CO-CHAIR SAVAGE: Alan?

MEMBER SWENSON: So just along those

similar lines, it seems, at least to me, that availability, whether before exchange or availability after exchange, really could be divided between exchange and usability. Like availability itself doesn't need to be a domain -- that's the word I'm looking for -- because if the information was available in the source system, we're going to be measuring that in the exchange anyway. The exchange group had topics in there about whether things were exchanged discretely, what information was being exchanged, etcetera. So that's already going to be covered by the exchange happening is going to tell us that it was available.

Once it's into the system, if it's available is going to already be measured by some of the sub-domains and concepts that were brought up by the use and application.

MEMBER ADLER-MILSTEIN: So we actually explicitly left out accessibility from our framework because we thought it was going to

be captured upstream, but we could easily add it back in if we needed to to sort of bridge that gap. So I think it could happen like that, but the list we made so far, I sort of had assumed that that concept would be measured elsewhere.

CO-CHAIR SAVAGE: Mark, is your card up?

MEMBER FRISSE: Yes.

CO-CHAIR SAVAGE: It is up. Did you have something you wanted to say?

MEMBER FRISSE: Yes, one quick aside. The comment of something is better than nothing, I think it was Dolan who wrote a few papers talking about narrative interoperability. It's not a term that's used very much, but I always liked it because it said, and I was successful with this, sometimes just sending a glob of text is good enough, and we keep forgetting this. We have these levels of interoperability, but, darn it, narrative operability ought to account for something because it generally, like a discharge

summary, gives a clinician all they need.

So I don't know if you people have heard that term a lot or not, but I just thought it was a clever term. It's in the literature. It's in everything.

CO-CHAIR KAUSHAL: So we're at the top of the hour. We had devoted one hour to this. I know that Jason, Terry, and Mark all have their cards up, so I would ask if, it looks like everyone's card is still up, so how about a minute a piece? Jason, take us away.

MEMBER SHAPIRO: So I just want to say, you know, I think we were discussing availability before exchange in our group. We didn't explicitly define that in our group, but that was my understanding in the availability group. But one of the things that I brought up there, you know, there's a high degree of messiness, and I think that goes sort of to data quality. But if only, you know, say, I guess the example of diagnosis data, you know, the HIE that

I work with a lot lists that as one of their available data elements. But when we do descriptive stats before running an analysis, we found that it was missing in 85 percent of the patients at one site. So is that available if, you know, you only have the data present 15 percent of the time? I would argue that it's not because it can't be leveraged for most use cases then.

And then, you know, as far as the format, I think, you know, to Mark's point, having narrative data sometimes is good enough, you know, or is having just scanned documents that are digitized. That's available for the primary use case when a clinician is reading it, but it's not going to be available for a lot of secondary uses. We're going to need to leverage aggregated, structured data. So, you know, I'm not really sure where to divide that line.

CO-CHAIR SAVAGE: Terry?

MEMBER O'MALLEY: That's kind of the

thrust of my question, too. So where does electronic data end? When is a PDF not electronic exchange, or when is a CCD or a text blob, you know, is that electronic exchange? So I think we need to clarify the boundaries because that will help us know who we want to include in the measure, among other things.

CO-CHAIR SAVAGE: And that may go to the definition of the domains because it just says electronic health information without saying, for example, structured electronic health information.

Calling on myself as the last comment, I just wanted to throw out one of the things that I mentioned in our group about availability, which is sometimes availability is not about the clinical setting. So there's some examples that I've seen where different sectors within a community were trying to exchange data with themselves. So one was a housing trying to exchange data with the criminal justice system.

It was to improve care. It was to understand where transitions were happening in order to help with care, but there wasn't a clinical provider at the table yet. And then in the coalition building, eventually clinicians were brought to the table. So just expanding the mind a little bit that availability sometimes does not, as we move forward, may not even include clinical settings at the beginning.

And perhaps another example that may resonate more is that, in our work, we've described patient-generated health data as an example where doctors are the ones that don't have access to the information that they need and that we're trying to build a system so that doctors and clinical providers actually have access that it's available to them.

MR. GOLDWATER: Okay. So I need to, I guess, put a question forward to all of you before we progress. So we do have a list of a lot of different sub-domains under each one of

the major topic categories, and the discussion per the agenda was to now break up again and start identifying measure concepts under all of these sub-domains.

I think our collective feeling here is that we need to start prioritizing those sub-domains, what's really crucial, what do you think is really important, what do you think we really need to move forward before we start the discussion of measure concepts. Otherwise, it might get a bit convoluted to have all of these sub-domains, all of these concepts, and then try to spend the time whittling them down.

Do you all believe you're in a place right now for the next hour to be discussing how to whittle these down or consolidate so we can come up with a set of sub-domains that we can then move forward with with measure concept discussion, or do you want to just go into the measure concept discussion now? Yes, Steve?

MEMBER WALDREN: So I like Alan's

point about maybe taking the two types of availability and pushing them both upstream so availability at the source becomes part of exchange and the availability after it's been exchanged becomes part of use. As a group, is that what we want to do? Because I think exchange needs to know that, going into that, that we have to think about that source availability. So I thought that was just a good suggestion.

MR. GOLDWATER: I think if that's what you all think is best, we're fine with that. I think what our concern is that, whatever the strategic direction of the group is, that, within the next hour, we come up with a set of domains and sub-domains, whatever that may look like, and that there's consensus among the group about what those are. That will make discussing measure concepts a lot easier. Again, I think if we start discussing concepts and then you want to move them upstream or consolidate, then you've

got to start reconfiguring the concepts again, which I think will take time which is certainly worthwhile if that's what you all would like to do. But I think, collectively, we were just thinking, you know, at this point, we really want to try to have a standardized set of domains and sub-domains before we start discussing concepts.

CO-CHAIR SAVAGE: You're saying narrow the universe of sub-domains before we --

MR. GOLDWATER: Yes. Because, I mean, if you've got 20 sub-domains and you're going to start discussing concepts, and then we decide tomorrow we're going to start taking away some of those sub-domains or consolidating them, then you've got to re-examine the concepts again, which, you know, I'm not sure how efficient that would be.

So I think the discussion has been phenomenal. I think there's been some great ideas going forward about how to do this. I don't think anyone at NQF wants to inhibit that

discussion, but just, I think, from a logistic point of view and also from a programmatic point of view, I would like us to continue this discussion as Mark and Rainu continue to facilitate. But now, rather than sort of the discussions about what constitutes a domain and sub-domain, let's talk about how we're going to finalize this, and then we can take a break and then we can start working on concepts. Does that sound feasible to everybody?

