Global Harmonization for Data Access & Exchange
Hybrid Public Meeting
November 5, 2026

Transcript

Welcome
Susan C. Winckler, RPh, Esq., CEO, Reagan-Udall Foundation for the FDA

Susan C. Winckler:

So [00:00:30] hello everyone, and welcome. Thank you for joining us both in person and online. For those of you in person, we appreciate you braving the drizzle or whatever that is out there. So I'm Susan Winckler and I am chief executive officer at the Reagan-Udall Foundation for the FDA. For those of you who are new to the foundation's work, we're the nonprofit, non-government organization created by Congress to help the FDA do more [00:01:00] to protect and promote public's health. And as part of that, we are pleased today to convene the meeting on global harmonization for data access and exchange.

Today, we want to bring together experts from across sectors to explore the topic of global data harmonization. The meeting is about shared learning, which can then help inform the agency's work as well as the work of external stakeholders. It is not a meeting about regulatory decision making. [00:01:30] The agency does not participate in regulatory decisions.

So I have a few housekeeping notes. We're joined today by about 60 people in the room and a few hundred online. Because of the number of virtual attendees, virtual attendee camera and audio will remain off with the exception of those of you who requested the opportunity to provide public comment. When we get to the public comment period, you will have the opportunity to turn on your camera and microphone so that we [00:02:00] can hear you. For those of you who are in person, if you have questions, there are some index cards, just write a question on that and hand it to a staff member. We will get to questions as we can. For those of you who are in the webinar, please use the Zoom Q&A function. And similarly, we will review those questions and incorporate as possible.

We are recording this event and we'll post the slides, the recording and the transcript on our website, reaganudall.org next week. [00:02:30] For those of you who are present in person, I'll just ask you to not join the virtual feed, embrace the in-person part of being here in the room. I want to thank our speakers and our panelists for investing time in preparing for the meeting. And in particular, thank our sponsors one day sooner, Amgen, Bayer, Lilly, and Pharma for supporting today's event. So let's talk about today's event. We are going to cover quite a bit in [00:03:00] two hours and my clock there stopped working, so that won't help me. In two hours and 58 minutes. So we are going to have an overview of the Modernizing Global Data Access and Exchange report. That was a report prepared from a round table

that Accumulus Synergy in collaboration with Google convened in Roundtable. And we'll hear Patrick Crooks describe that report.

We're then going to turn to a panel presentation [00:03:30] to talk about what is working in this space and some potential for use cases in a next iteration. Then we will turn to public comment. We provided the opportunity for the folks who wanted to raise their hand and submit a comment to do so. And then we'll close with a panel that is going to explore how to turn from digital paper to a true global data system. So with that, I am going to turn the podium over to Patrick Crooks who serves as [00:04:00] senior manager for regulatory innovation at Accumulus Synergy. And he's going to give us an overview of the report that was distributed beforehand. Thank you, Dr. Crooks.

Overview of 'Modernizing Global Data Access and Exchange' Report

Patrick Crooks, PhD, Accumulus Synergy

Dr. Patrick Crooks:

Thank you. Okay. Thank you all so much for being here. I'm Patrick Crooks with Accumulus Synergy. We advocate for digital transformation in the regulatory industry. So I want to hopefully give you some background information today to really kick off some [00:04:30] great panels later on. So a little bit about what is this report? Well, back in May, we held a meeting with Google where we convened regulators, pharma leaders, tech developers and academic experts. And we were really focused on modernizing global data access and exchange, really focusing on what are the practical obstacles that we're seeing and let's try to get into solution mode. What are some key things that we can focus on now [00:05:00] to make progress in this somewhat some people say is a complicated area.

So again, this meeting was back in May and then my coworkers and I, shout out to Ashley and Khushboo. We spent a lot of time working on this report, which is available on the Accumulus Synergy website. If you do have a passion for this topic and really want to read more about these topics and discussions in more detail, definitely check out the full report on our website. I'm just going to be giving you a very [00:05:30] high level overview to get us kicked off today.

A little bit of background information just to level set here. We all know that regulatory modernization is lagging behind scientific and tech innovation. We also know that fragmented frameworks limit current global data exchange. And we know that there's existing collaborative models out there like Project Orbis and the Access Consortium, but barriers still remain. These barriers could be administrative [00:06:00] burden, multiple submissions and country specific requirements. So we know that there's roadblocks out there. And when we met with this group in May, really our goal was focused on identifying practical near-term actions and foundations for longer term structural change. So really thinking about what can we do within the next one to three years to make a difference in this area? What can we do to make progress in this area?

Before I give [00:06:30] a brief overview of, we're calling these priority areas for action, not necessarily solutions or recommendations, and when I say we, in this case, I'm just referring to all the participants that were at this meeting in May. So focusing on what are areas where we feel that we can make a difference. And the way we set up this meeting in May was we focused on three key areas. Number one is sponsor to regulator data sharing. Number two is regulator to regulator collaboration. [00:07:00] And

number three is data reuse. So we actually broke out into smaller groups at the meeting and each of these three groups was able to solution, brainstorm and come back to the larger group to really share their ideas of what kind of actions we can take.

And we also, when I talk about the solutions, we also have a fourth bucket here I'm calling cross-cutting, which is solutions that really affect or span all three of these areas. I am going to go through these 12 areas [00:07:30] for action relatively quickly, but if you do have any of them that are particular of interest to you, definitely check out the report on our website for more information. And then the panels will be talking about some of these items in more detail later on today.

When we first talk about sponsor to regulator data sharing, again, these are priority areas for action. Number one is establishing a unified industry vision. How can we all as an industry really get [00:08:00] together and align on a common vision and strategic objectives for regulatory modernization? Number two is of course the concept of moving from documents to structured data. So moving from document centric submissions and processes to structured reusable data. And number three is thinking about upstream data. So thinking about clinical trial sites, how can we work with clinical trial sites, get them involved in this topic, and [00:08:30] really think about the upstream data generation and bringing that into our modernization agenda. So these are three priority areas for action that were identified as part of the umbrella of sponsor to regulator data sharing.

Next, let's talk a little bit about regulator to regulator collaboration. Number four here is advancing collaborative review through targeted pilots. We've already seen a lot of collaborative [00:09:00] review pilots happening in the industry. I get excited when I see new journal articles or white papers talking about collaborative review pilots using a cloud platform or perhaps a SharePoint site, but the participants at the meeting definitely highlight that we as an industry should be continuing to pursue these type of pilot programs. Number five is developing a collaboration framework that also supports capacity building.

So not all regulatory authorities [00:09:30] around the world have the same level of resources. And so how can we think of collaborative review frameworks that enable folks to work together and collaborate, but also strengthen some of the regulatory authorities that perhaps have less resources? And number six here is promoting federated data access models. So this is enabling analysis where data resides currently rather than focusing on how to transfer that data across borders.

[00:10:00] Moving into the data reuse category. Number seven in terms of our priority areas for action is creating harmonized frameworks around consent. So consent was a large topic that came up during our meeting. Consent frameworks might differ throughout the world and how can we as an industry work together to align consent data reuse and transparency expectations throughout across jurisdictions? Number eight was around AI. So we all [00:10:30] know that AI is being utilized more. It's a big hot topic in our industry and other industries as well. A lot of participants talked about how there's varying AI terminology being utilized throughout the industry, throughout sponsors and regulators. So is there a way that we can try to adopt a more common AI vocabulary or terminology and also provide a little bit more transparency around regulatory AI architecture and utilization?

[00:11:00] Number nine here is about creating incentives. So how do we create incentives and how do we design data for reuse from the very beginning? How can we reward reusable data? And then also how do we, when we initially capture data, how do we make sure that we're capturing it in a way where it can be reused? So there was a lot of great ideas here around data reuse. And finally, these last three

are what we call our cross-cutting areas for action. These areas affect [00:11:30] all three of the former categories that I just talked about.

Number 10 is really about governance. So we all know that this topic is involving a lot of different stakeholders. We have regulators, we have sponsors, we have patients, we have so many people have an interest in this topic, but the participants in this meeting talked about who should be governing this. Is it a task force? Is it an international body? Who should be responsible for the governance process? So [00:12:00] that was raised as a high priority item.

Similar to that, evidence base, establishing what we call a global evidence base. Like I said, we have seen a lot of research. I just saw another journal article earlier this week about a regulatory collaboration pilot, but maybe there's more that we can do around metrics, building shared metrics and evidence that demonstrate the value and the impact of modernization. So really as an [00:12:30] industry, kind of aligning on key metrics, aligning on an evidence base that can be really referenced to demonstrate the value of this topic.

And finally, thinking about patient-centered messaging. So this topic at first might not seem patient-centric, but ultimately as regulatory professionals, what we do is really trying to bring safe and effective medicines to patients faster. So is there a way that we can involve the patient community, the advocacy community? [00:13:00] Is there a way that we can reframe some of this messaging? Perhaps this ties into the evidence base as well. Is there a way that we can think about how these topics delivered drugs to patients faster just to involve the patient community and the advocacy community? So number 12 is amplifying patient-centered messaging just to bring in even a more robust set of stakeholders into this discussion.

So I just covered a lot of different ideas. There's a big [00:13:30] variety here, as you can tell, from the broad to the small in scope. But really what I want to leave you here today are a few key takeaways from this report, and I'm hoping that these key takeaways set up nicely our panel discussions that are coming up next. So a few key takeaways from our report, again, and these are from the participants of the meeting overall. The barriers here are no longer technological. Really to make more progress, we need to align policy. [00:14:00] We need to align governance, incentives, legal frameworks, organizational readiness and trust.

I want to reemphasize that building a shared vision came up a lot in this meeting. The participants felt like we're really lacking an overall shared vision as an industry and why this topic is important and why it's meaningful. Of course, everyone's familiar here with moving beyond digital paper, so moving beyond document centric workflows to reasonable data. I [00:14:30] talked a little bit about pilots. We definitely encourage pilots. We love seeing them, but how can we take that one step farther and going from pilots to implementation? Along with the shared vision, I feel like is leadership. Who should be leading these efforts? There's a lot of stakeholders involved. There's a lot of international bodies that could be involved. And so participants in our meeting really talked about how this is a big leadership opportunity and we need not only a vision, but we need leaders to steer the [00:15:00] ship of this topic.

And then when we closed out our meeting, we asked participants to share some final thoughts and the largest theme in the room was really keeping in mind the north star, which is accelerating patient access. So how can we leverage reasonable core dossiers, coordinated regulatory reviews, and locally accountable decisions? How can we leverage some of these topics and make progress to accelerate patient access? So let's not lose the fact that that is really our north star here.

[00:15:30] So what comes next? We had this meeting in May. We did this nice fancy report. Really, what comes after this? So we're very excited that this meeting is happening. This was one of our goals to basically continue this discussion. We don't want it just to end in a meeting. We want to continue progress. We truly believe that progress can begin now. It does require coordinated action. It requires a lot of us thinking about this difficult topic. We know industry can be a catalyst for change by articulating a shared vision, [00:16:00] identifying practical opportunities, investigating innovative approaches, and demonstrating the value through pilots and collaborative initiatives.

We also know that regulatory authorities are essential partners in this topic. They shape future state approaches, provide regulatory alignment, and enable adoption of solutions that advance shared goals. So in summary, really this requires partnership. If we really want to achieve sustainable transformation, it doesn't take one of us. It really takes us as a broad ecosystem [00:16:30] partnering together, regulator, industry, tech, academia, patient advocacy orgs. It takes a lot of us thinking about this topic together.

So again, I really want to thank you all for being here. I'm excited that we moved beyond our report and we're continuing the discussion with this group, with those who are in the room and those online. And I'm hopeful that this introduction, while I covered a lot of different ideas, I'm hopeful that this will set up our discussion really nicely for the panels that are coming next. [00:17:00] So I will let the next speaker take the reins. Thank you all so much.

Discussion #1: Where is Cloud-Based Data Exchange Already Working; Where is New Adoption Best Suited?

Julian Beach, MBA, Medicines and Healthcare products Regulatory Agency
Rich Brennan, MA, The ALS Association
Rebecca Nebel, Amgen
Raju Rayavarapu, PhD, DNAnexus
Sachin Shah, MBA, US Food and Drug Administration

Susan C. Winckler:

That's great. Thanks so much, Patrick. Anytime you can take a, what, 25-page report and put it into 16 minutes, that's an excellent thing. And I think it's automatically a high level report when you use at least four colors in the layout, which it's an excellent report. So let's bring our panelists up here for our first discussion. [00:17:30] We're going to have folks join us on stage and then if we've made the technology work, we'll have Julian Beach join us from the Medicines Health Regulatory Agency, or not. We'll see if that's going to come through, but I'll have folks come on up. There we go. Right? Then we know we're in the right spot.

Rich Brennan:

[00:18:00] Look at that, [inaudible 00:18:02] together.

Susan C. Winckler:

Nearly. There we go. All right. So I was going to say we have sponsors, we have regulators, we have technologists. Thank you all for stepping up to the stage and joining our conversation today and patient

advocacy groups. So we just heard from Patrick some items about making progress in moving away from paper-based approaches, but would you [00:18:30] open our discussion, Dr. Nebel, by sharing your insights from Amgen's experience in this space, particularly thinking about, I think where you've seen it in post-approval work and sharing your vantage point as director of regulatory policy and intelligence.

Dr. Rebecca Nebel:

Sure. Happy to, and thanks so much for the invitation to participate in today. Yeah, I'd love to share Amgen's experience in one of the pilots that Patrick alluded to, and just to kind of level [00:19:00] set on the current state and what the pilot was looking to address. So we're working in the post-approval CMC change space, and right now global post-approval changes happen really through a fragmented country by country process. It requires approval from every country, and this can take sometimes up to five years depending on the type of post-approval change you're looking to implement. And so this [00:19:30] sequential process can duplicate sponsor and regulator effort. It obviously extends approval timelines, delays implementation of the changes that we might want to make, which ultimately is to get some optimized medicine to patients as quickly as we can. So to address that problem, we embarked on a post-approval change submission reliance pilot using cloud technology.

So the post-approval change [00:20:00] was for one of our products, Vectibix, which is indicated for treatment in metastatic colorectal carcinoma, and it was for a manufacturing process optimization. And in the current conventional framework, a post-approval change like this can take on average three years to complete the global approval process.

Susan C. Winckler:

So that's after you figured out what you want to change in your manufacturing process?

Dr. Rebecca Nebel:

Correct.

Susan C. Winckler:

Okay.

Dr. Rebecca Nebel:

Yes. [00:20:30] And so through the pilot, we did one global submission. So that means all the health authorities who participated in this pilot received an identical submission at the same time. And so we did that using a core common CMC dossier. We did digital authoring through content templates and AI to help automate some of the preparation for the submission. And then the submission was routed through two avenues. We did [00:21:00] the conventional submissions to comply with national requirements right now, and then we also submitted through the Accumulus Cloud platform. In the pilot, EMA served as our reference authority, so Amgen was able to upload EMA's assessment report to the Accumulus platform once it was available so all regulators who are participating could see it. And so the platform really helped with this near concurrent collaborative review that I think [00:21:30] Patrick was kind of alluding to in his presentation.