MEMBER ADLER-MILSTEIN: I guess I feel like I need, I would need guidance on priorities through which we would narrow the sub-domain. So if you tell me, like, take this stakeholder's perspective and tell me the most important or take this -- like, I just worry we need a, you know, reason to which to take them off because, if not, I think really, I mean, it sounds silly, but I really do think they're all important. And so I just, I think we can narrow if given some kind of construct in which to do

that narrowing.

CO-CHAIR KAUSHAL: And, Jason, are you suggesting that we each spend, each group spends the next -- no. Okay. So then I think what you're suggesting, which does make a lot of sense to me, is that we collectively, as an entire group, look at the four domains and prioritize the sub-domains, and that will, it doesn't change it in the way that you're suggesting, Julia, but I think it changes it in another way, which is that we'll have the collective group's input.

MS. BAL: So I was going to say I think the first step, before we even get to the sub-domain, is coming to agreement on the domains. I think there has been conversation about making more domains, making more domains, but there's also been conversation about consolidating domains. And one session was to take availability and cut it in half and make three domains.

So I think we need to know are we

making five domains or three domains or keeping the four? And then based on that, do the sub-domains still make sense the way that they were written? I think that will help. That's at least what I'm envisioning that, now that we have this new mind set of what each domain is, do the sub-domains still apply and do they still fit as we saw fit? Yes, it's not about a number. It's just like -- yes.

DR. BURSTIN: Just my two cents. I don't think it actually matters how many sub-domains and domains you have at this point. That's just sort of stuff we can clean up and lump or split or whatever we need to do later. You're absolutely right, Julia. I mean, thinking collectively about what would be the most prioritized ones, I would say, is where you think there are going to be some measurements. That will really drive where you want to go. And maybe, you know, again, sometimes committees work better even just saying, okay, this is where

we've laid it out, now let's think about what those measure concepts are and where they'll be most important, and then we'll just sort of fit them in and slot them in to the actual framework domains. That's not as important as getting to what you think will be useful to drive improvement.

CO-CHAIR SAVAGE: So, Helen, can you weave into that the question I asked earlier this morning, which is also looking at the future. So are we looking just at prioritizing around measures that we've got now? Are we -- okay.

DR. BURSTIN: Very much so. I mean, the measures you have now is part of what you'll talk about under impact and HIT sensitivity tomorrow. But I think a lot of what you're doing today is really saying these aren't even measures we have yet for the most part, what measures would you want to build to ensure you can track, and that should very much be, I think the consensus this morning I heard was a combination of both

measurers that could drive the now in the short term, as well as some measures that are more future-oriented to drive what we hope it will be.

CO-CHAIR KAUSHAL: I think there's still a question. Do people feel like we need to still refine the sub-domains, or is the argument that we should just go right on to the measures? I think that, I'm hearing different opinions on that, depending on what side of the table you're on it seems like.

And it seems like, to me, frankly, it seems six of one, half a dozen of another, right? Like, we can either spend some time as a group simplifying our sub-domains and that then would mean that we'd just be spending less time on measure development, or we can do vice versa, but I think we just need to decide as a group which way we want to approach this. Mark?

MEMBER FRISSE: Wouldn't it be interesting if we just proceeded to pick our domains within our four groups and found that

there's a lot of overlap? I want to be an optimist here. It might be that that happens.

CO-CHAIR KAUSHAL: I think that's another vote for measure development. Why don't we just do a show of hands. How many people think that we should just go right on to measure development? Helen, you can raise your hand. It's okay. And how many people think we should spend some time simplifying the sub-domains?

Okay. So it's interesting. The people who think we should simplify the sub-domains are doing this, and the people who are like measure development are way up here. So, Jason, I think we have a vote to go right on to measure development.

DR. BURSTIN: And it may very well be that the next question is are you going to do that in a small group or a large group? If you think it's useful in doing it in a small group, you could do both. You can try to simplify your sub-domains as you come forward with your measure

concepts. Some of them will logically kind of collapse into one, and you may find there are some sub-domains for which it's hard to even contemplate what a measure would be, and maybe it's not as important for measurement framework, and that might be useful, too.

CO-CHAIR KAUSHAL: So one thing I might suggest, and this might be so unorthodox that you would nix it, but I might suggest that this who question, which is cross-cutting across the first three workgroups, that that who question, the measure development under the who sub-domains we do as a collective group before we break out to each of our individual groups. I don't know if that's too confusing.

Okay. So why don't we do that one first, which is doing measure development under who is exchanging, who has data available or who is making data available, depending on how you define that one, and on use and usability. So let me throw that out first. Impact. Okay. So

it's all four. That makes sense. Impact on who?

So, Mark, I'm going to put you on the spot. I feel like your group did a lot of thinking about the who's, and could you get us started?

CO-CHAIR SAVAGE: So what the list of who's is or how they might fit across the four domains?

CO-CHAIR KAUSHAL: I think it's really --

CO-CHAIR SAVAGE: Just list. Okay.

CO-CHAIR KAUSHAL: Just make the list? Okay. And maybe a prioritized list. So if there's, you know, these top three are the most important or these top five are the most important.

CO-CHAIR SAVAGE: We did do that. We actually went around the table and asked that question. But I'll give you the entire list and annotate with where the priorities were.

Patients and family caregivers, that

was a priority. Clinical providers, that was a priority. Payers and purchasers, not quite so much on the priority but it got some hands. Public health got one vote. Research got a couple of votes. So I'm now at a place where I wouldn't say it was at the same level of priority, but I'm giving you the full list.

Non-clinical settings/non-clinical providers. Professional associations, government. So, again, the priorities and the list of users was patients, family, caregivers, clinical providers, followed by payers and purchasers. And there were some other things that were important to us, but that's the list. And I should say there were other domains that we would have, sub-domains that we would have picked that we didn't categorize as roles or users.

DR. PATEL: I just wanted to add in the roadmap there are actually a prioritized set of, what we did was we, you know, across these different concepts, we had certain settings or

types of individuals where we defined as, okay, this is what we can do in the near term or what we'll prioritize for the near term, and these are settings that we'll prioritize for what we call just longer term.

And so in the near term were, obviously, the meaningful users because there's a lot of money that was devoted to getting them on electronic health records and becoming interoperable but also looking beyond that to individuals, behavioral health settings, and long-term care settings. So those were defined as kind of near-term priorities, both in terms of measurement as well as the focus of the interoperability roadmap work.

And then looking beyond that to non-clinical settings, like social service agencies, schools, like beyond that, you know, research, public health would be something that we wanted to include in the near term, but, anyway, we realized that, you know, we looked at public

health capacities and thought that that would be probably maybe after -- 2017 was actually where we had defined when the near term would end.

So that might help as a guide. It doesn't have to drive this list, but that might be one thing to think about.

CO-CHAIR SAVAGE: So is that the framework where you had divided things, ONC divided things, from 2015 to 2017, then 2018 to 2020, then --

DR. PATEL: Yes.

CO-CHAIR SAVAGE: -- 2021 to 2024?

DR. PATEL: Yes, and then learning health system was kind of, you know, at the end, yes.

CO-CHAIR SAVAGE: Okay. Mark?

MEMBER FRISSE: I'm looking at that list right now, and if you recognize that government can be a payer, an employer, or a provider, the government is kind of an elusive term. State governments, too. Then if you put

government in those slots, believe it or not, organizations that pay for care is number three. You know, one is patients, next organizations, then organizations that pay for care, and then supporting the public good, and then blah, blah.

So you get to the same place if you just remember that government is playing all kinds of different roles wearing different hats. So then it's almost the same.

CO-CHAIR SAVAGE: John?

MEMBER BLAIR: Yes. So how was this list derived, and who's asking for this interoperability? Who wants it? Who wants it the most? Shouldn't that be who's on the first on the list?

CO-CHAIR SAVAGE: So when you said how was the list derived, you're not seeing the availability subgroup of how we --

MEMBER BLAIR: The list that Vaishali gave or this list, how are we making this decision on who's first, second, and third? And I'm just

asking why isn't it who wants it the most?

CO-CHAIR SAVAGE: Vaishali, do you want to answer for your process first, and then I'll --

DR. PATEL: Yes. I mean, I can say that, what I can say is that it was driven, in part, by internal, you know, like us looking at what was measurable. So a combination of aspirational versus what we can measure now, so we have the ability to measure exchange and interoperability to a greater extent amongst those who are meaningful users and also in terms of the policy priorities. We definitely wanted to include them, as I mentioned earlier, given the incentive money that was given to them.

And then in terms of the addition of behavioral health and LT pack, I think those were seen as other key priority domains where a lot of meaningful users interact with those two types of settings in particular and would be considered, I guess, the next leap. You know, this was two

years ago, in terms of, like, how the roadmap was designed to focus on who. It's probably a broader question that I can't answer, but, you know, that was, in part, some of the thinking at least behind that. And individuals are seen as kind of a key element to making all this happen.

MEMBER BLAIR: So I'm just throwing that out there. How important should that be when we list availability and the priorities as to who wants it the most?

CO-CHAIR SAVAGE: So you're saying you think that should be a consideration, who wants it --

MEMBER BLAIR: I think because why do we care about someone on the list that doesn't care about it right now or cares about it one-tenth as much as some other group?

CO-CHAIR SAVAGE: Well, it may be a matter even of whether the person knows that it's there in the first place, so they're in a place to actually want it because they know that they

can have it.

MEMBER BLAIR: But there are probably groups out there that really want this. It seems to me that that's where you go first.

CO-CHAIR KAUSHAL: Mark, I think this is what you're getting at, as well. Is it who wants it or who needs it?

MEMBER BLAIR: I think it's who wants it because who wants it is going to use it. They're going to jump through the hoops for whatever is out there. Well, I can tell you, I mean, when I think back about meaningful use and transitions of care and what drove that, that half of the time, when a patient is referred to a specialist, they don't get any information. Half the time, when a primary care patient sees someone after a specialist, they don't have the information. And half the time after a discharge, the primary care provider never knew the patient was in the hospital and then the safety issues around that and what drove that,

and there was a lot of interest amongst providers for that capability. I mean, 15 years at this with 5,000 providers, that's the number one thing that I've heard consistently. So I know providers want this.

CO-CHAIR SAVAGE: Hans?

MEMBER BUITENDIJK: Just a quick note regarding the government's role and kind of wear multiple hats. I think, depending on the domain that we are in, those aspects might change a little bit. But if we need to include it, I would suggest that we separate those out so that wherever the government is a payer or a provider or somebody else that we separate it out to be a regulator, so we focus on the function that they play at that point in time and not an overall umbrella.

CO-CHAIR SAVAGE: Thank you. Terry?

MEMBER KETCHERSID: Just getting back to Vaishali's list, the meaningful users, great. Non-meaningful users, you know, there's always

people that are left off that list, many in this room, you know, home health, hospice, PT, OT, dialysis organizations and providers. In terms of who wants it, count us in. We're in.

MEMBER BLAIR: Yes. I'm just saying is that lens on this?

CO-CHAIR SAVAGE: Terry O'Malley?

MEMBER O'MALLEY: Yes. So the prioritization. Certainly, who wants it should add in, but maybe we need to have this use case-based. It's very hard, I have a hard time conceptualizing this question without rounding it on a specific business case, use case, because that really determines who wants it a lot.

CO-CHAIR SAVAGE: Julia?

MEMBER ADLER-MILSTEIN: So, I mean, I guess I think about the prioritization here in terms of the impact. If we gave it to these people on the list, who would have the most ability to turn that into the impacts that we care about? And I think, ultimately, that is the

sort of prioritization. I mean, I worry who needs it is a function of the incentives that we have today. I mean, who wants it is a function of the incentives that we have today and I think everyone would agree are not optimal. And so I don't think that if we let that guide us that we will necessarily end up with the same list than if we let the impact guide us, until we say we want the greatest improvement in the triple aim, who on this list will get us that improvement? To me that should be the sort of guiding principle.

CO-CHAIR SAVAGE: Frank?

MEMBER OPELKA: So just a couple of thoughts. First, to this issue of the government, I think you've got multiple different agencies who want this for different reasons. So we have the FDA, we have CDC, we've got CMS, Medicare/Medicaid. There's all sorts. And the VA is also another player in this game. So we have to somehow break the government out.

But the other thing that I'm thinking about is this issue of who wants. I guess it bothers me. I wasn't thinking of the who as who wants exchange. Like, tell me who doesn't want exchange. That list is shorter. I want to know who should provide exchange, and that, to me, that's the denominator that I'm looking for is who should be providing exchange. The patients aren't going to provide it. The clinicians aren't going to provide it. It's where do the data reside and who should provide the exchange of that data.