So each authority in this process retained its own independence in making their own decision about the post-approval submission, but they were able to see the dossier at the same time. We also were able to upload any health authority questions and any of our finalized responses so that all regulators could see what had already been kind of asked about the submission. And to kind of sum up scope [00:22:00] and result of the pilot, so we had targeted 37 health authorities for this pilot. 27 of those agreed to participate and 26 of those 27 used the Accumulus platform pilot. 23 of the 27 who participated approved the post-approval change in nine months. And again, that's compared to three years for a similar type of approval using our typical process. So obviously there's operational value [00:22:30] there. We saw a 75% reduction in country specific documentation because we did the one global dossier submission.

We also saw less health authority information requests overall because health authorities were able to see questions that other health authorities had already asked and our answers to that. And then there's the patient value. We were able, once we reach approval sooner, we can implement those changes and get a more optimized medicine to patients [00:23:00] faster.

Susan C. Winckler:

Fabulous. So Rebecca, I want to make sure I heard you correctly. So you were able to upload the information in a platform that then multiple regulators could see it at the same time, then they could also see what each other was asking.

Dr. Rebecca Nebel:

Correct. So there was a space for sponsor regulator interactions and then the regulators also had their own space where they could also talk to each other and maybe ask questions or [00:23:30] discuss any merging issues.

Susan C. Winckler:

Yeah. So it's kind of like a teams chat on the side of the looking at the information.

Dr. Rebecca Nebel:

Yeah.

Susan C. Winckler:

Okay. Really helpful. So that is a great example of today where we might see that evolution, but we have some examples from the regulator as well. So I'll turn to this side. We're thrilled that we have FDA Sachin Shah, who is project manager in the Office of Data Platform Engineering [00:24:00] within the Office of the Commissioner, right?

Sachin Shah:

Yeah. Within the Office of Admission IT Services, part of the Office of [inaudible 00:24:08]-

Susan C. Winckler:

Yes. Yes, because I was going to say this title is way too short for all of the parts of FDA that we have to mention. But if you would tell us about and update us on Project Prism, and if I got that right, it's Precision FDA Regulatory Information Service Module.

Sachin Shah:

Well done. Yes. Thank you for having us. Thank you everyone for coming today. So Prism [00:24:30] is a public-private partnership involving industry, involving FDA, involving other regulators, and also other partners as well, including technology partners, to bring together the idea of doing collaborative review and looking at specific use cases where we can learn how to make the review process both upstream and downstream more efficient. So this involves what's happening on the industry side, what's happening on the sponsor [00:25:00] side, what's happening on the regulator side, and then where we meet in the middle and how things come together. So we've looked at specific use cases such as ECTV validation, study data validation, looking at real world data, digital health technologies. And I know I'm forgetting at least one or two other ones that we're looking at. ICHM11 comes to mind. And we're continuing to explore other use cases, both in an upstream fashion, again, like I said before, where [00:25:30] the industry partners are looking at their processes and how they can bring data more efficiently to the regulators.

And then we're also looking how can we receive it and collaborate on looking at the data collectively, both internally within an agency, because as we all know, the review process can be highly fragmented and then also across multiple agencies as well, especially in the case of ICHM-11. So that's a nutshell. We've learned a lot about what we can do [00:26:00] both from a technology perspective, and also we're starting to learn what we need from a policy and from a process perspective as well.

Susan C. Winckler:

Do you want to share any of those?

Sachin Shah:

So I think-

Susan C. Winckler:

It's okay if you don't. You can say, "No, Susan. I'm not going to."

Sachin Shah:

No, Susan. I think there are a few things to share. One, I think I was going to save this for a little bit later.

Susan C. Winckler:

That's all right.

Sachin Shah:

But I think one of the things that Patrick alluded to earlier is aligning around a common vision [00:26:30] and common standards. And I think that's an area where things are moving so fast that way, example, when Prism started, AI was just, okay, we're all studying this now and we're all looking at it. We're all going to try to figure out what we're going to do with it. And now all of a sudden in less than two years, it's a core part of everybody's workload and now it's not just about, okay, it's neat, this is interesting, but how are we actually going to use this and how are we going to make this improve patient outcomes? [00:27:00] So that's definitely one area that's important and we're starting to learn that, hey, this is not just slapping an AI layer onto an existing process, but really rethinking how we're going to do things.

Another area that we can look at is specifically cloud to cloud interaction. Everyone's investing a lot in cloud. And so how are we going to manage the interactions between clouds in a way that's secure and still [00:27:30] allows everybody to have all of their regulatory needs met?

Susan C. Winckler:

Yeah. We're definitely going to come back to the cloud to cloud and have some more conversation there, but let's look a little more on the technology side of the discussion. So some of what was in the paper, and we heard Patrick mention, and I think was an inherent part of the pilot you described, was having a trusted regulatory space. What exists today to help provide that space [00:28:00] and how do we build and maintain that trust? As you might guess, Dr. Rivera. I had it right.

Dr. Raju Rayavarapu:

Rayavarapu.

Susan C. Winckler:

Rayavarapu, I had it right. And then I looked at you and it just went out of my head. But share your thoughts as a former FDAer and your current position with DNAnexus.

Dr. Raju Rayavarapu:

Yeah. Thank you. And thank you for having us and thank you for all of you for being here. And this is actually a great question. And I appreciate that that report opens up with this technology [00:28:30] isn't new and it's something that we can achieve and we can do today. And so the way that we think about the trusted regulatory spaces at DNAnexus and what we've built, the idea stems around the notion that there's a lot of information out there that would be useful to share so that we can do the real work, the north star, which is accelerating drugs to market or to the patient directly. And in order to achieve that, we though about what do you need? You need a trusted [00:29:00] collaborative environment that's secure where you can bring data, documents, anything that you want to actually do real work in the cloud.

So with the trusted regulatory spaces, we have the ability to do things like the classic sharing of documents if needed, but we take that one step further to essentially being able to take data, whether it's structured or unstructured data, and wrap processes around that data so that you can do real work.

And it's not, "Oh, I've shared this document. There's a comment that's come [00:29:30] back." It's more, "Hey, here are data modules that are coming through. We can evaluate them using the latest standards or evaluate them using the latest tools that have been developed that run natively in the cloud so that you can actually achieve faster outcomes, whether that be faster evaluation or validation of data sets or anything else." We've run a few different pilots and we're looking at productionizing from that pilot space. We've run pilots around structuring unstructured CMC data.

[00:30:00] Sharing that now structured CMC data, wrapping that around with AI tools and dashboarding and all sorts of other interesting views that allow reviewers or whoever's interested the opportunity to work with the data itself. We've looked at reliance activities. Again, sharing documents as well as data to achieve that endpoint. All of this done in a space where you can rest assured that the data is secure, only people with the [00:30:30] need to have access have access. And with also an eye to, and this is something that we're very passionate about, is to regional data requirements. If we look across the landscape today, there's a lot of regional data residency requirements.

And so we're thinking about the trusted regulatory spaces network as a means to achieve that regional data residency requirement, as well as work towards either a common methodology or something. And again, one of the things that [00:31:00] I like to talk about a lot is I love data standards and I love building them. I love thinking about data standards.

Susan C. Winckler:

Oh, there are so many in this room who just resonate to that, and so many outside of this room who don't.

Dr. Raju Rayavarapu:

Well, because data standards bring order to data, right?

Susan C. Winckler:

Correct.

Dr. Raju Rayavarapu:

But the thing is, is that right now we have a situation where we have a lot of data standards that are in progress and they're being worked on. So taking those data standards and actually implementing them around data in a trusted environment [00:31:30] allows us to determine whether or not those standards work and whether or not where those standards need to be evolved. And so again, it's moving from document to data, moving from just static sharing to processes to ensure that we do get to that end goal of making exchange easy.

Susan C. Winckler:

That was very helpful. And I think part of what you're helping illustrate is that the trust dynamic here is not only from the standards perspective and [00:32:00] the structure, but then that those who are working in it can say, "Oh, I'm okay with this presentation of the information."

Dr. Raju Rayavarapu:

Exactly, exactly. It's both, right? Those that own the data want to ensure that their data is protected because their data is their livelihood. And those that are using the data want to be confident in the fact that how they're looking at the data and how they're engaging with it is a reasonable, meaningful and effective way.

Susan C. Winckler:

Yeah. You remind me, I was in a discussion last week [00:32:30] with a longtime former FDA regulator and she was telling the story of how hard it was to get the reviewers to accept that there would no longer be a truck pulling up to FDA with all of the physical paper. And they were very, truly very nervous about the difference between the physical paper and then getting it electronically that they could trust that it was static and wouldn't [00:33:00] change, including I guess the original sponsors at some point had to submit your label on this very large in front of us. Exactly. But part of it's a culture process and the ability to trust what is there and the fidelity of it, that you can trust it.

Dr. Raju Rayavarapu:

And I think that I and many other people in this room can speak [00:33:30] to how evolution functions at places like regulators who are rightfully very conservative in their approach because they are protecting health. But for a later time, we can go through some really interesting stories of how that exchange occurs. But I think we're now seeing a position in which a lot of people are forward thinking and leaning forward, which is really nice.

Susan C. Winckler:

Well, Dr. Rayavarapu, it was very helpful. Thank you. So now that we have a better understanding of [00:34:00] what's happening from sponsors in technology and at the regulator, we want to talk about a potential space for future collaboration. And that means I'm going to be turning to you, VP Brennan, to help speak to this. There's been a lot of discussion recently about the need for advancing treatment for rare disease and to move more swiftly in this space, and to think differently about our approaches. So you're at the ALS Association. Tell [00:34:30] us how you think about these data challenges and opportunities and particularly then with the lens of the rare disease space.

Rich Brennan:

And I think that my other panelists really set things up well as far as describing the regulatory complexity, the need for data standards and interoperability. And I've been working on this space for quite some time. If everybody remembers the word meaningful use and the numbers of dollars that were spent on [00:35:00] trying to achieve that, we have some lessons that we can learn from how we approach capturing clinical data. But I also think about the complexity of all this. And in fact, instead of creating silos, either regulatorily or technology-wise, we need to think out-of-the-box now. We have more tools now 20 years later than we ever did before when we first approached this problem, [00:35:30] and it is going to be able to unlock this repository of the need for research data. Research data was never considered part of interoperability meaningful use. So that's the last of the frontier of things to necessarily work on. But the way that I approach this is that in some respects, it's a global

problem. If you were to look at this from ALS's perspective, ALS is a rare neurological disease [00:36:00] that's incurable. People die from it after diagnosis, probably within two to five years.

And so they rapidly go through the healthcare system. They literally go from diagnosis, as far as seeing numerous specialists, about 18 months to get to that diagnosis, to the point where they're actually then in clinic and then at home getting palliative [00:36:30] care, getting hospice care, and then end of life within a very short period of time. And so there's tremendous opportunity to learn from a patient population in the rare disease space because of the churn that they go through with the system. So we have to capture and utilize and make meaningful the data that we have from them from the get-go. So again, if you look at somebody with ALS, [00:37:00] they're going to... And all this is dispurgent data. If I were to talk about ALS clinics, are they actually sharing data? It's siloed. We have the researchers that are doing research across the country.

We're actually working on unlocking those silos. The clinical trials, a lot of the work the FDA has been doing to necessarily modernize clinical trials, make them decentralized, is going to take [00:37:30] massive data exchange and new methods. And then also the health systems themselves and trying to necessarily unlock their silos as well and to participate this. So I would say that currently there's so much dispurgency that these systems necessarily don't connect, but we can actually utilize new tools, new technologies, to connect them better. The other thing is to recognize that patients, especially people [00:38:00] with rare diseases, want to contribute to this question. They want to contribute their data. We are just simply not giving them available tools to do so. And we're actually making it very difficult. We're setting up tremendous barriers for people to be able to share their data.

So I'll go into that a little bit later with a further question, but I think it would come down to this is, data harmonization isn't measured by [00:38:30] whether systems can exchange information; we already know that we can accomplish that. It's really about how can we make that information knowledgeable to the point where we improve the decisions and also deliver those decisions to patients in real time. We can't wait 15 years for a medical breakthrough technology or a drug breakthrough to get to the patient's bed. It has to happen now.

Susan C. Winckler:

Rich, that's very helpful [00:39:00] in thinking about rare disease as a potential use case that we could then say this is where we absolutely need to make better use of data because it is rare and it is global and we want to reach patients faster. So just in time, I'm pleased to welcome our second regulator voice to the panel. I know you've been listening to us. I have Regulator Beach on my cards here. [00:39:30] Thank you for joining us from the Medicine and Healthcare Products Regulatory Agency where you serve as the executive director for operations. What do you see as the challenge and the opportunity in advancing our ability to modernize global data access and exchange? What's top of mind in this space for you and MHRA?

Julian Beach:

No, and thank you very much. And I do apologize for a few issues in joining a little bit later [00:40:00] than I intended, so I do apologize for that. So for me, the data exchange and the looking at how we use data, and as our colleague from FDA was saying, and Sachin was saying around data standards and about collaborative review, and the colleague from Amgen, around what's beneficial for patients. So

thinking about the problems from a patient perspective. I think we also have to recognize, as was mentioned [00:40:30] around what the UK terms critical national infrastructure. So having that data ownership within the country is essential. And from a regulator point of view, it's also beholden on us to be thinking about how efficient we can be. So how do we then work with our partners? How do we then work through the assessment process such that, [00:41:00] from a UK perspective, we cannot choose which platform or which data sharing tool potentially would be required by a particular market applicant.

So it's very much along the lines of how do we interact with those systems, utilizing the MHRA systems as the owner of the data where the assessors from MHRA would then look for that data [00:41:30] so that we then link into how do we do that collaborative review? So there's a lot of great work going on between the regulators in this space and thinking around how do we work together, the ICH, ICMRA, which has been on this week, really looking to think about how do we enable those things?

When you move on to data standards, and the last speaker was referring to rare diseases, MHRA [00:42:00] has been doing a significant amount of work in that space and thinking around how do we share patient information earlier where you've got a low patient number? How do we make sure that that information and data sharing within multi-regional clinical trials, because you would need to then think around where the patient is, and if it's in a rare disease, then it might be in many different geographic locations. So how do we have harmonized standards to enable that to happen? [00:42:30] There's a lot of work going on with the ICH in this regard. And we also have an ICMRA small population medicines working group meeting in London in a couple of weeks time, looking at some of these issues in terms of how do we share, how do we make sure that we have the right standards in place?

So there is quite a number of things, but I think I would really like to emphasize that fact that from a regulator point of view, we have to be making [00:43:00] these systems a win-win so that how do we make sure that the operating efficiency that a regulator needs to deliver, the headcount, the costs, the fees, are also bourne in mind when we are looking at how we think around that long tail, which I totally recognize from my time in industry. The shorter you can make that long tail of implementing change, the much more efficient that is for patient access globally [00:43:30] and the much simplified management of SKUs is required within organizations to enable that change to take place, thus lowering the cost of change, hopefully then affecting then how we see efficiency and drive then impact into cost and other aspects of a medicine's life cycle.

So it is quite a big beast. It is quite involved and it does come back a little bit to making sure we have [00:44:00] those standards and those links, maybe through trusted regulatory environments, maybe through other mechanisms, to then think about how does that happen and how do we make it work and make it effective? So thank you very much.

Susan C. Winckler:

Yeah, that was very helpful, Julian. And thank you for reminding us that it's change on all parts, that the regulator has to be thinking about do you have the technology to be [00:44:30] able to access the technology and then the regulatory competence within your staff to say we know how to use these tools? I shouldn't say regulatory competence, but really technology familiarity if it's using something differently.