So that, to me, was the who question. These other questions get to use case again. So if we're going to be solving a priority of use case, then I think that one is impossible. And I don't even buy off on using the triple aim because everyone will argue their own version of it. PhRMA, 22 percent of the Medicare spent, they've got a huge use case, and everyone wants PhRMA to cut down on what they're doing, so we

don't even have PhRMA on the list. So we could come up with a million reasons why somebody wants it. We want information exchanging out there for better healthcare, and that's it. Now, who should be providing that exchange, to me, is the question.

CO-CHAIR KAUSHAL: So I think we're going to take two last comments from Vaishali and John and then -- John?

MEMBER BLAIR: Yes. I mean, it's easier for me when I think about use cases, so it does make some sense to me. The scoping of this is so broad, it's just very hard to get our arms around it. But, again, I think that there's assumptions of who wants this that we could spend time on and would not get much usage because they probably don't care as much about it as we think.

CO-CHAIR KAUSHAL: So I'm going to suggest, and, Mark and Jason, welcome your inputs, as well, I'm going to suggest now that we break back into our small groups and do the

measure concept development under each sub-domain and reconvene again in about 45 minutes.

MR. GOLDWATER: Okay. So, quickly, before we delve into our groups, what exactly do we mean when we say the word measure concept? So a measure concept is an idea for a measure. It is not a measure itself. It is an emphasis on idea for a measure. That includes a description and the plan to target a population, so there is some degree of specificity around it.

The concept has to relate to one of the sub-domains already developed within the framework. I would strongly advise don't come up with a measure concept that ends up with a creation of yet another sub-domain. Please don't. Make sure it relates to a sub-domain you already have.

In the course of developing these concepts, if you find that it applies to two or three sub-domains and you can consolidate, that would be preferable. The concept needs to be

specific to an area that is directly related to interoperability. It cannot be just a general clinical topic. And, again, the concept does have to be specific enough that it could be developed into a quality measure. So imagine, if you will, once the document is completed and the framework has been finalized, someone would be able to download this, look at the concepts, and be able to turn one of the concepts into an actual quality measure.

So some proposed measure concepts, so like patient demonstrated increased understanding of care plan, patient demonstrated compliance with their care plan, telehealth services facilitated transitions of care, the percentage of patients enrolled in a telehealth program for at least three months. These are just general concepts.

What are not measure concepts because they are too broad and too vague and could not realistically be developed into a measure, things

such as increased communication, better transitions of care, that would need to be a little bit more specified, or reduction in cost. Reduction in cost where?

Okay. That's it. So I think the availability group, we were shunned into the room that no one knows about, including myself. But I think we're going to be over here now, and then everybody else will go back to where they were. Correct?

CO-CHAIR KAUSHAL: And then just before we break, any questions for Jason on this concept of measures?

CO-CHAIR SAVAGE: Four domains. Just to make sure everybody understands your --

MR. GOLDWATER: Four domains, all the sub-domains you've come up with are applicable at this point. Any concept you come up with needs to relate to one or more of those. If you are able, if you find that, again, they are cross-applying to three or four and you can consolidate

into a general sub-domain, that's also fine. But, again, make sure that they do align to a sub-domain, make sure it's something that can be measurable, make sure it's something that relates to interoperability.

DR. BURSTIN: And then just one last qualification to that. Again, sometimes you'll come up with a measure concept that doesn't fit your sub-domains because you didn't think of it yet. So, you know, I don't want to constrain what could be a really important measure concept because it doesn't fit a box. My guess is when you go through all four groups it will fit a box somewhere. Just kind of use your best thinking.

MR. GOLDWATER: Yes, to it is -- what time is it now? 2:30? So 3:20? You want to say 3:20? 3:20.

(Whereupon, the above-entitled matter went off the record at 2:32 p.m. and resumed at 3:43 p.m.)

MR. GOLDWATER: So I was asked by our

co-chairs to, for lack of a better term, to give a pep talk, which I do frequently here at NQF to teams. So first of all, you guys are doing terrific work. Don't think that you're not. We're actually where we need to be right now. The fact that we are discussing measure concepts at the end of the first day is a great sign. If we were still arguing over domains, I would be worried and I would not be giving you a pep talk. I would already have left for the day.

So we're in a good spot. This is tough stuff. You all know this. You all have been working on this forever. We all have been. This is not an easy topic. If this were easy, we would have already done this by now. We would already be interoperable, and we would just be discussing measures. We wouldn't be discussing concepts and domains and sub-domains.

This is a very challenging topic. It always has been. It has lots of nuances and lots of intricacies and lots of elements, like the

semantic web and the OWL and ontologies and things that normal people don't talk about in any given social situation, except for us.

And, you know, I think that trying to narrow this down into areas to effectively create measures of things that we're not actually doing right now is a challenge. And so I don't want you all to get discouraged over the fact that you might be struggling over what domains to use, what sub-domains are appropriate, what measure concepts would actually work here. I think everything is fair game for discussion, and I think what we're going to do is talk about some of the measure concepts that we've come up with already. And we'll spend the better part of tomorrow, we're not going to break up into anymore group sessions -- Steve, I know you're heartbroken over that, but get over it -- that we're going to talk about the different sub-domains we've come up with and see if we can start

to narrow those down a bit and see if we can make sure that we really have strong measure concepts and think about it in terms of somebody that will actually download this report once it's finished, that when the report is done and it's gone through clearance and it's gone through public comment and we've addressed those public comments and it's finalized and it's on NQF's website and we've announced it to the world, that people will download this document and say here's a very strong foundation by which we can look and examine these concepts and build measures from them. Even if it's something we can't measure now, we can really look at building measures for the future, things that we know will be coming, things we know will be important, and that we actually also have a list of measures that we could start using right now. And that will help people understand how to objectively assess interoperability and we would hope, in the long run, that actually helps advance the movement.

It advances the cause.

So I think the fact that we are where we are is great progress. I know we're all very happy about where we are. But I also understand that it could be somewhat frustrating trying to understand and whittle out domains, sub-domains, and concepts. But understand that, you know, we think you guys are doing a terrific job. We have a little ways to go before we break for the break tomorrow, but I think we are definitely, by the time we get out of here by 3:30 tomorrow, we'll have a very strong set of domains, sub-domains, concepts, and measures to go forward with, and we'll be able to produce a report that's very reflective of all of your intelligence, all of your experience, and all of your knowledge. And that's really all that we can ask for.

Good enough? Do I need to go rah-rah-rah at the end, go team go, something like that? No? Go Cowboys. Sorry. I had to try.

CO-CHAIR KAUSHAL: I think, you know,

the only thing I would add, Jason, and I think that was terrific, I think the only thing I would add is that this feels, to me at least, as a very hard exercise because the concept of interoperability is so very broad. I've been struggling in grounding our conversation today, and I suspect many others have, as well. And so I just want to acknowledge that what we're talking about is amorphous, which makes what we're trying to do even more challenging.

CO-CHAIR SAVAGE: How do you measure something that's amorphous?

MR. GOLDWATER: Well, I mean, I know that I've been using the example of telehealth, and I apologize for that. But it was just recent, so it's easier. But, you know, telehealth is a recognized technology. It's been around three decades, and the number of randomized control trials that have been published on its effectiveness are abundant. I mean, there's a lot of literature about how this

works.

So, you know, doing a literature review to inform measure concepts and build domains and sub-domains and concepts from that was a lot easier of a task. It's not so amorphous, it's not so broad, it's not so ambiguous. But, you know, again, this is a challenging topic, and I think that you've done great work so far in taking a very large, very difficult concept and trying to narrow this down into ways to objectively measure it, which is no easy feat by any stretch.

So with that in mind, why don't we go through the different domain groups and have the speakers call out the measure concepts that they've come up with. And I think. once everybody has done that, then we can start talking about those concepts you've derived.

MEMBER WALDREN: Okay. So exchange. This was a little bit more challenging, I think, than coming up with the sub-domains, so no kind

of funny little opening salvo into this one.

So the first underneath the who is part of the exchange, we had two concepts that we're thinking through. So the first one was, of those patients where care was shared, what percentage had their health information exchanged? So the thinking here is that you could be able to capture that, not a simple log but by a log of saying, you know, each patient, who sent it, who was supposed to have received, and what was kind of the transaction type.

From that, you could also get, one of our sub-measures from this would be what key categories of organizations in which active exchange has occurred? So this being more of kind of a yes or no, and we thought that some examples of those key categories could be dental, behavioral health. So those areas where we're seeing that there's not a lot of exchange anywhere that we may want to try to drive, those sub-categories could be, that sub-measure could

be put to them. So that was the first measure.

The next one was looking at how are end users able to be engaged in organization. So the measure concept was what percentage of care providers in an organization have the capability to send and receive health information exchange or exchange health information? So this notion of it's just not an organizational level event but actually the front-line commissions are actually engaged in the process. So those are the two concepts we had underneath the who.

The what we kind of struggled with, so we talked about two different things. So one would be the volume of transactions, and we had the discussion of is that a high enough priority to be able to warrant us wanting to do that? And we thought with the measures around the who, we could start to get to some level of volume, as well. So we didn't add a second one underneath that.

The next kind of concept that we

discussed was this notion of the core clinical discrete data. So are you actually exchanging discrete data, or are you just sending the very informative narratives around?

What we thought was, though, that that party gets a little bit closer to usability than it does exchange, so we decided not to do that. So we came up with no measure concepts for the what.

On the how, we talked a lot about different things, and what we ended up coming up with was a percentage of applicable standards being used, so the percentage of applicable standards being used. An applicable standard is one that's nationally recognized and its domain is part of the exchange occurring in the organization. So the intent here would be something like the ISA, if it's listed, I could see this is probably not the best way to implement this but you could have a survey where you'd have two columns for each one of those. So the first

column, if it's about medications, do you exchange medications. So if yes, you checkmark that box and that will put you in the denominator as an applicable standard, and the numerator is did you actually use RxNorm for that particular piece of it? So that was what we had underneath the how.

And, finally, we talked about the when. We felt like there were already measures around timeliness on some of that exchange. It was supposed to be around discharge summary and referrals, and we also saw that the usability group also had timeliness on theirs. So we didn't have any recommended additional measure concepts.

So we had one underneath the who, which was about the percentage of patients that you're actually exchanging with, and the percentage of providers that are actually able to do exchange. And nothing under what, and under how was our using standards. And under when, we

didn't have any because we felt like there was one existing.

So anything from my team that needs to be added? Thank you.

CO-CHAIR SAVAGE: So for the availability group, we worked off some prioritization of sub-domains that we had done earlier and did three sub-domains: patients and family caregivers, clinical providers, and social determinants of health. Not that those, not that we would only choose three, but that's what we got around to today.

For patients, patient and family caregivers/authorized representatives have electronic access to all of their electronic health information in their care team's EHRs. That was the first measure concept.

The second was patients can access and use the electronic health information in their providers' EHRs to identify and choose the care of greatest value, which is quality over cost.

Then we went to clinical providers as a second sub-domain, and we actually repeated that measure concept but from a provider perspective. So providers can access and use the electronic health information in their electronic health records to identify and choose the care greatest value. And second measure concept, providers receive and integrate complete electronic summary of care records for each of their patients.

And, lastly, for this sub-domain social determinants of health, providers access and integrate the patient's social and environmental determinants of health into the patient's electronic health record. And, secondly, second measure concept there, non-clinical providers in non-clinical settings can contribute relevant social and environmental determinants to the patient's electronic health record.

CO-CHAIR KAUSHAL: Julia?

MEMBER ADLER-MILSTEIN: Okay. So I think there's already been a little bit of overlap, which we'll probably end up discussing, but that's useful. So for us, we did break up separately measure concepts for usability and use. And I think our discussion reflected the fact that there are, in all cases, this could be as perceived by the user whether information is timely, complete, usable, et cetera. But there also may be cases in which there are objective standards against which you could measure timeliness, completeness, et cetera. And so I think our buckets, our measure concepts sort of reflect, you'll see some are objective and subjective, and sometimes they are just more subjective.

So for any given dimension that is up there, one measure concept is the perception of, fill-in-the-blank, relevance, timeliness, completeness, et cetera, of data for a given decision or action. Again, that could be then

for any given user facing any given type of decision, their perception of whether that information met those criteria.

But then for completeness, and, in particular, we felt that there were some more objective measure that would be possible. So percent of users who had a minimum data set present for a given decision or action or the percent of structured elements that were present for a given decision or action. Again, you could then define what is that set of structured elements that's relevant for that decision or action. So that's what we had in the usability domain.

In the use or application sub-domain, for the human use, we had two measure concepts. The first was the percent or frequency with which outside information has been viewed. So just is that information actually getting in front of an eyeball? And was outside data used for a given decision or action, so, again, how you actually

measure whether something was used by a human. We talked about the fact that that's quite challenging.