So if I heard you all correctly, it sounds like we're making some progress here and that there continues to be opportunity, but how [00:45:00] we continue on this journey and who leads the way is a little bit less clear, just generally. So let's think about the rare disease space because that's just a sense if we think about that's a space where there's enthusiasm and patient interest and we perhaps get over some of the initial challenges. So if we think about facilitating global regulatory review of rare disease clinical [00:45:30] information, if you'd offer some thoughts on the how and who should help us move forward. Rich, I know you're going to be shocked. Why don't you kick us off and help us think about this space?

Rich Brennan:

Well, sure. I'll try and set it up for everybody else. But the way that I look at this is we're talking about complexity, a tremendous amount of complexity, but I think that the key is starting with the problem and not the technology, [00:46:00] meaning that we utilize technology as a tool and resource to be able to answer these questions. But the fact that there are not an abundance of answers and there's so much diversity as far as how people are approaching them, it is really important to collaborate. And so global collaborations can be key. So governments and regulators and researchers and industry and technologists [00:46:30] are all going to need to necessarily work on this together. My quick example of this is part of, and actually it's relevant, it was passed last week, the reauthorization of the Act for ALS Act, which provides for monies for research and regulatory-ready tools. So we partner with both NIH and FDA on those and have a [00:47:00] diversity of projects that we work with federal partners on to advance research in ALS.

One of the key areas as far as if I were to say we had a problem, I talked about earlier the research silos, the fact that we have researchers across the country that are actually doing really good research on trying to unlock the complexity of ALS and develop new therapies to target different biomarkers and develop new [00:47:30] biomarkers and so forth. They weren't sharing anything that they were learning. Even if it was a failure, they weren't sharing that. If there was a success, they weren't sharing that data. So part of the effort that we had, we worked with, it's called the FNIH, which is a partner federally through the AMP... We created an... It's called AMP ALS, and utilize that as a way to [00:48:00] establish this called the All ALS Consortium. So now we have a place for all the researchers that are working on ALS research to have a common place to share their data.

That is unlocking the development of new biomarkers. That is developing the tools we're using for decentralized trial designs. That is unlocking a lot of different methodologies to be able to have regulatory- [00:48:30] ready tools for drug development. And also we're using... We do FDA... We do work on things like cognitive brain interface devices, new technologies that are groundbreaking. To all this to say that having that kind of partnership, a public-private partnership or having government entities and having the community brought to bear and having the research community as part of this has really generated a [00:49:00] lot of good ideas and momentum in unlocking what we need as far as unlocking key deliverables for this disease state. So that's how to make momentum in the rare disease space is literally we need money, we need collaboration and we need experts to necessarily tackle these big problems.

But again, if you, again, look at it from the patient perspective, [00:49:30] deliver on the fact that we're going to start with a problem. If the problem is the fact that they're not sharing the data, how do you tackle that? How do you unlock those things? And then what is the result of that is once those places are met where we have established information exchange, look at the externalities, the things that happen because of that. There's a lot of benefit to it.

Susan C. Winckler:

So there I'm hearing you say the patient organizations drove [00:50:00] it to say, "We need our researchers to be collaborating and to have a common language" to the standards piece. But how would others of you think about how might we move forward on that case study? Raju, you want to pick it up?

Dr. Raju Rayavarapu:

Sure. And I really appreciate your comments around data silos. As a former disease biologist who worked in rare pediatric diseases, not knowing an answer is just as bad as knowing, is just as important as having the answer [00:50:30] in hand. So the way that we think about it, and to Julian's point about data residency requirements and regionality, is how do we provide an environment that essentially democratizes the ability to either share data or work on data? And that's the idea around the network that we're thinking of for the trusted regulatory spaces, which is you can work on the data where it needs to be. We're not interested in building more silos. We're interested in busting silos and providing people access and being able [00:51:00] to share data, being able to accelerate. Because again, there's so many incredible researchers doing clinical, non-clinical work. There's incredible thought leadership in all sorts of areas across the globe. So how do we unlock that by providing a trusted environment in which people can do work effectively?

Susan C. Winckler:

Julian, any thoughts on this? How might we move forward in the rare disease space? I know that is something obviously that MHRA has been leaning into as well.

Julian Beach:

[00:51:30] Yeah. So there are two parts to this. The first part is in the early phase clinical and non-clinical data development. So how we can make sure that we have commonality in sharing in clinical trial preparation, that is something that I don't think we have got yet clear. And that for me is something that where both the standard of the data, the quality of the data that's been recorded, [00:52:00] the natural environment, because it then brings into things around real world evidence, the quality of real world evidence because obviously in a rare space you would want to avoid a placebo control trial. So it's how can you use external standardization with that data to then demonstrate both efficacy and safety? That has to be balanced with severity. And I think that's a different ask than actually looking at a review platform [00:52:30] for marketing authorizations and post-market lifecycle authorization.

So it's then thinking around how do we do those in a clear view? Because one of the things that was mentioned, and I think for me, I would reframe it such as that it's when research works well, we will have a product coming through. But when research... And I wouldn't say it doesn't work well, but when it's not perceived to come up with a positive outcome in terms [00:53:00] of the trial disproved something, so therefore it made something not marketable, that is equally as valuable, but it also retains IP. So how do you then share that negative data, but will still have IP and especially in that environment to aid research? So there's two or three big questions here.

And I know from my conversations that we've [00:53:30] had with a number of our peer regulators, we're thinking about a lot of these things in terms of then going into the post-market regulatory space

to then see if patients cross borders, if you've got patient treatment plans which are cross-borders, how do we ensure that we have things like ADRs and other aspects appropriately assessed in where you may have, for example, [00:54:00] because of the population, no more than two, five people in maybe one country, one state in the US. So it's looking to see where we have that appropriateness. So I think we need about three different action plans here.

Susan C. Winckler:

And because not only, as you said, sharing the research and the results of the research, but thinking about how do we streamline the preclinical space-

Julian Beach:

Absolutely.

Susan C. Winckler:

... to then using real world data. [00:54:30] Sachin, what would you think about here?

Sachin Shah:

Sure. One of the challenges with the rare disease space is gathering data from a lot of non-traditional sources and then how do you harmonize that? And that's something that continues to be a challenge. I think obviously regulators are looking at it, industry's looking at it, our advocates, patient advocates are looking at it. And one of the things that we're learning is that this is not just a high level, okay, are we all gathering the same data, but are we all looking at the data the same [00:55:00] way? One of the fun challenges that comes in is that someone is doing an analysis in a lab, and then not only are they sharing the data and the outcomes, but are they sharing how they got there, the methodology, and the macros and their development plans and so on, right? What's the whole protocol from all the way?

And getting people to understand that all that information has to be shared is a challenge sometimes, especially [00:55:30] when you're looking at it as a scientist or as a regulator or an industry is that it's more than just the data, it's also the process, it's also the methods, it's also the outcomes as well, both positive and negative. And I think people are starting to understand that, especially when you get into a trusted regulatory space where, "Oh, I can see what you're seeing now. I can see it from your perspective." And that [00:56:00] unlocks a lot of potential for harmonization, for sharing, that isn't possible in a more federated environment where people are in silos. So busting that silo, as all of you have been talking about, is really critical here. And I think that's one of the aspects of public-private partnerships, like Prism and other ones like Cumulus and so on, where people get to see the other person's point of view.

Susan C. Winckler:

So there's even an opportunity for learning as this [00:56:30] is done, right?

Sachin Shah:

The whole process of continuous improvement. Going back to my MBA days, how can we make the next iteration of this a little bit better so we get cures to patients faster?

Susan C. Winckler:

Yeah, yeah. If you try to put up a Gantt chart, I'm going to stop you.

Sachin Shah:

Come on. I brought a whole bunch of them.

Susan C. Winckler:

Oh, all right. Well, maybe later, maybe later. Rebecca, we're talking a lot about sharing and standards and things, and then there are simply just some realities of the sponsor space, [00:57:00] and certainly interest in sharing some in pre-competitive and then things you have to also then think about protecting the assets that you're developing. So any thoughts as we think about the sponsor, what you put importance on in the space?

Dr. Rebecca Nebel:

Yeah, and I think the rare disease space is really ripe one because we have patient populations that are probably scattered across the globe and we want to really maximize [00:57:30] the data that is available and get the most use out of it. So I think it's about starting, in the early process, thinking about scalability and reusability and navigating certain maybe regional differences and trying to build that all in from the start and learning from the pilots that I was mentioning earlier, and I know we're talking about research, but then moving towards regulatory review [00:58:00] once we have something exciting that we want to make sure it gets to patients across the market.

Just thinking about those pieces that can help really reduce some of those delays to patient access, whether that's reliance on collaborative review through these trusted spaces that are being built and having that secure space where regulators can talk to each other and also helping maybe [00:58:30] less resourced authorities. And I think Patrick talked about this a little bit in his piece as well, being able to keep pace by having this shared infrastructure. And so I think there may not be one entity who is leading, it's really taking this shared ecosystem of patients and sponsors and regulators and technologists to come together and really share what's working, what's not, and moving everybody forward.

Susan C. Winckler:

And I'm glad you mentioned the less [00:59:00] resource regulators. That's obviously if we want a broad adoption, there are regulators are maturing around the world and have varying level of resources. So we want to make sure that we are building a system that allows all of those to come along and isn't just for those with more resources than others. So that's part of this journey. I want us to make sure that we acknowledge that [00:59:30] there are challenges in doing this and give voice to it. Patrick gave us some of those in the report, but I'd like each of you to call out a challenge that you think needs particular attention. And it's okay if someone else names it, you can build on it and say it's the same one, but who

might want to jump in? If you go first, then you get to put your challenge out there and you don't have to worry about someone else taking it. [01:00:00] And if no one goes first, you know that I'll call on you, so it's okay.

Dr. Raju Rayavarapu:

Sure, I'll-

Susan C. Winckler:

All right. Go for it.

Dr. Raju Rayavarapu:

I got it. Personally, I think it's secure data sharing, not just secure document sharing. We have to move from a mindset of documents to data, which then enables us to move to processes and standardization. So secure data sharing.

Susan C. Winckler:

Illustrate for us, what makes people more nervous about [01:00:30] the secured data sharing?

Dr. Raju Rayavarapu:

I think it's a classic thing that we all do. We as humans believe that we know best for our own thing. And I think it's just-

Susan C. Winckler:

At least when you're 17, right? Perhaps for all of our lives.

Dr. Raju Rayavarapu:

Some of us may not grow out of it, but I think it's just having an environment where you can essentially instill that confidence that, hey, all of these, maybe we move towards a [01:01:00] list of global standards that need to be met for an environment in order to be able to say, "Hey, this is a place that I trust putting my data." And I think that's something that's going to come from the regulators as well as the sponsors to ensure that, "Hey, this is a place I want to work." And regulators also say, "This is a place that I want to work" in order to achieve that end goal. I think we as humans, as a collective society, as we start to see other people be somewhere, we will get there as well. So I think [01:01:30] we just need to commit to it.

Susan C. Winckler:

So maybe it's also then a sense of better understanding what that environment is and what the protections are and saying, "Yes, I could put my data there."

Dr. Raju Rayavarapu:

And let's come back to the top of this where this technology isn't new. Cloud has been around for a long time. We use the cloud every day for a lot of things that some of us might view as just as important as our health data. We use it for our banking information. We use it for all sorts of other information. [01:02:00] So it's just getting over that hump, unlocking that and saying, "Yeah, okay, I'm going to commit to this."

Susan C. Winckler:

So getting over that perhaps a decade ago when we're like, "I'm going to keep everything on a flash drive and carry it with me."

Dr. Raju Rayavarapu:

For the FDAers in the room, iron keys.

Susan C. Winckler:

Ah, yes, yes. Iron keys. So who wants to be next in calling out a challenge? Go for it.

Dr. Rebecca Nebel:

I'm going to build on two things. One on the, I agree, the technologies here, we're using it for Bain. [01:02:30] We're also using it now for actual implementing changes and real products in healthcare. Just putting my policy hat on because that's my job. I think some of the barriers are the policy and legal requirements, and not necessarily that they're obstacles, but things we need to think through in terms of, we were talking about data residency requirements and records retention and things [01:03:00] like that that may be different between the global jurisdiction. So just working through how can we navigate those and still build on using these cloud platforms to do regulatory review and submissions, because right now that can prevent some useful cross-border exchange or data reuse. So just being mindful of that and again, thinking about it from building that into the beginning [01:03:30] when you're thinking about this new way of working.

And then the other thing that was brought up in Patrick's initial presentation is the change management aspect. This can be a new way of working for sponsors, for regulators, for patients. And so I think it's going to take... And there might, in working in this kind of concurrent, collaborative review process, maybe there's more initial project management, coordination that's needed up front. So it's [01:04:00] really about building that confidence that we can deploy these, that we can move towards more routine way of working. And so just training and everything that you need to deploy change management in a company and have your institutional readiness is going to be really important here.

Susan C. Winckler:

So I think we're up to three, because we started with trusting data versus documents. Then you threw in the change management and also, oh, the policy [01:04:30] component, like the data residency

requirements. Talk a little bit more about the data residency just as an example of a policy to work through.

Dr. Rebecca Nebel:

So not the expert, but different countries might have certain requirements that the data has to reside in that physical space. And so when we're thinking about clouds and how to overcome that, and I think maybe Julian was bringing this up of [01:05:00] making sure their systems are interoperable with maybe a cloud system to be able to overcome some of those barriers and have the data officially reside in that specific territory.

Susan C. Winckler:

Yeah, yah, because it is sure a lot easier to do that if it's an actual physical piece of paper or even a digital paper.

Dr. Rebecca Nebel:

Or even a [inaudible 01:05:21], right. Yeah, exactly.

Susan C. Winckler:

Because you can save it. Julian, do you want to pick up on that, or Sachin, did you lean in before? Go ahead, Julian.

Julian Beach:

No, thanks Sachin. [01:05:30] I'd just like to build on that, and I suppose my comment was really going to say that we need to be looking at this as a win-win for all the stakeholders involved. And I think that we have to look at it from a point of view that say for data residency requirements, me as a regulator, and I'm sure other regulators, Sachin will support, that if I was to say to my government ministers that I couldn't [01:06:00] get access to what was licensed in the UK because it was on a global cloud somewhere, that would not be an acceptable answer. And it's because if it was a disconnection break.

So I think that, for example, MHRA systems are all in the cloud now. So it's not necessarily thinking about that this is a cloud or a lack of ability to be in the cloud. It's about the [01:06:30] Ragu from the point of view of how do we have interoperability with data and the sharing of data between the different organizations such that it is that understanding that it's what happens in each regulator and how you then have a hosted platform which will enable that transmission of information. That, from a regulator point of view, my point of view, is [01:07:00] where I see the value in terms of that sharing, which is a slightly different perspective than if I put my hat from my previous life in industry where you're looking at it from one company getting my product change license or my product license globally. So there's different dynamics at play here.