And then for the computable application, percent or frequency of reconciliation or incorporation of outside information, the percent or frequency of discrete data that's used in a clinical decision. I think that was actually supposed to be clinical decision support or some other type of algorithm or the percent of quality metrics that were generated using discrete data.

So those were our --

MEMBER O'MALLEY: Fourth group. Here we go. So Bob did our introduction earlier, and he complained that his handwriting wasn't very good. But as we know, he's not a physician, and so when I took the notes this time, this is going to be a much briefer presentation than Bob's.

So we whittled our list of potential sub-domains down to really about three, and then

we had a whole bunch of afterthoughts. But the three main domains that we came up with were patient safety, appropriate patient follow-up, cost-savings, and propagation of misinformation. And we created a couple of potential measure concepts under each one.

So for patient safety, and all of these apply because we assumed that interoperability is fully functioning and that all the work that the other groups have done has come to fruition and we've got it all. So we wanted to measure a few things. So for the patients whose care is shared by two or more health entities that are unrelated, the basis for having interoperability, we wanted to know the number of medication discrepancies among the different medication lists in the shared care team. And it was just the presence of discrepancies which would be important, and that's sort of one step shy of reconciliation because what you do with the discrepancy is you

reconcile it ultimately.

And sort of related to that was the number of instances where patients arriving from an outside facility had a medication that was discontinued on admission without an apparent cause, so whether there's an omission. That's a measure concept. And then we had appropriate patient follow-up, so there's measures of number of patients who actually picked up their medication from the pharmacy and the number of patients who were referred to another provider who had their appropriate follow-up care. And that gets into the concept of sort of the closed-loop referral and that whole process of how we use interoperability to manage that.

And then under cost-savings, we had really reduction of duplicate labs and radiology events. So, again, for anyone whose care is shared across two or more entities, just the number of, we figure for a select group of labs that don't normally get repeated with any

frequency, my example is vitamin D levels. You don't measure those very often. You know, so the presence of duplicate vitamin D and other labs like that would be a marker for potential duplication that would be reduced with interoperability.

And the same with imaging. It was a little trickier because there are different parts of the system that use imaging differently. Inpatient uses it differently than emergency room differently than a patient, so based on some adjustments that would have to be made. But it's really the presence of duplicate images.

And then, finally, the one that got a fair amount of discussion was the propagation of misinformation, which we recognized your Facebook page on the internet problem. How do you get it back? How do you, A, identify that it even exists, that your page got posted? But someone is going to have to look through the record, and it's probably going to be two parties that would

do that. One would be the patient or family themselves to correct misinformation in the family history, past medical history, allergies, current medications. And the other would be the providers doing the same thing. And it's really the amount, the number of times that misinformation is identified. And then a sub-measure would be the number of times that that's actually corrected. And, again, interoperability becomes the tool that allows that to perhaps be corrected.

So that was our group, and then we got tired and we were done.

CO-CHAIR SAVAGE: Thank you, Dr. O'Malley.

So you've heard four sets of measure concepts for four domains. Any thoughts overall? Terry?

MEMBER O'MALLEY: Listening to Julia, the list of users and sort of what they are doing really becomes an essential piece of our impact

domain. So I think, and it's probably true for all of these, I think the domains nicely build on one another, and I think we were very smart in picking in the order that we did because I think there's a natural progression. I suspect that the outputs of each one of these groups around each of these domains is going to be the input for the next sequential group. So good work.

DR. PATEL: I just had a quick question. Steve, if you could repeat the who part of your exchange one. The first one was, I think it was like amongst the percentage of patients that are shared between providers, like what proportion of their information is shared. And then the second one seemed to get more at capability, like capability versus whether they actually did it or not.

MEMBER WALDREN: So kind of the denominator was this notion of those patients that are being shared, and I use the word shared because I know that Medicare has a patient-

sharing data set that you would actually be able to know who those are because we struggle with finding out how you find the denominator of people that you should have had exchange with.

Anyway, and then the nominator then is what percentage of those actually had their information exchanged? So you could get a lot more granular to that and say was it in appropriate time frames so that it was related to that, but we didn't get into that.

Then we thought if you were able to capture kind of the NPI of who you're sending it to, then you could use the healthcare taxonomy and database trying to find out saying, okay, well, are those particular categories? So one of the things I think on the user groups in our domain that we may want to be a lot more granular because we may not just care about providers but maybe actually specific type of providers, like dental or behavioral health. So that was the first one.

The second measure in the who was trying to say that there are organizations that are engaging in exchange that, to some degree, is about checkmarking the box. So the front-line providers have no clue that there's exchange going on or that they could be doing the exchange. So the second measure is this notion of what percentage of care providers have the capability to send and receive health information exchange so that they're actually engaged in it was the thought there. So those were the two hows.

DR. PATEL: So is that capability, or is that whether they actually did it or not?

MEMBER WALDREN: I mean, we could do it either way. The problem is, if it's exchange, I think that you have this notion of, well, should they have had exchange? So is it -- I can't think of a good example. Say it's anesthesiologist that only does -- I mean, that was my only concern with having it as doing it, but I get to your point of saying just because

they had the capability that, you know, the vendor and the organization checkmarked a box and say, yes, I gave everybody a direct address, but it's seven layers deep inside the product and it was never used.

DR. PATEL: Right. So I guess, I mean, one of the things I was thinking of was, you know, you have a measure of capability, and then that other measure would be the measure of actually whether they're using that capability, I mean potentially.

MEMBER WALDREN: Yes. And I guess the question, too, is how feasible is it to do that at the individual level. So is your ability to say, well, this NPI wanted to send it to this NPI. So, again, anyway --

DR. PATEL: Julia, not to put you on the spot again, but I don't know if you want to describe that patient-centered measure? Because it relates to this, I think the measure about the shared patients and, you know, the extent to

which information is shared amongst, you know, a common set of patients.

MEMBER ADLER-MILSTEIN: Sure. So, I mean, I think we're now sort of in the measure feasibility discussion, but, I mean, Medicare publishes each year a data set that essentially has pairs of NPIs and then tells you the volume of patients that were shared between those two NPIs. So it actually allows you to then start to be able to collect data, not just asking a provider do you or don't you, but do you do it with this particular partner who we can see you share the majority of your patients with.

And so we're doing a project right now for ONC where we're going into every HRR and saying the two hospitals that share the highest volume of patients in that market, asking them to describe how they're sharing information with that other hospital. So we'll be able to sort of validate that approach, which I think is very similar.