So I think the take-up of this has been relatively slow because we haven't got the right solution yet. If we had the right solution, we probably [01:07:30] would be further on, which is where there's a lot of activity going on with ICH. FDA I know are looking at this very closely. We're looking at this very closely

in terms of designing where does that sit? So for me, it's enabling this. So I would summarize it in, we need to be winning for patients, we need to be winning for companies, but we also need to be winning for regulators. And that last bit, I'm not sure we are yet with the solutions that we've got [01:08:00] proposed. And there are elements of these things which will build, and there's good work going on, but I think that still hasn't yet got it. So I think that win-win is for me where we need to be focusing.

Susan C. Winckler:

That's really helpful because you do have to have a win for regulators to have the enthusiasm to pursue this. Sachin.

Sachin Shah:

No, absolutely. I think you really hit the nail on the head, Julian. [01:08:30] And one of the temptations that we all have to do, especially as technologists and regulators, is we're not going to win everywhere, everything all at once. We need to stack our wins. We need to find small wins that build confidence across the board, across everybody in here: technologists, regulators, sponsors, advocates and so on. And once we start stacking smaller wins, people will start to come along and you'll build that [01:09:00] trust. And this solution isn't going to get superseded by something else, the next shiny toy or whatever; instead we're able to build a solid foundation.

And I think a lot of that work is getting done in international bodies. It's getting done in collaborations like public-private partnerships and so on. And we're starting to see the beginnings of an ecosystem where people can say, "Okay, this is where my piece fits." Whether you're a regulator, whether you're a sponsor or someone else, [01:09:30] another stakeholder, you're able to see, "Okay, this is how I can win and this is how I can help someone else win." And again, like I said, I'm going to go back to stacking the small wins and just keep building on them one at a time.

Susan C. Winckler:

With this particular attention to what is helpful to the regulator and the broader regulatory community.

Sachin Shah:

Exactly. Exactly right.

Susan C. Winckler:

Yeah. Rich, what would you illustrate as a challenge here that we need to be sure?

Rich Brennan:

Yes. So first I'm going to agree [01:10:00] with my co-panelists as far as trust matters, intellectual property matters, regulatory readiness matters. But I think of it this way, what are we leaving off the table by creating such complexity? Meaning that why do we make it so difficult to have people actually play in this space [01:10:30] from everybody? And from the patient perspective, I'm really cognizant that we don't want to then burden the patients with how they participate in this because that's where the

data, the research, and the resources that are needed as far as if we are trying to meet this problem, we are looking at it like here in this tiny, I guess I have a water glass [01:11:00] over here, this small teeny water glass when we could be looking at the Pacific Ocean.

But because we have things like regulatory readiness things to meet, and intellectual property things to meet, and privacy to meet, and trust building to meet, that is creating a lot of barriers. But I'm going to, in some respects, I'm trying to give clean examples. So one of [01:11:30] the things I've been working on in following is how to better enable patients to share their data. In an ALS patient, after their diagnosis, they're viable for about six months to participate in a clinical trial and then they are off a cliff as far as viability to be able to enroll in a clinical trial.

If that patient [01:12:00] is matched with a clinical trial, that will be their one and only clinical trial in their lifetime. Their data is going to be captured at that instant and that's it. So that's a problem. What I'm trying to work on is things like how do we necessarily unlock data so that indeed, if you have data and you want to share it with let's say a number of universities, [01:12:30] a number of clinical trials, a number of places with the FDA or NIH and something that's viable for that use, how can we make that happen? One of the projects that I'm working on and following is called the Vulcan Interoperability Bridge, which is basically it's a patient repository for data.

So they can take their electronic health record data [01:13:00] and put it into that and have a place that all the divergent places that they go from their specialist to their primary care to the clinical trials they're participating in and so forth has a place that their data can live. And then, actually, they can then go through a menu and say, "I want to be able to share my data, yes, with the Mayo Clinic or Johns Hopkins or with all these different places that actually [01:13:30] have the need for that data." What that does in the rare disease space is you take a patient that is viable for just that one clinical trial, if they make it into the clinical trial, and you unlock that data and the opportunities for that data and the learnings behind that data. That's what we need to do because we have in rare disease, there's 10,000 rare diseases and in some respects, some of those rare diseases are talking [01:14:00] about a dozen patients.

So how to necessarily we unlock that data and make it more resource rich is indeed a problem to solve. And I know that there are great opportunities to solve these problems. It's going to, again, take a lot of smart people and trust building and sort of collaboration so we can have de-identified data so that we're not worried about intellectual property. We can actually, yes, we can make this data [01:14:30] viable for regulatory ready tools as well. But all those things need to happen as far as to make this ecosystem sort of unlock what we need as a country to necessarily go from my water glass to the Pacific Ocean.

Susan C. Winckler:

But still be consumable. Yes. But what I hear you saying there, Rich, too, is that perhaps you mentioned Project Vulcan?

Rich Brennan:

Vulcan [01:15:00] Interoperability.

Susan C. Winckler:

Vulcan Interoperability, which might have lessons for us on thinking about patient authorization for reuse and getting over some of the policy challenges. So maybe there's opportunities to learn from projects like that.

Rich Brennan:

It's a global effort too.

Susan C. Winckler:

Yeah. Yeah. Is there opportunity to learn from something like that and apply it here as we think about the policy challenges?

Dr. Raju Rayavarapu:

Yeah, absolutely. And again, this is [01:15:30] more for the policy folk in the room, but-

Susan C. Winckler:

Technologists can talk policy. It's completely fine.

Dr. Raju Rayavarapu:

Again, we think about policy a lot too, how do we do this? But the bigger thing is that to Rich's point, if you meet somebody that is suffering from a catastrophic rare illness, they, if given the opportunity, do want to participate, do want to share their data. So again, if we move towards, and Julian, your point's well [01:16:00] taken, if we move towards an environment that allows us to do that and allows us to, again, have that interoperable data moved between environments so that to Sachin's point, you can actually say, "Hey, I did this work using these tools. And if you do the same thing in your variant of this that holds together with all of your residency requirements, policy requirements, and the patient's able to share the data." I mean, this is how we get towards that idea of accelerated [01:16:30] development.

And again, the silo problem is a real challenge. And I don't think anyone, if you ever describe the silo challenge to anybody in terms of data, no one's going to be like, "That's exactly what I want." Everyone's going to be like, "That's ridiculous. Why does the world work that way?"

Susan C. Winckler:

Why do we have those data silos?

Dr. Raju Rayavarapu:

Right. And so I think the Vulcan Interoperability Bridge is a great example of that where patients are willing to, again, with the appropriate protections [01:17:00] around their data and ensuring that their data is shared effectively and appropriately only with those people that they want to share it with. That's the whole Vulcan idea. They're willing to share their data. And I think that researchers are willing to share their information as well. Sorry. Rich.

Rich Brennan:

And it's an HL7 project, so it eventually will go through the actual naming. It's an API. So it will be a standard. So we will have a standard that can be used globally to be able to do this. So I think that's an important mention.

Susan C. Winckler:

Well, so let's [01:17:30] build on that. And we have time for one more round from everyone, and you have more than a minute. I don't have a timer for you. But I want you to, thinking about that, where there are lessons that we can learn from other places or just lessons we can learn from the existing efforts that can accelerate our future efforts. I would love you to highlight something that you think about in the space that you want to say, "Yes, here's a lesson we should be sure to learn," [01:18:00] or highlight something that you've heard in this conversation that you want to make sure we carry forward. You each get one last comment, but again, you can take a couple minutes. Sachin, you get to go first.

Sachin Shah:

Sure. Thank you. Actually, I want to come back to what Rebecca said about change management. This requires a lot of change for a lot of people and to think about different ways of doing things that are going to be, I guess, [01:18:30] strange and kind of uncomfortable at first. And I think all of us need to embrace that bit of being uncomfortable in service to a larger goal of accelerating cures and improving human life. And I think that's an area where, whether myself as a regulator and as a technologist or as a technology company or as a sponsor or whatever, we all have to keep in mind that we're going to ask other people to do other things [01:19:00] and vice versa. They're going to ask us to do other things. We all have to embrace that bit of discomfort. And I think once we get past some of that, it will be a more robust ecosystem for everybody.

Susan C. Winckler:

But, right, it's difficult to change. Right. We don't wake up in the morning and say, "Gosh, I hope that I'm a different person today or that someone makes me be a different person today."

Sachin Shah:

Well, I think that's the part. A lot of times change comes because of change in your external circumstances. Right?

Susan C. Winckler:

Right.

Sachin Shah:

[01:19:30] And the risk of embracing the risk of change is more rewarding than the comfort of staying the same.

Susan C. Winckler:

Yeah. Yeah. You mentioned Rebecca. So Rebecca, you get to go next.

Dr. Rebecca Nebel:

Great, thanks. Yeah, so I think just want to leave with, I think there is an evidence base that's beginning to build, especially thinking about these pilots that are being done in the cloud and this concurrent reliance way of working. There's over 50 pilots [01:20:00] actually that have been completed or underway. I think a lot of them in the post-approval change space, but we can leverage lessons learned from them. And so we need to continue building that evidence base, demonstrating value that will help with the change management and help establish these wins for everyone, for regulators, for sponsors, for patients, for the technologists, so that we can try and move adoption forward, move this more into a routine way of working and share what's [01:20:30] working, what's not working so that we can learn where the friction points are and what we need to do to iterate, build on these successive wins, showing the efficiency gain so that we can move towards adoption.

Susan C. Winckler:

So we need to continue to share what's working, what's not, and share that openly. Julian, would you like to go next?

Julian Beach:

Yeah, sure. I mean, for me, I think we've got to start from [01:21:00] some real positives. The regulators are collaborating on a number of things very regularly, and this is one of those areas where we do see that there is real change. So I know the ICMRA executive committee we're looking at this, that's obviously spawned work within the ICH and the management committee of ICH. And that's something of which MHRA and other regulators are actively supporting. And [01:21:30] I think it's then looking to see how we can drive that collaboration so that as we were just talking about the real-time reviews, the reliance reviews, but the collaborative review so that we can then make sure that we have each of those bits of it understood properly.

And I really like, I think it was Richard's comment about that it's not the technology that we've got, that there are some things that [01:22:00] we need to step back a little bit from the technology and figure out exactly how we want things to work so that that can then say, "Have we got these right solutions?" Because if you go back and say the three problem statements that the panel's been discussing today, for me, one are sharing data during early stage research, so in clinical data. One is how do you share things which fail? And then the third is how do you [01:22:30] have collaborative review?

And so if you think about it in those buckets, I think for me, we need to have clear actions in all three. They may overlay because ultimately we have a CTD system version four, which is rolling out now. We will then think, okay, how long will that last? CTD322 ran for [01:23:00] quite some number of years, but would the next CTD version when we review M11 and M4Q and those others, will that then actually take away the requirement for structured data in such a way that you're not paperizing the data transfer between systems?

So it's then thinking about, again, that real time submission to whomever needs it to run those trials, make decisions, and then [01:23:30] ultimately, and I'll put a little bit of a shout out, but think about MHRA's 2030 strategy, which is about proportionate review, but it's about doing it for patients so that we shorten that development cycle so that how we can take years out of that development cycle to reduce cost, reduce, hopefully, manufacturing cost, but then also then ultimately the price paid by each system, which will then improve take up.

[01:24:00] And we can get all the medicines we want to the marketplace, but if we can't get it appropriately funded, and forgive me if I'm wrong, but even in the US, there are funding challenges. If you have a novel therapy in the rare space, 3, $4 million a pop, insurers are declining to pay in some circumstances. And that's where we have science which is already available. So it's not saying that there is something which [01:24:30] is wrong with that, but we need to be accelerating the innovation price drop as more things will come, more patients could be treated with similar practices in different diseases, that will then enable the take-up for patients to be that much quicker and that much faster, both in the US and globally.

Susan C. Winckler:

Yeah. Yeah. And then it strikes me too, we may also have a data rich environment that would be helpful for payers to better understand the [01:25:00] performance of products too looking forward, but that's not our focus today. Rich, what would you highlight?

Rich Brennan:

Well, the first thing is, and my recommendation for Patrick and as far as the group is I know that it was, I think number 12, engaging the patient on the list of things to do, move that to number one. And so I think that, again, the barrier is not the technology. We have now the resources [01:25:30] in AI and SI, whatever you want to call it, to unlock things that are extraordinary as far as doing things that are assisting human intelligence, that are be able to mine this data like never before. So that shouldn't be a barrier in any respects.

But what we have to do is ask ourselves, what is this empowering people to do? How are we using these opportunities to build trust? [01:26:00] So from a patient perspective, it might be that they are being able to participate in clinical research or find a clinical trial. For a researcher, it might that they understand the disease better or learn why a treatment works on some people and why it doesn't work on others. It might be pharmaceutical companies trying to understand how does this treatment, how can we necessarily, I guess, utilize [01:26:30] a clinical trial better and shorten the timeframe that we're actually in clinical trial to bring a treatment faster to the bedside?

There are problems that we can't even conceive of now that we're going to be able to approach like never before because we have these tools. But again, don't lose sight of the fact that in order to make this meaningful, we need people because that's where all the data lives [01:27:00] is the people that are willing to come across the globe to necessarily say that, yes, I want to avoid this. And somebody with ALS says, they all realize that their disease is terminal. Every piece of data that they share at this point is not necessarily benefiting them. It is benefiting somebody that's next in line with that diagnosis. We got to get to the point where indeed that is meaningful so that we no longer have [01:27:30] to tell

somebody with ALS, "Indeed, everything you're sharing is somebody that's going to benefit down the line. Guess what? What you're sharing is benefiting you now."

Susan C. Winckler:

That's putting down a marker for where we might go. All right, Raju, you get the last word.

Dr. Raju Rayavarapu:

Oh, boy. So Rich, again, every time you talk to patients that have rare diseases, it's sort of like the resilience and just the willingness to help their community is just incredible, right? And that's something that, again, [01:28:00] I think we all should really take to heart and think about when we think about this, because as much as we may be working in our specific organizations on things, at the end of the day, we're working towards the betterment of health in some way, which ultimately impacts the patient.

And again, everybody on the panel and the presentation before laid out so many really useful things. And so I guess the, and I'm only saying this because Rich is the one who brought it up, secure APIs, [01:28:30] standardized APIs for information exchange. A lot of the work that we did and were able to do was because we worked with DMS, CMS systems that had good secure APIs so that we could grab the information. Julian was mentioning interoperability between their own systems and other systems. So if transactional API systems that allow you to move information from one location to another securely and then between information systems. So I'm going to give the very nerdy choice of secure [01:29:00] standardized APIs.

Susan C. Winckler:

All right. Nerds rule the panel. We'll take it.

Dr. Raju Rayavarapu:

Unfortunately.

Public Comment

- **What is the value of global data harmonization?**
- **What are the primary barriers and potential solutions?**

Susan C. Winckler:

So please join me in thanking our panelists for helping us have this first discussion. And thank you, Julian, for joining us virtually. We're now going to move to the public comment section. So as the panelists leave the stage, I will have us turn to, we have some folks from both virtual and [01:29:30] in person who will be providing us public comment and it requires a bit of logistics to move through the system.

And so let me do some of those logistics. So we have two topics for the public comment and we will proceed in the two topic order. For those who are providing public comment, I will provide a rolling list of three speakers. You'll hear your name twice before I call [01:30:00] on you to present your remarks. We will begin with public comment by announcing our first three commenters are Upendo Chenya, Carly McWilliams and Tingting Zhang.

So that's the first time you've heard your name. You should be prompted in the webinar to join as a panelist. Please accept that prompt. When the commenter immediately before you concludes their remarks, please unmute yourself and turn on your camera. Our producers will highlight you and then you may proceed [01:30:30] when you're introduced to speak. There will be a three-minute countdown clock that you are able to see. At the end of three minutes, your audiovisual support will cease and we will move to the next commenter.

We are going to use the same approach for our in the room commenters. You will use this podium on stage. And I will just remind our commenters that no one from the Foundation nor the FDA nor our speakers will be responding to the public comment. This is a time that's intended to be an open forum for members of the public to share their [01:31:00] perspective. So again, in topic one, we'll start with topic one, which is the primary barriers and potential solutions of global data harmonization. Topic two is, these are in a different order on my sheet, but that's okay. Talk about either the barriers or the value and we'll know which one that you're addressing. So we will start with our first set of commenters, Upendo Chenya, Carly McWilliams and Tingting Zhang. Commenter [01:31:30] Chenya, are you ready to proceed?

Upendo Chenya:

Yes.

Susan C. Winckler:

Let's get you on the video feed here in the room and then we'll have you go ahead.

Upendo Chenya:

Okay. So I'll present to you, first of all, thank you for the opportunity to comment on the value of global data harmonization. [01:32:00] We know that global data harmonization cut across different agencies. In regulation of controlled medicines, precursor chemicals and synthetic drug is very important to achieve public health safety. So global data harmonization is not simply a technical exercise, but it is a public health and international health security necessity.

[01:32:30] Ultimately, the object is not simply to exchange more data, but to ensure that information is comparable, reliable, timely, and actionable across borders. So when we look at areas on illicit drug supply, we know that illicit drug supply chain do cross borders. But the information used to monitor them is [01:33:00] often recorded in different formats with the different identifiers in different timelines. We all agreed that when data cannot be compared correctly or exchanged quickly, warning signs can be missed and cause delay in response in treatment or handling a situation.

So [01:33:30] to achieve control of control medicines or precursor chemicals and other kind of drugs, global need to transform fragmented nation information into coordinated global action. This requires common data standards, secure information exchange, ensure integrated systems and timely alerts. So in conclusion, global [01:34:00] data harmonization enables to detect drug related threats area, verify legitimate trades, recognize new trends and suspicious transactions, prevent diversions, strengthen collaborative international responses, and protect legitimate access to medicine easily. Thank you.

Susan C. Winckler:

Thank you, Commenter Chenya. Our next commenter will be Carly McWilliams, [01:34:30] then Tingting Zhang. Then we will turn to topic two and we'll hear first from Manjari Narayan. Commenter McWilliams, please proceed.

Carly McWilliams:

Thank you. Thank you for holding today's meeting on a topic that's become a daily part of our work at Roche Diagnostics. Previously, I worked at FDA and the Energy and Commerce Committee where we had many conversation that included ideas about the value and power of cloud-based submissions in the future. And now I think fortunately today [01:35:00] we're significantly closer to making it part of our present. To start, I wanted to start with a quick anecdote about a former senior leader at the agency who recalled having an NDA delivered via truck to her house while she was on maternity leave.

Advancing care for patients will require coordinated on a global level and forces us to think differently to ensure the regulatory steps we take are harmonized to bring the best value to patients. Redundant testing and administrative differences [01:35:30] should not be the reason for delaying access to patients, and cloud-based solutions are the tangible solution to this very real challenge. Cloud-based submissions can serve as the common application for diagnostic evidence, analytical performance, clinical validation, and software integrity can be uploaded and allow submissions to be reviewed by multiple regulators simultaneously maintaining their sovereignty and building bridges with other regulators.

Critically, cloud-based [01:36:00] submissions would deliver direct value to the reviewers. Today, highly trained regulatory reviewers spend substantial time on administrative friction tasks, manually extracting data and cutting and pasting tables from electronic dossiers into review memos. In a modern cloud-based data architecture, verified data blocks can automatically populate review templates, freeing regulatory scientists from administrative paperwork and letting them focus their expertise [01:36:30] where it matters most, evaluating benefit risk, examining complex clinical evidence, and safeguarding patient safety. It really comes down to the question of whether we can afford to not advance cloud-based submissions and global harmonization.

When data is standardized and accessible in the cloud, regulatory reliance and work sharing become practical realities, not just policy aspirations. Reference agencies can review primary data, and global [01:37:00] partners can collaborate contemporaneously without duplicating efforts. By partnering together, we can modernize the submission ecosystem and accelerate patient access across the globe. Thank you so much for letting me speak today. I appreciate it.

Susan C. Winckler:

Thank you. Our next comment, which will be the last on topic one, will be from Tingting Zhang. Our queue then includes Manjari Narayan, Javid Rahaman, and Ramona Wells. Commenter Zhang, please proceed.

Tingting Zhang:

[01:37:30] Thank you for the invitation. I'm a cancer survivor and patient advocate, as well as a founder of Healthcare US-based nonprofit supporting foreign-born residents here, including more than 24 million naturalized US citizens. My comment will cover two aspects on the value of global data collaboration. One on population representation and the second on post-marketing toxicity monitoring. Our nation [01:38:00] has a population with very diverse ethnic backgrounds with many of us trace our ancestry to different parts of the world. It's wonderful that the FDA are now requiring regulatory approval data more representative of our population.

However, limiting data collaboration within our borders pose challenges to those of us who arrived recently and have different etiology of diseases from the current majority. For example, Hep [01:38:30] B viral-related hepatocyte carcinoma are considered a rare disease in the States, but a much more prevalent deadly disease in other parts of the world. Asian Americans, especially recent immigrants, are disproportionately affected and our local population may not be large enough to support expedited research.

It would make sense to work together with other nations, either in our country of birth or in the countries with [01:39:00] similar immigration patterns to collaborate on global data access and harmonization, even for ethnic groups where our birth countries have stringent legal restrictions on data access, China, for example. There might be 50 million people in diaspora spreading all over the world that can be tapped into. I'm also leading a patient-led initiative to better understand toxicity associated with cancer treatment to improve [01:39:30] care, with the recent approval of more effective yet highly toxic treatments.

We are thankful that our inquiry to FDA about the public access to our congressional mandate that active risk identification analysis was directed to IMET's program at the Foundation, and we believe that collaboration with similar capabilities such as Darwin EU or other similar active monitoring systems can generate valuable knowledge to improve care of patients [01:40:00] regarding cancer treatment toxicities around the world. We are happy to contribute to discussion either with patient perspective or as a use case of patient access. Thank you.

Susan C. Winckler:

Thank you. We'll now turn to topic two. We'll hear first from Manjari Narayan, then from Javid Rahaman, then Ramona Wells. Commenter Narayan, please proceed.

Manjari Narayan:

Thank you for the opportunity to comment. I'm Manjari Narayan. [01:40:30] I'm an independent researcher and consultant working in AI for science and statistical innovation and drug development. I hold a PhD in statistical machine learning and I've previously held research roles at Stanford Medicine and Biotech Startups, but today I'm speaking strictly in my personal capacity. I envision a future in which

patients, doctors, and concerned family members can inspect and reevaluate evidence behind treatment decisions. And my comments today concern [01:41:00] the infrastructure needed to make this possible.

Global data harmonization with modern AI technology can be transformative for patient-focused drug development, not just in increasing access to diverse patient populations for rare genetic diseases, but also in enabling a far richer and deeper measurement of patient-centered outcomes and in gathering evidence from countries where approaches to treatment of complex disorders may be complimentary or innovative or different. [01:41:30] But they also come from different pragmatic and real world settings.

These are the exact settings where the approach to harmonization will also require innovation in evaluation and regulatory science. There may be context specific dependencies that one stakeholder doesn't think to articulate, for instance, different forms or reasons why patient-centered outcomes may be missing or mismeasured across countries or hospital systems. The International Conference on Harmonization developed the [01:42:00] SDMAN framework for clinical trials to bring a more rigorous apples to apples evidence comparison for clinical trial evidence alone. And similar efforts are already underway for general real-world evidence generation.

But analogous to these developments, we need to be prepared for even more novel harmonization protocols and innovation to harmonize global real-world evidence across countries. So in building on the things already specified [01:42:30] in the report in the modernizing global data access, I think we also need to create the technical infrastructure to support rigorous evidence generation in these settings. And so this would involve not just federated data access, but federated protocols, the capacity to execute question specific harmonization and analysis protocols informed by ongoing and real-time innovation in real-world evidence generation.

[01:43:00] And second, AI can enable novel forms of patient-centric and participatory evidence generation. For example, certain stakeholders, be they medical reviewers or patient stakeholders, may prefer to evaluate treatments using alternative patient-centered outcomes that require a different protocol. Can the proposed modernization infrastructure support that where the data permit? In short, we shouldn't miss opportunities to enable an abundance of rigorous evidence generation in patient-centered ways. Thank you.

Susan C. Winckler:

[01:43:30] Thank you. Our next comment will be from Javid Rahaman, then Ramona Wells, and then our queue we have Terry Conneran. Commenter Rahaman, please proceed.

Javid Rahaman:

Hi, thank you. So my name is Javid Rahaman. I had a working relationship with FDA during my tenure of Oracle Health and Life Sciences Division. I'm a doctorate from Golden Gate University. My message here is simple. Harmonization works when we encode the trust into the data [01:44:00] itself, not the wrap around it. So during my 10 years of life census experience, I see that harmonization is always as a wrapper around the data, not inside it. The reason I have mentioned it during my research with my recent doctorate is when we put the harmonization inside it it travels through it. When we wrap around

it might expire or it might travel across the border. So that's the reason I have articulated in a way that I give [01:44:30] a simple message as a solution.

Three barriers slows the access, the patient access, and I have three fixes which tells the practical fixes. One, a digital paper sponsors still rebuild the same submission for every regulator, the documents as a documents rather than a data. So the fix is always versioned core dossier structured on a eCTD 4.0 [01:45:00] on ISO IDMP standards for a product data. So these are documented well, but during the execution, I found so many flaws, which I will be volunteer to help for the FDA to work with. And the second is data sovereignty. So when the data travels cross border for the FDA Sentinel System, an EU already has a Darwin EU, so it is a combination of FDA Sentinel and Darwin EU has to collaborate it in a work [01:45:30] or runs through a local protocol data before it decides where it transfers and where it gets copied. So on the third is a trust in province and AIs. When we regularly use AI touches the data of anything related to the FDA, it knows that it should work within the province. So because AI could have multiple reverences, it could copy, it could have a marking and a data. So we have to be very careful [01:46:00] where the AI models touch any FDA relevant data.

So my proposal is a rare disease pilot. So FDA and two partner regulators review one core dossiers together and supported by federated evidence with the full protocols in place. So thank you so much. The reason to articulate in this way was the data this governance has to put inside the data, not a wrap [01:46:30] around it. So that's my simple message to the entire panel. Thank you very much.

Susan C. Winckler:

Thank you. We will next hear from Ramona Walls, then turn to our in-person comment with Terri Conneran and Luca Emili. Commenter Walls, please proceed.

Ramona Walls:

Thank you so much for this opportunity to speak on behalf of the Critical Path Institute. Now more than ever, we have the opportunity to create a harmonized data access and sharing ecosystem. The challenge is not simply that people or organizations [01:47:00] aren't willing to share data, instead, the structural and methodological gaps in data sharing ecosystem make harmonization harder than it has to be. Three gaps in particular create friction and discourage participation, but there are also opportunities for action. First, drug development data remain dispersed and heterogeneous, but today's harmonization methods are too manual and expensive to make data interoperable and usable at scale. Even when data can be integrated and have been integrated to create evidence, [01:47:30] there are not yet sufficiently mature standards to allow evidence generated in one context to be understood and appropriately evaluated in another. The Critical Path Institute... Apologies. Finally, cross organizational and cross jurisdiction we use depend on trust.

That trust is built by implementing transparent and predictable rules for data access, appropriate use, and decision making, and the rules do not yet exist for today's evolving data landscape. The Critical Path Institute [01:48:00] or C-Path is uniquely positioned to help because we bring together data harmonization, regulatory science, and trusted neutral governance in one organization. C-Path builds scalable standard-based tools and methods that can harmonize heterogeneous data and preserve that data scientific meaning and provenance. C-Path develops and contributes to standards and structures that allow evidence to be represented, traced, evaluated, and reused across regulatory use cases.

[01:48:30] As a community, we need to extend those standards beyond traditional tabular clinical and preclinical data to encompass emerging types, data types such as digital and real-world data.

C-Path has decades of experience building neutral consensus-based governance that's enabled trusted access to and reuse of data and evidence. We can apply that experience to help create governance models that are flexible enough for new forms of data sharing while remaining transparent and equitable across organizations [01:49:00] and jurisdictions. These capabilities will become even more important as regulatory science evolves to meet modern drug development needs, including the evaluation of increasingly individualized treatments. The future regulatory ecosystem must be able to learn across highly heterogeneous data cases while preserving the differences that matter scientifically. Global harmonization should not mean focusing evidence, coursing evidence into uniformity. It should mean creating the standards, tools, and governance [01:49:30] that allow diverse evidence to be evaluated and reused at scale. Thank you.

Susan C. Winckler:

Thank you. Our next commenter will be Terri Conneran and then we will close with Luca Emili. Commenter Conneran, please take my podium.

Terri Conneran:

Start the count-down?

Susan C. Winckler:

Yes.

Terri Conneran: Okay. Hi all. I'm Terri Conneran and I flew in here last night from Charlotte, North Carolina because I think this is important enough to be here and I want y'all to see me [01:50:00] and be here in the room. Where we've come and where I've seen, many of us in this room have seen is we've gone from some crazy idea that turned into the internet and the worldwide web. And at the same time, it took something as simple as phishing and made it something evil and wicked. And this is what I'm concerned about what may possibly happen with AI. Now what I see happening across the continuum is the same y'all do, access, barriers and consequences. And I think that that's incredibly [01:50:30] important what brings the whole patient's point of view to it because that's what patients are looking for. I'm a 10-year lung cancer survivor, founder of an organization in 117 countries around the world that has to do with many common cancers, lung cancer, colon cancer, pancreatic cancers, and many others.

And although I recognize the importance of what happens across the rare diseases, because actually I have a very rare type of lung cancer, but it also means that what applies, I don't want to see something [01:51:00] that goes from being over-engineered into truly practical because what really matters is better, faster, cheaper, and now. And how I mean that needs to be applied is for the patients, for the patient's purpose. And so as much as I love, and I mean I love a good gadget and I love the technology and I'm just mesmerized by all that you've all brought into this space as far as looking forward and trying to build in the confidence, the trust and the purposes for it, I want you [01:51:30] to recognize

specifically how each individual person is incredibly important. And as we're moving towards personalized medicine, each one of us is going to be rare because it really is going to be end of one.

I want to make sure that those of us are protected because when I came into the cancer space as a dumb patient, I found out that I was willing to trade absolutely anything to be able to keep moving and stay alive through my kids' graduations and their lifetimes. And at [01:52:00] the same time, I also want to be able to protect the future because I don't know what may possibly happen as a result of the cascade impact from that for the kids, grandkids, if I ever get any, great grandkids and so on down the line. If you want to know, understand what my whole point of purpose is, it's a little bit of a warning and a little bit of a heartfelt mom, mom to person. We all had a mom at some point in our lives and tell you how incredibly important that is and warn you about [01:52:30] the impact that y'all know may possibly happen from something as simple as a Cobra Effect.