And then we're doing a related project where we've actually mapped physician networks for colectomies and looking at the types of providers who participate in the care prior to the colectomy, the colectomy itself, and following the colectomy so that we can really start to understand who is it that needs to share information at these various points in time in a much more sort of use case-specific way.

So I think both of these are, you know, I guess, to my mind, obviously important ways to move the measurement forward because it's really getting at who needs to share information.

MEMBER WALDREN: And that was the data set I was thinking about, too. The concern would be that it's a little bit delayed, but the assumption -- so the question is do you look back at the interoperability from last year as your measure?

MEMBER ADLER-MILSTEIN: So it's very stable year to year. So the highest volume

sharers are what the five or six years of data with almost very little change, so I think you would ask about the interoperability based on the patient sharing from last year or the year before.

CO-CHAIR SAVAGE: So, Jason, the agenda indicates that you would like for us to prioritize these measure concepts. Can you tell us a little bit about what that, give us some guidance about --

MR. GOLDWATER: Right. I think just in the 20 minutes that we've got left for today, I think what would probably be helpful right now is to, out of the measure concepts you've discussed now, you know, which ones do you think are the highest priority, you know, which ones do you think could be implemented to the measures that could actually be used in the short term, which ones are more of the aspirational nature? I think that would provide at least some insight to us about how to categorize those.

And then tomorrow we'll start making sure that we've got our sub-domains, domains and sub-domains very carefully defined and crafted and where everybody wants them, we've inputted the appropriate measure concepts. And then probably as a group, we'll start seeing if we can tease out some additional concepts under all of those, not in separate groups but as an entire group. That should pretty much write the framework, and then, after that, we can discuss criteria developers or those that are going to implement this need to keep in mind as they're going forward.

So just in the time that we have left, out of the concepts you've come up with, you know, which ones collectively do you think are of the highest importance or priority right now and not just the ones you came up with but, you know -- I know that's what Julia was thinking, oh, all of mine. No, I'm kidding.

CO-CHAIR SAVAGE: So are we

prioritizing within each of the sub-domains that people identified, or are we -- are you asking us to --

MR. GOLDWATER: I think just overall. I think just overall because there's only, I think I counted maybe 15 or 16, so I don't think we need to get that granulate with such a small cohort. So just overall, out of the ones that you have, you know, which ones are very high priority. Yes?

CO-CHAIR KAUSHAL: Do we have a full list?

DR. PATEL: So maybe we should it domain by domain or something.

MR. GOLDWATER: Okay.

CO-CHAIR KAUSHAL: So while we're working on that, Tess and Frank have something to say, and then maybe we can go back to domain specific. So go ahead, Tess.

MEMBER SETTERGREN: Thank you. So if I'm understanding correctly, if I'm understanding

correctly, tomorrow is when we will talk about gaps in terms of the measurement concepts?

MR. GOLDWATER: Yes, correct.

MEMBER SETTERGREN: Because, you know, we've tried to stay in our swim lane, which means that, you know, we didn't get into concepts that we thought were in other people's swim lanes.

MR. GOLDWATER: That's correct.

MEMBER SETTERGREN: And I have not heard from anyone anything about the longitudinal plan of care, which I think is very important and it's part of the reason I came here. So tomorrow would be the right time to talk about that --

MR. GOLDWATER: Correct.

MEMBER SETTERGREN: Okay.

MR. GOLDWATER: Again, I think what would probably be the most effective use of tomorrow's time, just sort of given where we are because, again, we've got domains and sub-domains and some concepts, I think we need to firm up the

domains and sub-domains, and what I mean by that is that there's consensus amongst everyone that this is what we want going forward, you all want going forward, categorizing the sub-domains or the measure concepts which you all already did in your groups specifically in your swim lanes, and then collectively as a group go back through all of the domains and sub-domains and have you all start thinking of other concepts that would apply, even if you didn't discuss them today.

And then I think, at the end of that, we've got a framework that is, again, very representative of all of these.

CO-CHAIR KAUSHAL: Frank?

MEMBER OPELKA: So I raised this in my group as we went through the exercise, and I'm raising it again to the group as a whole, mostly out of ignorance. But to me, this just is a very broad overarching framework that could be significantly influenced by how you actually carry it out and how you implement this.

If I had to design this today, the way that I would do this is I would go to Samsung or Google or Apple or some group of engineers and say I want you to design for me a mock EHR, I want a mock ED, I want a mock clinic, I want a mock pharmacy, and I want a mock skilled nursing facility or home health. I'd come up with 15 or so different data environments, and then I would ask any EHR to test itself in exchange or any one of these other environments to test themselves in exchange against that environment, and I would be looking at these domains and I would be looking to see, for example, in the use/usability domain work, I could probably do the majority, not all, we talked about that, not all the things that we identified could be easily measured. Some require human interface to evaluate. But a lot of it is machine-testable, and I know the answer. I know what I'm sending or receiving, and I should be able to test the enterprise against it.

I feel as if none of these major

vendors put their own product out there without going through similar quality assessment testing internally and, yet, they may not have had the same standards that we are looking for. In fact, I very much doubt they did. But this seems that it changes a little bit how you prioritize things because, frankly, you could test very effectively on a larger scale by taking a different approach than our traditional measurement of silos and singleton measures here and there. And you could do something much more dynamic in the machine environment if you had engineer input into this. And I feel remiss, in fact it's my homework assignment. I'll reach out to my own engineer buddies who do my own application development for me to ask them this very question.

MR. GOLDWATER: And, Alan, just before we get to you, just a follow-up question I think for our team, so I think that's an excellent point. How do you think that should be reflected in the framework itself? I mean,

you've seen frameworks before, so you know how they're laid out. How would you want to articulate that in a way that --

MEMBER OPELKA: The only thing I'm worried about isn't so much what you have in terms of domains, but that could dramatically change your prioritization exercise. I mean, now it's what are those things that are machine testable, what are those things that are going to require a human interface, and how do these things, when you start testing along this way, your testing exchange, availability, usability, all at once. So I could have 200 metrics that I could be testing immediately, so it changes how you prioritize what you do. It doesn't change all these frameworks and the elements, domains of the framework. But it has significant contextual influence of how you look at the prioritization.

MEMBER SWENSON: So just a question as we're going into this next section of talking about prioritizing the measures is how do we want

to handle or do we care if these are already being measured very similarly in other ways? Like, as we were going around the room and the groups were talking about the ones they had come up with, some of them are very similar to things that are already in the meaningful use program, for example. Should we, in those cases, look to, if we want to measure that thing, just look at what's already been written up for measuring that thing in meaningful use, or are we going to recreate the wheel on all of these, or do we not include it because it's already in meaningful use?