What was well intended with monetized incentives turned into a problem when people started creating a bounty on the head of Cobras and they started turning them into the government for money, they bred them and the snakes bit them back. So thanks for having me here today.

Susan C. Winckler:

Thank you, Commenter Conneran. Our final comment will be from Luca Emili, please proceed.

Luca Emili:

[01:53:00] Good afternoon everyone. I'm the founder of InSilicoTrials. We use simulation to support drug development. As probably you were aware, ARPA-H recently launched a program called SURPASS to reduce the time of drug development from 10 years to 4 years. They're supporting this program using simulation as one of the step and AI to accelerate the clinical trial, both in the use of [01:53:30] simulation or in the creation of simulation and validation of simulation as well as in the acceleration of clinical trial through AI data are totally relevant. The point is that more and more AI is not just one single technology, but it's a technology coming from many different stakeholders. Could be commercial AI, as you know very well, OpenAI or cloud, or could be open-weight models developed by a company around the world [01:54:00] or it could be some open-source component that is coming from other provider or other groups of developer.

So this incredible number of technologies are taking the data sharing to another problem, that is the governance of how these tools are using data, how they are accessing data to create new outcome. So it's very relevant that a new approach linked to the AI [01:54:30] control and enforcement is in place once this data start to be built inside AI as is happening for autonomous driving, once you fix a problem on a single AI managing one car, the day after you're going to see this fix in all the other car around the world. So AI is distributing this kind of data in a [01:55:00] secondary way of data sharing that is becoming more and more important. And the way that now we're thinking of data access and data sharing is going to be very, very quickly changed by the fact that embedding just one time this data inside an AI tool, this become the owner sometimes or any way the governor of this data and the sharing of this information through a mechanism of generating outcome, executing simulation or creating new tools of simulation [01:55:30] will become very, very relevant.

And so the actual access to data by humans will be completely overcome by these systems that will embed value and data at the speed that for human is not available. So another point on the to-do agenda to be considered in view of the clinical development and technological development. Thank you.

Discussion #2: Pivoting From "Digital Paper" Exchange to a Trusted, Cloud-Enabled Regulatory Data Ecosystem...What Will It Take?

Crystal Allard, MSIT, Veeva Systems, Inc.
Hussein Ezzeldin, PhD, FDA
Sandra Krogulski, MA, Bristol Meyers Squibb
Rebecca Li, PhD, Vivli
Andrew Robertson, PhD, JD, Denali Therapeutics
Mariann Yeager, MBA, The Sequoia Project

Susan C. Winckler:

Thank you. That concludes [01:56:00] our public comment portion of the meeting. I hope you all join me in thanking our public commenters for preparing and delivering those remarks. If your photo is on this screen, you should proceed to the stage because we are going to begin our second panel of the day and have a conversation about how do we make this pivot from digital paper exchange to a trusted cloud enabled regulatory data ecosystem. So [01:56:30] a reminder to this group now we're talking about yes, we can do this and how do we make it happen? Andrew, you're here and no pressure to live up to that challenge.

I have to give voice because it just keeps resonating in my head about Julian Beach's comment about paperizing and going in the wrong direction. So we want to make sure that we go in [01:57:00] the other direction here. We have another collection of regulator, sponsor technologists and folks who think about this space to kick us off and we are going to start again in the sponsor space. So Dr. Robertson, I'm going to turn to you. You have experience in this transition in leadership positions at both a large and a small medical product developer. So how do you think about this transition from digital paper to [01:57:30] trusted ecosystem from your role at Denali?

Dr. Andrew Robertson:

Great. Thanks again for the invitation. So just for context, not everybody may know Denali. We're about a 600 person company. We've got our first approval back in March and we're now looking global, but I think it really contrasts to the stage of development of my last company, which is 45,000 people, very large pipeline, about 80 countries worldwide. So it's allowed me to look at this from two very different perspectives, [01:58:00] but I'll say this, and part of this is my situation, my circumstance, part of this is me speaking. I'll say pilots can only get us so far, and that's the first thing I'll say. We've been piloting things and discussing these things for about 10 years now. The technology is no longer the barrier. I think we're really looking at processes and not only that, but as we're building these things in the context of, oh, let's taking our time, the technology itself evolves even further.

We start building things for technology that then becomes obsolete. I think we need to learn faster [01:58:30] and I think we need to actually start looking at opportunities to look at live implementation. On that second point for live implementation, I think a big part of this is value or the possible value to a company is going to drive the adoption. If we just say, "Oh, hypothetically, this is going to be great in

five years," great, tell us about it in five years. But I think if we could actually say, "How is this going to actually impact our pipelines, our processes, our development now," it's going to make a big difference [01:59:00] and actually get folks engaged to really start thinking how can we make this work for our company? As a third point, I'll say, and this is something which I actually saw an advantage at being at a mid-size biotech.

I've got a great reg ops team. We're starting to really ask the questions of, as we're in the process of building, can we build for a future state? Can we build for a future state which maybe isn't necessarily document centric, but maybe more data element centric, which means taking documents, [01:59:30] actually being able to do knowledge extraction, embedding them, making them AI ready? And this kind of builds us up to what processes do we want to have if we can actually get that enablement? The term that I keep on pushing is AI native, which is let's actually develop an AI native regulatory function where we're not only looking at how can AI help our processes today, but look at the future state and design our processes around where that's going to be. The last thing I'll say though is all of this we have to do while we're minimizing risk [02:00:00] because change can be scary and the last thing you want to do is try something new and have it interrupt your timeline.

So we have to find a way to minimize risk. How do we actually fall back on our plan submission timeline so that every advantage that we get, every benefit is a value added? And that's just going to propagate, which gets me back to my initial point, which is pilots only get us so far, we need to actually start using this stuff.

Susan C. Winckler:

All right. So we've got the pilot [02:00:30] piece and then the other thing that's floating in the word cloud now is thinking about the AI native and the ability to prepare for this and move forward. So let's get a second sponsor perspective. Senior Director of Regulatory Digital Strategy and External Engagement, Sandra Kokkalski, thank you for joining us. How would you say your experience at Bristol Myers Squibb, similar, different? How do you look at this challenge?

Sandra Krogulski:

Well, first, thank you so much for having me. I think there [02:01:00] are a lot of similarities from what I just heard Andrew describe. And I think for me, the one that really strikes true is that as we are imagining and really creating what this future state of exchange looks like, we are knee-deep in delivering submissions in this digital paper format, right? So as we are building this future, our heads are down and we have a lot of teams who are busy driving towards an outcome of an approved medicine, hopefully globally. When I think about that problem, [02:01:30] I really like to break it down into three layers. We need to think about what those data standards need to be. We need to think about the transaction method and how we can exchange data in a more efficient and effective manner. And then that process layer, which I think you were talking to Andrew, and I think that's where it can get a little more complex.

It's how we then build from a standardized format and how we evolve what those transaction mechanisms to be in a way that allows both the sponsor and the regulator to work in an [02:02:00] effective manner. I think that's where a lot of the friction derives, but that is also where I see a lot of potential and opportunity when I think about what a data-driven future in a cloud-based ecosphere

could really look like. I think that's what makes it exciting and I think that's why so many of us are here today.

Susan C. Winckler:

Yeah, very helpful. I heard you both speak to some of the risk calculus and that there's a challenge in thinking about how far to move forward and how quickly and [02:02:30] saying how much to invest when you have a potentially uncertain outlook for regulatory acceptance, which means it's time to bring in the voice of the regulator. No pressure. So Dr. Ezzeldin, you're director of the Division of Artificial Intelligence in the Office of Innovation and Clinical Trial Modernization at the Office of Medical Policy within the Center for Drug Evaluation and Research at FDA. That is a better FDA title just because you've got it all woven in there. [02:03:00] Would you share some of FDA's thinking? We know we had great input from Dr. Shah on the first panel, but share some more insight in how you think about that risk calculus and what sponsors are considering.

Dr. Hussein Ezzeldin:

Thank you so much, Susan, and thank you for giving an introduction. I was worried I'm going to have to say all this. So actually we are very interested and very excited to see a cloud [02:03:30] solution come to life. This is something that we have been thinking about for a very, very long time. I'm very glad that Julian mentioned M11, and I see a few folks here are ICH joints. I think this is one of the areas that's really very critical, having this ability to have structured machine readable data that can be exchanged. Andrew was speaking about AI native, this is how you build an [02:04:00] AI native data-driven ecosystem, moving from just a digital paper where you start like, "Oh, I have a document of 7,200 pages, what I'm going to do with it," to giving the regulators as well as other entities an ability to just access the data elements that they need and they can work with and also compute on it.

I think that's really very, very critical. I think this is something that's going to be very important and [02:04:30] working on standards like this, M11 has been in the works for many, many years. So we're not just waking up thinking about this. We have been trying to do this for a very long time. Stay tuned, I think the agency's going to do maybe a workshop in the first queue of 27, kind of trying to explain to people what is M11 and how they can use it because there's going to be a lot of change management as people spoke in the first session. [02:05:00] Second are guidances. I think we have a few guidances that either finalized or in the pipeline from a draft to final decentralized trial guidance, a point of care guidance. Those are very important guidances that are going to be bridging this gap and moving us forward.

So I think this is very important as well. And then most of us here heard about Trialblazer operation. And if you look [02:05:30] at it, one of the very important things is that it commits FDA to work on integrating HRs with clinical trials and clinical trials.gov in particular for inclusion and exclusion criteria so you can recruit patients. So this is one of the things that we're also very working on with our sister agencies within HHS as well.

Susan C. Winckler:

Great. So I heard the idea on workshop and sharing and learning more that then I think always helps just [02:06:00] having the conversations and being comfortable with it, guidance documents. And then

clearly the commitment in Operation Trialblazer we know is HHS-wide. And so that's a great opportunity for some of this to extend or to benefit from what other operating divisions, other agencies are doing. Thank you. So let's talk technology. You knew I was coming to that at some point. So Dr. Li, in your role as CEO at Vivly, [02:06:30] which if I understand correctly, it's a Center for Global Clinical Research Data. What would you call out as the most important next steps in our quest for this regulatory data ecosystem?

Dr. Rebecca Li:

Absolutely. So I've just listened so closely on where people are envisioning this regulatory ecosystem going. I want to share just for maybe 10 seconds what Vivly is for those of you who are not aware. So we're an independent nonprofit governance [02:07:00] and technology platform where about almost 60 data contributors, including two of the ones that are sharing the stage with me today, BMS and Denali are sharing their data and other 40 pharma sponsors as well are sharing patient level data with us for the last 10 years. So securely in trusted research environments. So I think one thing that we have learned, and first, [02:07:30] the things that I think I would say are lessons learned for us are designing data for reuse from day one. I think thinking about that trial data that we receive is really built for regulatory submission. We receive the data from sponsors at least after it is gone for regulatory submission.

After that is really a very expensive retrofit, of course. So really the cheapest moment to make data [02:08:00] ready is reusable, is before the first patient is enrolled, thinking about the standards, the informed consent and all of those processes. I think the second is really the governance. Even though we are a technology platform, I would say 10 years ago when we set up Villi, I would say most of the heavy lift is around this trust or governance layer. I've seen many other efforts [02:08:30] and I would say those that are most successful, and there are others other than us, but I think the ones that are truly successful have really put most of their effort around the governance. I'd say probably the right split is maybe 70% around this trust or governance layer and really focused on, especially if it's multi-stakeholder around this governance or trust layer, because we really want to make sure that stakeholders trust the process and we have the harmonized [02:09:00] governance.

I think that's really important, of course, the cloud enabled and make sure that it's trusted. Then third, building on or learning from whatever works now and platforms like ours and others have been around for a long time. I'll give you an example. We have close to 9,000 clinical trials that have been shared with many researchers. And in terms of reuse, I was really struck [02:09:30] by the ALS talk today. We have over 600 publications that have reused the data, and I think looking at reuse and how to enable that is really important. I think many of these research platforms are in play right now, but what is missing is the bridge between the regulatory space and the research space.

Susan C. Winckler:

Okay. So you've been building out the research space and then it's this question, [02:10:00] but you have important lessons learned in trust and thinking about governance.

Dr. Rebecca Li:

Yeah.

Susan C. Winckler:

Very helpful. I'm going to go to the ends of the panel now. I'll turn to you, to Crystal Allard, who is senior director of government strategy at Veeva. You have a little different space in the technology perspective here, so please begin.

Crystal Allard:

Yeah, absolutely. So I just want to start by saying that this year I feel intuitively [02:10:30] more hopeful about data standards convergence and the use of submission platforms than I did last year. So even in just a short period of time, I think having these conversations is really helping drive that. Earlier this year, I heard the head of IT at EMA say that he thought that the reliance pathways, that use of reliance pathways was becoming an inevitability. He declined to mention technology, but I'm going to assume that as the [02:11:00] head of IT that he's thinking about technology, that it's there.

Susan C. Winckler:

Probably.

Crystal Allard:

I also hear from regulators and having worked with them before that reliance pathways can be more burdensome than individual pathways because there's more coordination involved. I think that part of that burden exists because we are not using technology with reliance pathways every time. I think that if we started [02:11:30] to combine the plan for a reliance pathway with the plan for the data that will be exchanged and the platform that it will be exchanged on, we can relieve some of those burdens. There are folks in this room who are starting to share the tangible value that we're starting to see when we do this, when we combine reliance pathways with platforms. We're hearing from Amgen that the pilots that they're doing are increasing speed of medicines to market, the north star. So we're starting to develop [02:12:00] a really good value statement. We are also hearing of note that platform use is driving convergence of data standards.

And this is because people are starting to see that there is value in using a platform and the platform is utilizing ECTD as a standard or other data standards as the platform and other countries who aren't currently using ECTD are thinking about leapfrogging into them. And so we're actually sort of [02:12:30] doubling down on this speed toward convergence of submission standards. We're also seeing that we need to be sure that we're defining value and we heard it earlier, the win-wins specific for every health authority. So not every health authority defines value in these platforms and these pathways in the same way, and we need to make sure that we're defining it for the larger ones because their value statement is bigger and also the less resourced ones. Their value statement is really different. And so we need [02:13:00] to make sure that we're working and defining that tangible value.

It's I think in some cases harder actually to define it for the larger, the FDA and the EMA because they have more resources and they can build their own or the less resources are more likely to reuse. So I think we need to work together as the group in this room to define those value statements for all of the regulators.

Susan C. Winckler:

And I think you might even have teed up one of those value statements for the larger regulators if you combine the reliance conversations with the technology, [02:13:30] that's things that folks have said they want to pursue and then putting them together.

Crystal Allard:

Yeah. We heard data reuse earlier. I used to build review systems myself and I know that gathering that data in a digital way so that you can use it in other places is really valuable. So there's one, Sachin.

Susan C. Winckler:

Noted. Noted. So let's bring on our last voice of the panel and then we're going to make this much more conversational. So CEO Yeager, you're at the Sequoia Project and you live and breathe health information exchange.

Mariann Yeager:

[02:14:00] Yes.

Susan C. Winckler:

In a good way. In a good way.

Mariann Yeager:

That is all we do.

Susan C. Winckler:

But it's applications far beyond what we're talking about today. What can we learn from your experience and think about in this medical product regulatory space?