CO-CHAIR SAVAGE: Well, speaking for myself, I think we're still identifying priority measure concepts, so maybe they were good in the meaningful use program or they came closer to measuring interoperability instead of being interoperability sensitive measures. So I'd sort of look at it on the merits. Does this advance the cause or not? And the fact that we've already seen a version of it somewhere else

I don't think takes it off the table.

I know some of the things that the availability group worked on do look like some of the meaningful use measures and we changed some of the wording in order to take it more to a measure concept instead of a measure, so that meaningful use measures might fit under them in a sort of backwards or present-looking place, but there was still room for improvement looking forward to the next two to three years, as well. That was part of the way we were talking about them as our group. Don't know if that's helpful.

MEMBER SWENSON: Yes. So I guess the idea is if it's already something that's in meaningful use, we're still okay essentially re-publishing the same idea because it's something someone might have to in the future.

DR. PATEL: My view would be that that would be great because we already have a data source for it, you know. I mean, as long as it's something that we all agree is important to

measure, you know, if there's already data available in meaningful use or another data source, like a survey measure that we do, national survey-based measures, then I think that's --

CO-CHAIR SAVAGE: I'll jump in to say we didn't call them meaningful use measures, though, for a good reason. We were just looking at them on the merits.

MEMBER SWENSON: Sure. I guess the one maybe concern there is if what we're publishing are already meaningful use measures, are we coming up with anything beneficial if they're already out there anyway?

CO-CHAIR SAVAGE: For myself, I'd say patient access to their health information and their care team's electronic health records, it's still important.

CO-CHAIR KAUSHAL: And I think there's a sufficient number of aspirational concepts in here that haven't already been

included in meaningful use that would be meaningful. Sorry to use meaningful.

MEMBER SWENSON: And that's fine. There were definitely several of them that aren't in meaningful use. I guess I'm wondering about the ones that are in meaningful use, are we okay just re-publishing essentially what's already in meaningful use anyway, or do we want this to be entirely new?

MS. BAL: It won't necessarily be re-publishing. The reason we're going through this right now is to understand what measure concepts we think are important, and then when we do the exercise tomorrow, based on the exercise that you did before this meeting that are the current measures, we can say this measure already exists, we don't need to reinvent the wheel, this is important enough that we're going to incorporate and emphasize that this is something that's important that should move forward.

So it's not so much a re-publishing.

It's more just first understanding what we want to measure and then see if there's anything currently that fills that gap.

MEMBER BUITENDIJK: Just as a general observation and a challenge, you might have some further insight on that, going through the discussion within the impact group, one of the challenges I think we will be having is that when we talk about prioritization we're really talking about a well-understood list of which we are going to put the top three, the top five on top, versus effectively starting the discussion, examples scratching the surface, given some of the challenges that the conversation we were into.

So I think we had a great discussion and conversation about a variety of different measures that would be indicative of interoperability working more effectively and efficiently. But based on the discussions we had earlier around the different stakeholders,

beneficiaries, what's more or less important areas that we have not been able to dig into, makes me a little bit concerned that we prioritizing giving the impression of we looked at quite a bit and these are the top three that came up, as opposed to these are the number of examples along the lines of which we need to explore further, which is a different perspective on it. I'm kind of curious how you suggest to comment and proceed on that as we go through them.

MR. GOLDWATER: That's a good question, Hans. I don't think that, from our perspective, we're looking at ones that are more important than others. It's, as you said, you know, these are the ones that seem to have significance and we want to be exploring these further and potentially including them as a measure concept for future development. It could be measure something now of importance or something aspirationally in the future for importance. And then those that you still view

as important where we're able to identify a measure, as Poonam mentioned earlier, than we would consider including that in sort of a starter set of measures.

CO-CHAIR SAVAGE: Jason? Does it help to kind of look at it the other way around and just ask are there any measure concepts that folks don't think make much of a contribution? Perhaps drop those and everything else is a part of your exploration.

MR. GOLDWATER: That's fine. I mean, it could be done either way. You can look and say these are the ones we want to explore further or these are the ones we think have no value, at least not now. I don't want to say they're meaningless, but right now these are the ones we would not want to explore and leave everything else, that's fine. Whichever is easiest for you all. I don't think we have any fidelity to a particular methodology. It's whatever we want to use.

So it's 4:30. And so Bob was giving me this look like it's 4:30, which I got. I understand. So I'm very appreciative that Vanessa was able to type so quickly to get these up, but I think we do need to open it up for public comment and see if there are anything that the public has to say that's been listening in, and then we can end for today and we'll just pick this up tomorrow, and that will lead to the larger discussion of formalizing everything and then getting into the measures themselves.

So with that in mind, operator, can you please open the line for public comments?

OPERATOR: And at this time, if you would like to make a public comment, please press star then the number 1 on your telephone keypad. Again, that's star 1 to make a public comment. And we have no public comments at this time.

MR. GOLDWATER: Okay. Thank you very much. Again, thanks to all of you for your active participation. It's been a long day, so

I am very appreciative. It makes us pine for the open-source days, Steve, way back when. That was a lot easier to do, but this has been a very productive day. I think we've gotten a lot done, and it certainly sets up tomorrow very well.

So thanks to all of you very, very much. We appreciate all of your help and participation. A particular thanks to Mark and Rainu for being our cruise directors today. That is never an easy task for anyone. And I hope you all enjoy dinner. It's a terrific restaurant. The veal saltimbocca is phenomenal there.

MS. BAL: Speaking of dinner, before we adjourn, if you would like to attend, we do have a sign-in sheet right here on this public desk right here. So we just want you to sign in and let us know that you're arriving, so we can make sure that we give the restaurant an accurate number. It is at 6:30 only about two blocks down from here. Your hotel is not that far, so you do have a little bit of time to go back to your

hotel and freshen up before dinner, as well.

But just give us a heads-up to let us know if you'll be attending by signing up on the sheet.

MR. GOLDWATER: It's Siroc, the restaurant.

CO-CHAIR SAVAGE: Thank you so much, everyone.

MS. BAL: And we can email that out, as well.

MR. GOLDWATER: Thank you all very much. We appreciate it, and we'll see you all tomorrow. Thanks so much.

(Whereupon, the above-entitled matter went off the record at 4:27 p.m.)

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