Mariann Yeager:

There's so much to discuss. All the terms you've been mentioning are very much in our wheelhouse. Just to give a little context, so the Sequoia Project nonprofit public admission, we solely focus on interoperability, [02:14:30] offsetting the burden of government, and we actually work in the real world, make things happen. To give you an example, one of the initiatives we started predated the 21st Century Cures Act. It is the largest public-private health information sharing federated arrangement in the U.S. to the tune of about two billion clinical records exchanged every month. This is across different technologies, geographies, public, private. So it's massive. If you go to the doctor and your information is from a specialist or your lab results, it's because of our work. [02:15:00] The folks we work with. So when we think about what it takes to enable exchange of data, discrete data, because everything I'm talking about is discrete data, the building blocks are having rules of the road.

So everybody understands how and why information is being shared. It's all agreed upon because the regulatory construct is insufficient for information exchange. It's codified in a legal agreement. So folks who want to participate sign up and it's voluntary. [02:15:30] Then you have to agree on the technical requirements. So standards from the lower level transport security content, important. Need testing, need to make sure it works because all of this is federated. You're sharing information seamlessly through automated workflows that you don't have a direct relationship with folks on the other side of it. Governance, you said governance? Absolutely. Not only just oversight of the exchange in case something untoward happens or unexpected because you have to coordinate, but also change management. But to actually [02:16:00] get things working, you can have all the building blocks in place and it doesn't mean it'll be used. So all of this work was based upon and grounded at having a very specific use case that early adopters agreed to support.

The way we've worked is it's a two-year pledge basically to be an early adopter while you build up the building blocks, two years to initial roll out two year scale. And it works. I mean, it does work at scale, but you kind of have to have the value case and the impetus to exchange and it has to be better than [02:16:30] what you have today. The one thing we did learn is just even getting a little thing working makes a big impact because people need to see it real in the real world and then they'll pay attention. And that's kind of the approach we're using to get payers to the table now. There are always lots of reasons people are concerned or questioned about exchange, not just payers, but everybody. But if you can just get a few early adopters and market movers in the game, you'll see it fly. It's amazing.

Susan C. Winckler:

Which is a bit kind of building from pilots maybe do a little bit, but then making [02:17:00] it actually deliver.

Mariann Yeager:

Early production as in this is early production, this is the start, not the beginning and end. We did early demonstration and when you sign up, you commit, you're going to roll it out, period.

Susan C. Winckler:

Yeah. Okay. So let's think about what we heard in the earlier discussion and what you've now just heard from each other and then what you know. Let's do some specifics about who should be doing what and some of it's who is already doing what. I'm going to turn back to you, Crystal, for that. Would you jump [02:17:30] in?

Crystal Allard:

Yeah, absolutely. So I actually was having a conversation just as we came in today about how regulators focus. And so regulators have a day job. Review is their business and thinking about a global submission format and global submission convergence is not necessarily incentivized for them, reasonably, very reasonably. So if it's not them, even though I think their intentions are good and they're very curious, how do we [02:18:00] make it easier for them to then be a part of a global submission standard format that doesn't affect them in a negative way, but benefits them? And who is it that should be doing that? And I think about this all the time. Who is it that could actually be doing this? And I've heard some of the

potential answers today. I've heard people say HL7, I've heard ICH, I've heard ICMRA, I've heard IPRP. I think these are the global groups that include regulators, industry, and in some cases, but not all vendors [02:18:30] and technologists. And they're the ones who can be building this global vision.

I think that should come with a rethinking of how standards organizations think of what a standard is and what a standard includes. And this is because I come from a perspective of technology, spoiler alert, I'm not going to say AI, although that would be the easy answer. It's way less cool than that. I think that standards [02:19:00] should come with global roadmaps, global commitments. I think that standards organizations should commit to...

To put it another way, how might we enable a standards organization like HL7 to create a global standard for use with product information instead of two duplicative ones? I don't know the answer to that, but I'd love to help work on it. So I do think that if we rethink the way that we're building standards, that we [02:19:30] start from the start and ICH is doing this and their CMC standardization, we think about the use of technology and platforms as we're developing a new standard and use that as an assumption. Again, back to that shared vision, we'll actually be building for the future of data exchange. I also think just one last thing is that we keep talking about pilots, so there's a place for pilots, but I don't know that I necessarily think every country has to pilot the same standard separately. Potentially [02:20:00] we could be doing global pilots through these standards organizations and they could be supporting that.

Susan C. Winckler:

And then obviously sharing about the pilots lets others learn versus saying, "I need to repeat it myself."

Crystal Allard:

Yeah. Doing it together.

Susan C. Winckler:

Yeah. Sandy, do you want to pick up on this?

Sandra Krogulski:

Yeah. I think there's a couple places we should really be thinking about starting and maybe building on this idea of pilots is how do we learn faster and maybe fail faster too. So how do we not just to [02:20:30] spin and evaluate, "Oh, it didn't quite work the way we want it to," how do we take that knowledge and then practically apply it? I think being ready to, and maybe as Sachin articulated in that first panel, build on the wins as incremental as they are so that we can step forward and make progress towards the new future is critical. I think building onto that, especially from a sponsor perspective, I think we need to be ready to act on the pilot as well. So we have to be kind of rolling up our sleeves a little bit, putting that governance [02:21:00] in place, adopting and implementing standards like USDM and IDMP so that we can be ready to achieve this future state is also mission-critical.

And I think that's where it can get really tricky sometimes because there's that wait and see, are things going to be adopted, are they not? But I think evaluating and understanding what that data

standardization can do from an internal process perspective as well as shaping how those outcomes and outputs are delivered to our health authorities are critically important. So there's [02:21:30] this balance here in participating and learning while actively preparing to implement and adopt so that we can move forward in a faster way is critically important.

Susan C. Winckler:

It strikes me that part of what you're saying too is maybe thinking about is there even a pilot to production pipeline where it's at a stage gate of a certain place in a pilot, do you then move to this could have broader adoption?

Sandra Krogulski:

I think so too. And I think sometimes being a little willing to [02:22:00] not have all the answers is important. Having participated in a Prism pilot where we did see a machine-readable protocol reviewed in a cloud based environment, there's a lot of potential there and it's really exciting to see what it can do. And maybe we don't have all those steps figured out, but knowing that if we can start rolling things out and implementing and learning along the way, I think you're right, setting that up, what are we actually trying to achieve and then moving forward in that direction is the way to go.

Susan C. Winckler:

Yeah. Although acknowledge, [02:22:30] I did feel the former regulator reflex in the room of we might not know everything. So that does give pause. Hussein, how do you think about this and who should be doing something next?

Dr. Hussein Ezzeldin:

If someone tells you they know everything, you should just run the other way.

Susan C. Winckler:

That's right. That's right.

Dr. Hussein Ezzeldin:

Yep. Glad I missed a joke. [02:23:00] So I think from our perspective, what we can do is that we can maybe try to lower the barrier a little bit for something like this through working on guidances, explaining to people how they can collect the data, put it in a certain way. And I'm very pleased to hear from Crystal that AI is not the solution because I think let's imagine a world that tomorrow we have the solution that we need. Tomorrow let's [02:23:30] say that, I don't know, we wake up in the morning and all regulators agree to have a cloud space that everyone can share everything. What do you think is going to happen? I don't know if this is going to solve the problem. I think we're still going to need to review. I think we're going to need to ingest this data and work on it and compute.

So I think we need to work on standards that's going to allow us to actually do this in an efficient way. AI has a place to prepare these standards upstream, [02:24:00] but I think we should agree that we can

come to a standards way or a standard that allows people to submit data. And I know that Crystal mentioned ICH and other places. I think HL7, I would say all the above. I think we need to... One of the problems that standards are not fancy, they're very boring. I'm sorry for, maybe I'll take this back.

Susan C. Winckler:

They're important. [02:24:30] It's a very structured process.

Dr. Hussein Ezzeldin:

I participate in those meetings, but what I mean is that it's very easy to sleep in these meetings, but standards are really important. So I think we need to work on all these areas 100% plus two, plus three on pilots that needs to go to production. We use pilots as a crutch. It's like, "Oh, this is just a pilot." It's like, "Okay."

Everyone's like, "I thought you're going to operationalize this."

No, we need [02:25:00] to think about what is this pilot telling us and then how we're going to think about it. I really like the ideas like don't start a pilot if you don't have a plan to production. And it's right. It's okay to say maybe I realize something. I need to maybe adjust something on the way and pivot and do something else. But if you're coming with just a pilot idea, most likely it's just going to be in the drawer and this is not going to help.

Crystal Allard:

Can I add-

Susan C. Winckler:

Of course.

Crystal Allard:

... a small thing just about pilots? [02:25:30] So as a vendor whose customers come to me on a daily basis asking which of the forthcoming pilots we're going to support, and as maybe the only vendor who routinely says no, and I'm trying very hard to change that attitude in my own company. And one of the things that's just abundantly clear is that we need a timeline in order to participate in a pilot because M11 is sort of a perfect example. We are not currently exploring piloting M11 [02:26:00] and that's because we have no timeline for when any health authority is planning to implement it in a mandatory or a voluntary or a pilot way. So the earlier we can receive pilot dates, voluntary dates and mandatory dates, the more likely we're able to participate in pilots and to support both the sponsor customers that we have and also the regulators that plan those pilots.

Susan C. Winckler:

Well, and I think that timing, clarity is often helpful, just planning [02:26:30] for, okay, when do I need to be ready for something? It can also be an action forcing event in thinking about... And I would think that helps with some of the risk if you know general timing.

Crystal Allard:

For us, absolutely. Yeah. We always say if it's mandatory, we'll support it, but in the run-up to mandatory, how we are able to participate and put resources toward piloting depends on whether we are certain it will be mandatory and when.

Susan C. Winckler:

So we've had called out for things that we [02:27:00] need to be thinking about differently in pilots, in standards development and other components. Mariann, what are your thoughts on a bit of who should be doing what or who is already doing what?

Mariann Yeager:

Well, I have no authority on what's going on in your side of the world.

Susan C. Winckler:

Yes.

Mariann Yeager:

Just a couple thoughts. I think one is standards adoption is one thing or having standards is one thing, but standards implementation is the key to maturing [02:27:30] it. And we've had standards in the healthcare side of interoperability for a while, but it wasn't until they were exercised that things were breaking. We went back to the SPOs to inform from the real world and that's when they became scalable at broader scale. So you almost need those early implementations to test the standards themselves.

Susan C. Winckler:

Which does make those standards development organization meetings much more fun when they're coming [02:28:00] back with, "Here's the part that didn't work."

Mariann Yeager:

Well, I mean that's the most important part.

Susan C. Winckler:

Exactly.

Mariann Yeager:

That's the most important part. I would say the concept of incrementalism is big. I don't remember who said that. I can't really speak to the who. I mean, in our world, government is best served in an oversight role or as a participant in information exchange, but not operating it. And that's the thing is when you... There was an initiative called the Nationwide Health Information Network back in 2007 and it was operated within HHS and they quickly realized [02:28:30] you can't operate this production thing even if it was federated within the federal government. So punted it to the private sector. That's the only thing I'll say is where is this thing going to be operated?

Susan C. Winckler:

Yeah. Very helpful. Rebecca.

Dr. Rebecca Li:

Yeah, absolutely. A few things that I've been thinking in terms of who should do what is, I think the regulators have a huge role in terms of setting expectations and of course incentives. [02:29:00] Another role could be third parties or neutral third parties that could be given an important role in the ecosystem. And so they could be trusted third parties. And then I've been thinking a lot about the pilots. I think most people in this room probably have been part of pilots that have just led to dead ends. So I really like what you said about the pilot to production and maybe [02:29:30] it's just in my world, but really the pilots that have been most fruitful have been pilots that have led to MVP or minimum viable products and have been really iterative in their nature.

So really thinking about if this pilot is successful, we would go to an MVP leading to a production and truly iterative in nature and have goals and objectives where multiple stakeholder groups have come around, wrapped around and made decisions on, we really support [02:30:00] this with these stage gates in mind. So I think in this case, in this ecosystem, this is really what is needed to move this forward in an iterative manner.

Mariann Yeager:

Can you build on what you mentioned about the neutral third party? In every scenario initiative and early rollout, there has been a neutral third party facilitating that and that it's sort of the glue and the coordination part of it. So it's not necessarily calling all the shots, making the decisions, but providing a neutral forum to do these early adoption [02:30:30] rollout pilot, whatever it is, even how it's operating today, we are that neutral third party. We do certify the networks and the actors involved so you can trust.

Susan C. Winckler:

Yeah. Andrew, final thought on who should be doing what, and then we're going to turn to this trust conversation. So excellent work.

Dr. Andrew Robertson:

So a lot of the points have been covered. I think it's great, but just to highlight a few. So Rebecca used that term ecosystem, which is one I've been using a lot. I think it's important. We need to really start

[02:31:00] thinking about, is this going to be a single solution or is it going to be an ecosystem of multiple interoperable solutions? And this kind of comes to the whole, we're talking about [inaudible 02:31:09], ICH, that's great for big. We could think big, but we can also think small. We can think about smaller use cases where we can actually get one example where, hey, this is the value. And then the question then becomes how do we either scale this or how do we actually fit it in to the other solutions that we're seeing? So I know we got a lot of advancement on [02:31:30] post approval changes. Could we do something on clinical trial protocol design that might actually be different, but how do those plug in down the road and how do they actually fit together?

So the other thing is when we're talking about pilots, well, I mean, I don't want to completely say that they're useless. I think they actually do have a lot of use in actually identifying some issues, but there's a limitation because unless there's actually some stake in the game, [02:32:00] like we have to drive to a solution, you can see things die pretty quickly. And we had this issue actually with one of the other cloud pilots through Prism where my previous company, we managed to get so far that we hit a roadblock and we said, "I guess that's where we're going to stop."

I think that if there's a product on the line, from our end, we would have driven towards a solution. How do we actually fix this? How do we make this work? So I think that's something else. The other is I think early adopters do play a role. I know we talked about M11 [02:32:30] quite a bit. My company's been doing M11 since I got there and it's been something that we've been kind of leaning into. I think this goes to building to the future state, what is it going to look like? And since we're in a little bit of advantageous position, because I don't have the burden of, my last company was 200 years old, 250 years old. I don't have all that history. We can actually look and be a bit more agile and say, "Well, our first goal was to get the first approval."

We did that. Now we're looking at broader expansion, but [02:33:00] we can also transition into what does a longterm biotech company look like that's going to be ready for the next 20 years? And so we're ready to actually start taking those steps a lot easier. And I think we can do it a bit more easily than we could before in my previous company. So I'll just say that. I don't know if you have any, Sandra, if you have any thoughts on that or you want to push back, but that's my observation.

Sandra Krogulski:

I do not, no.

Susan C. Winckler:

Well, because it's the piece of, much like the regulators we were saying, the advantages for large regulators, more mature regulators are [02:33:30] different than the advantages for the smaller maturing regulators similarly in the stage of company and where you are.

Sandra Krogulski:

Yeah. And again, going back to that change conversation that the first panel was having, really navigating and moving beyond. We just had a pretty large implementation and so many folks were so hesitant to change their way of working because they knew what they were doing in that old framework was successful. They knew they could deliver their document. [02:34:00] They knew they could deliver

the submission. So then really trying to push the envelope there is really tricky. And I do think when you're at a larger company, there's a few more folks you have to convince.

Susan C. Winckler:

There are more halls to traverse and help everyone understand the change that would take place. Well, one of the words that has been coming up a lot even in this discussion so far is trust. And so let's talk about enabling trust and [02:34:30] how do we build that in this environment? You've had some ideas already, but how do we bolster the trust part of the conversation? And you get to go first on this one, Hussein.

Dr. Hussein Ezzeldin:

Okay. So I have three things if we want to think about trust. I think the first one is, we covered this, is demonstrated pilots. I think that's really critical. Case in point, Crystal is like, "No, I'm not going to do that. Pilots, you go do your pilots on your own and then you come back when you have."

So I think [02:35:00] we want to have a plan to do the pilot and share the learnings and make sure that everyone knows what worked and what didn't work. So I think having a demonstrated pilot should be a very important cornerstone in building trust because otherwise people got sick and they got tired from pilots that don't go anywhere. So I think this is really critical.

Susan C. Winckler:

Well, and it might even create mistrust if you're like, "What happened to that pilot? What were the challenges?"

Crystal Allard:

That's why we say no, [02:35:30] because we've done too many in the past.

Dr. Hussein Ezzeldin:

Hopefully we can change that. So the second thing is patients. I think we really want to make sure that patients are our partners in any solution that we're thinking about. I mean, Mariann here can speak to how you could actually get consent on different things. So I hear a lot of excuses. I know there are solutions out there. It's like, "Can we get the data? Can we look at it? Because we really would like [02:36:00] to advance this field. Let us look at the data, let us review it and give you feedback so things can move."

It's like, "Oh no, we can't. Patients."

It's like, "Okay."

But we know that there are solutions there. So I think this is something that we need to involve them from the beginning, have patients involved and have a voice and sharing their data. I think this is really critical. And then I think if we are going to include AI in this process, I think we also want to be

transparent about this use from all sides. [02:36:30] I think this is something that's going to be very critical to build trust and allow us to move forward.

Susan C. Winckler:

Right. All very good ones. Particularly thinking about from that patient perspective, yes, there will be challenges. And then how can we be creative in developing solutions there? So you named Mariann, so Mariann, but no pressure for anybody who you name who gets to go next.

Mariann Yeager:

No, no, no. If you had asked me this question five years ago, I would've answered it a little differently because [02:37:00] even 15 years ago, even beyond that, trust was assumed because the actors involved in information exchange were fairly homogenous. It was either a health information exchange that was governed by its participants statewide or it was a government agency or a health system. Then you fast-forward, now we have this massively successful clinical health information exchange ecosystem, and it is, and all of a sudden the parties involved [02:37:30] have shifted. The use cases are a little bit are on the edge and there's different level of comfort. So where trust, what that means today is vastly different. I'll tell you, we're trying to figure it out. First and foremost, nobody was participating until there was a legal agreement in place and the hardest thing to negotiate was the liability provisions.

No kidding, because there's one agreement, everybody has to sign it identically. So there's no negotiation, no one-off. It was you're the in or out. The other expectation is reciprocity. [02:38:00] So if you ask them for information, you have to share it where it's appropriate. Having shared expectations around data use and future use, big time. I would say also around privacy protections. The thing we're heading into now that's a fairly new, I would say foray is having stronger organizational identity verification. So it used to be trust, then verify that they're a good actor. Now no, people want it as a gating mechanism. You can't participate until [02:38:30] we do the equivalent of not really a background check, but a vetting that you are who you say you are. Even a covered entity healthcare provider, they don't trust anybody anymore. So it is where our emphasis nowadays is compliance, monitoring, oversight and enforcement and doing much more centralized administration of that.

So it's a different world. It may not be that for you all given you already operate in a pretty regulated environment, but it's something we live with every day.

Susan C. Winckler:

Yeah. Well, I think for sure the idea of the reciprocity [02:39:00] and that may engender more patient engagement and willingness to say yes, we would have the broader consent and just understanding those rules part of the written agreement.

Mariann Yeager:

Well, I'll add one more thing, and this has nothing to do with the information sharing endeavors, but we have a group that's solely focused on trying to navigate the new and emerging privacy and consent world. And it is a conundrum and trying to do the consent and consent management in an automated way, we don't quite have it figured out because you get into [02:39:30] data segmentation for privacy. I

mean, all kinds of stuff. So we've done a lot of work in that space. If folks are interested, we published papers on it and whatnot.

Susan C. Winckler:

Yeah. So I think some things that we can learn. Andrew, your thoughts on building trust.

Dr. Andrew Robertson:

It's important.

Susan C. Winckler:

Important to say too, right? Yes.

Dr. Andrew Robertson:

So there's obviously the building trust in the sense of if we invest this, what's going to be the outcome? We want to also [02:40:00] make sure that we're being responsible with the data that we're actually using. And so I think all these points are, and I don't want to be dismissed, these are critical. In the context of using AI as well, I think it's important to show how are we actually going to be applying this and we can't just be flippant about it. We have to really be there. Not to play too many word games though, but I think there's also a trust that we're trying. I think patients are going to be looking at us and saying, " [02:40:30] There's a lot out there. What are you going to be doing to make this go faster to actually make sure that we have the right products come forward, that access could be accelerated and that we're actually conducting these studies and development programs as expeditious and expeditiously as responsibly as we can?"

So we talk about trust, you'd also say we talk about responsibility. I think it's kind of our responsibility to try this and to actually pursue it. And yeah, so I'll just leave it there.

Susan C. Winckler:

Yeah. No, but really [02:41:00] helpful ways to think about it a bit, the responsibility that each of the players has to help build the trust in the system as well. We'll just go down the line. Rebecca.

Dr. Rebecca Li:

Yes. I mean, when I think about trust, and most of us work with multiple different stakeholder groups, it's not homogenous, like you said, Mariann. And so, one thing, because we work with also different stakeholders, is to understand what does trust mean to them? So if I'm working with [02:41:30] a pharmaceutical company, which is the majority of who our stakeholders are, to them, it might mean for us to trust you with our pivotal trial data. It might mean, oh, you need to protect our intellectual property and make sure that the data is not re-identified and other things.

So that is really important to them. Whereas other people that share data with us that are academic institutions, that's not as... [02:42:00] I mean, it's important to them, but that is not front and center

when they think about trust. There are other things that are important or that when we work with other funders, they have other things in mind when they say, "We're going to sign up with you and share our data." Those are not front and center when they say, "We're going to trust you with our data."

There are other things that they're thinking about in terms of trust. So when we blanketly say trust, I have to think about what is the checklist of things pharma's really interested in that we have ISO and [02:42:30] SOC2? But the academic institutions, if I say that, they're kind of looking at me more blankly. They just don't really care as much. So we have to really think carefully what does that mean for each stakeholder that is coming to the table? And that may just mean different things to different people. I think transparency is really important, at least for all of our stakeholders when it comes to trust.

Susan C. Winckler:

Yeah. The transparency in the reciprocity, the sharing of the-

Dr. Rebecca Li:

Yes, absolutely. And there are some things that are more of a through [02:43:00] line across all stakeholders.

Susan C. Winckler:

Yeah. Sandra.

Sandra Krogulski:

Yeah. Thank you. So I think when I think about this, what are we building trust in and what are we building trust for? And to me, it's leaning into what does this cloud enabled regulatory data ecosystem do for us, rather industry sponsor, regulator, and how do we ensure that we're coming to the table in a transparent way and in an honest way, if something's not working, to understand how we can create a new mechanism [02:43:30] for data exchange that allows, as said before, everybody to win, right? Everybody is coming to the table hoping for more efficiencies, faster reviews, faster processing of their data. So for us to be able to have forums and exchange, what's working, what's not, so that we can trust that we're building this new future way of working together in a way that's going to sustain and support the outcomes we're looking to achieve, which is global patient access and delivering these kinds of medicines to patients.

So to me, those [02:44:00] transparency elements and leaning into forums to have this kind of exchange and to maybe be a little honest around what's working and what's not can help us build that trust in order for us to achieve what the new way of working would look like.

Susan C. Winckler:

So the expansion there of not just transparency, but the actual sharing and saying, "Here's what others need to know about what we've learned," and then how that might be incorporated moving forward. Crystal.

Crystal Allard:

Sure. So when customers [02:44:30] ask me why more regulators aren't using cloud enabled regulatory data submission platforms, the answer sometimes for me is a little bit less about trust and more about control and transparency. Regulators need to be able to control some of the data that gets housed within these platforms, their own IP in particular, but other data sources as well. So in order for them to trust that they can use a space, they need to know that they can control [02:45:00] where they need to. Transparency for me can be a little bit different too. So transparency isn't so much about sharing information, but about literal data transparency. Where is the data actually coming from?

And it's interesting because we've talked about paper. So I started at FDA rolling carts through the hallways filled with binders of paper of submissions. You earlier talked about fidelity. The fidelity of the data in paper is lost, but the fidelity of the data in a digital exchange platform [02:45:30] can be retrieved and be seen and visible. So sometimes I think sort of reframing the discussion about trust around specific needs and back to that win-win and how do we make sure that we're offering benefit and value to each regulator so that it's easier for them to adopt those things.

Susan C. Winckler:

Which is a great example in a way of saying this has great potential to be better and to provide, [02:46:00] which I think is what each of you is saying in a different way, that we have the potential to move to a system that gives us even greater confidence and could be more trusted, but we need to talk about how we get there and build the standards to do it. All right. So we have time for each of you to do about a two minute, because there's more time. That's my job to watch the clock. You don't have to. So a two-minute final thought. If there was one step that you could [02:46:30] take or one advancement that you could compel to materialize, so think about this as your magic wand moment, what would it be? What would your magic wand be to say this would move the field forward dramatically? Mariann, you get to go first because you have the benefit of not being in this every day, but you could perhaps reflect and say what magic wand would've helped you that you would like to use here?

Mariann Yeager:

I think the thing that would've been [02:47:00] helpful looking back retrospectively is if mature standards were actually implemented in the systems used for exchange rather than trying to fix things going forward. It's really complicated to fix things already in use. If you all are truly in an environment, you can create kind of a net new interface or whatever. My suggestion would be make sure those standards are proven, proven, proven. And the one thing I will say that works and has [02:47:30] been enduring is the collaborative environment and a community of practice approach, which it seems like you all kind of have that sort of interaction with each other already.

Susan C. Winckler:

Yeah. But a great call out, right? If you're starting standards and-

Mariann Yeager:

Make sure they're mature and everybody has implemented them and tested them consistently before baking it into regulation or a hard requirement, I would say. It's hard, particularly if it's lower level transport stuff. You're talking about six to eight year migrations. Well, maybe less [02:48:00] now, but it's tough. We're in the middle of one right now and it's...

Susan C. Winckler:

Yeah. Andrew.

Dr. Andrew Robertson:

So I agree with the bigger picture. I think though there's... So the question is what would my magic wand be? I think it would be to give a path for smaller use cases that we can actually have in production. I understand the point on standards, but sometimes I think you have to use them and understand them before they could really... You're going to get it wrong. Let's pretend like we're [02:48:30] not going to get it right from the beginning. So I mean, I think the best way is experimentation as long as we can find a risk mitigation approach, something which isn't going to completely derail a program or give the wrong... We have to have risk controls in place, but we can still move forward. And I think that's going to tell us a lot about where the value is, where the hangups are. I mean, I started by saying I don't think the tech is really the rate limiting factor.

I think I'm right on that, but one way [02:49:00] to check is to actually check. So I think having that path to go forward and saying, "Look, we've got an idea. We got a straightforward program. We'd like to try it in this context. Does that work?" And being able to move forward and come out with a readout and say, "Great, now what's the next step," would be really good.

I think when we always do it with... And I understand the approach, but when we always do it with like, "Yeah, but it's not a real program. It's a program from 10 years ago that we're going to try it through."

Like I said, we don't solve the problems. We [02:49:30] find the problems, but we don't solve the problems. And I think there needs to be a little bit of pressure on the teams to say, "No, no, we got to go through dissolution. What's the best way we can do on this?"

Susan C. Winckler:

Yeah. And I think you heard enthusiasm to at least think about that in the rare disease space on the first panel is saying maybe that's a space where we're right.

Dr. Andrew Robertson:

Definitely in rare disease as well. Yeah.

Susan C. Winckler:

Yeah. Yeah. Rebecca.

Dr. Rebecca Li:

Yeah, of course. I mean, if I had the magic wand, I would say for research data, I think making reuse the default. [02:50:00] Being a trialist in my previous life, I realized that patients sometimes have one chance, like Rich said, for ALS. And for most of these, at least for clinical trials, it is used once to answer one question. And that's, in my mind, fairly tragic. Many of these trials don't work. So we have the data and the demand. So thinking about building a bridge between some of these other systems or ecosystems [02:50:30] to what you're envisioning might be a bit of a shortcut. So that would be my suggestion for a future vision. Thank you.

Susan C. Winckler:

I mean, it then strikes me that the person who enrolls in a clinical trial before 4:00 PM today, it would be great if their agreement had reuse in it.

Dr. Rebecca Li:

Absolutely. Yes.

Susan C. Winckler:

And I don't know that that requires anything else that we talked about today to happen. It's [02:51:00] more about thinking through and-

Dr. Rebecca Li:

Future proofing, yes.

Susan C. Winckler:

Right. Future proofing current activities so that you're ready to go. I'm going to mix it up and do Crystal, Sandy, Hussein. Crystal.

Crystal Allard:

Exciting. Okay. Mine is really quick.

Susan C. Winckler:

I knew you were leaning in, so there you go.

Crystal Allard:

Yeah. Actually, just in listening to what everyone has said today, I put together a one-liner for you. One product, one submission, and also APIs.

Susan C. Winckler:

[02:51:30] All right. Okay. One product, one submission, APIs. We've got it. All right. I think you have more than one sentence.

Sandra Krogulski:

Well, I need it, but maybe one specific idea maybe in that thread. I think a path to adoption for M11. If I had a magic wand, that's the direction I'd go in. And I think it... Oh, well, let's talk. Let's make it happen. Because I think for me-

Susan C. Winckler:

He has his own magic wand. You get [02:52:00] to use yours for what you want to.

Sandra Krogulski:

... I think that's a great opportunity for us to see standards at work, leveraging a machine-readable input, and then enabling a space where we can review it, process it, and share it differently. So I think that might be what can help propel and push us forward.

Susan C. Winckler:

Very helpful.

Dr. Hussein Ezzeldin:

Oh, man. [inaudible 02:52:22]. So I have a dream is basically taking M11 and just going into HRs [02:52:30] and integrating clinical trials with HRs. I mean, the amount of benefit that you can reap, if you're able to digitize these protocols and finding patients, enrolling them very, very quickly compared to regular ways of finding patients now, I think this is going to be critical. Being very efficient in moving data from visits to trial systems or even better perhaps [02:53:00] putting it in a way that can be shared once you have enough evidence to make a decision. So I think there's a lot of promise there. So yeah, let's work together and make this happen.

Susan C. Winckler:

All right. I think we have all those magic wands at work and some path forward. Please join me in thanking this panel. And I apologize as I was facing them and none of you. So thank [02:53:30] you all for being here today, for joining the meeting, to our virtual participants as well. The recording, the transcript and the slides from today's presentation will be on the website next week. Thank you all for joining and think about what you can do to turn this global data ecosystem into a reality. Thank you. Have a great day.