Center for Strategic and International Studies

Online Event

"CEPI 2.0: A Critical Inflection Point"

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FEATURING:
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J. Stephen Morrison: Hello and good evening, good morning, good afternoon, wherever you are. I'm J. Stephen Morrison, senior vice president here at the Center for Strategic and International Studies, CSIS, in Washington, D.C. And we're delighted tonight to host this session, CEPI 2.0: A Critical Inflection Point, sponsored by the CSIS Commission on Strengthening America's Health Security. This is the first live event that we've held at CSIS, here in our main hall, in 16 months. So it's a bit event and big moment for us.

We're joined tonight, our guest of honor, our special guest of honor is Richard Hatchett. He is the CEO of the Coalition for Epidemic Preparedness Innovation, CEPI, formed in 2017. Prior to that he served as the U.S. Biomedical Advanced Research and Development Authority, BARDA, as acting director, as deputy director, as chief medical officer. He served in the Bush—the administration of President George W. Bush in the Homeland Security Council and at the National Security Council during President Obama's tenure. We're joined also by Julie Gerberding, co-chair of the CSIS commission and executive vice president at Merck, where she serves as chief patient officer and directs strategic communications, global public policy, and population health. Welcome to both of you.

Before we get started, just a special thanks to the many people that made this production possible. On our staff at the Global Health Policy Center, Amith Mandavilli, Michaela Simoneau, and Michael Rendelman. Nicki Lurie and Rebeka Yasmin from CEPI. And on our production team, a large team effort, Graham MacGillivray, Mary Wright, and Dhanesh Mahtani.

So let's get started here. We're going to try and have this be an informal, interactive exchange over the course of this next hour. We're focused here on where is CEPI, where did it come from, where is it going? So, Richard, let's just start off with you. Tell us a little bit about yourself and about the origin story of CEPI? So just in quick, brief form, how did you find yourself in 2017 launching this institution? And what was the original vision that you brought to it at that moment?

Richard Hatchett, M.D.: Sure. No, thanks Steve. I am a medical oncologist by training. So I got lost on the way to the chemotherapy clinic. I've been working in public health preparedness for about 20 years. And that career, you summarized very nicely, had culminated at BARDA. I was at BARDA for about six years. I went to BARDA from President Obama's National Security Council after the last pandemic, in 2009, the one everybody's forgotten about. And at BARDA, you know, basically worked for six years on medical countermeasures development, understanding the systems that would be required to, you know, incentivize the development of countermeasures against diseases that, you know, don't really have a commercial market.

CEPI was conceptualized after the Ebola epidemic in West Africa. And really grew out of this sort of tragic realization after the epidemic was over, after we had tested a vaccine that was shown to be 100 percent effective essentially and that Merck is not, you know, manufactures, but which had sat in a laboratory, essentially you know, underdeveloped for over a decade. And the idea with CEPI was that if that vaccine had been developed in advance, you know, the 11,000 people who died, the 28,000 people who became ill, the global disruption, you know, caused by the Ebola epidemic could have been prevented.

And the idea with CEPI was to establish an organization that would focus on epidemic diseases which have not historically attracted the attention in terms of the development of vaccines and try to prepare for those threats so that in the event that the known—the disease that we knew about emerged, that we would be able to respond rapidly with effective vaccines, and to be ready to respond to new diseases. And that was the founding vision. In 2017 I was asked to come over because of my extensive experience in the U.S. government and at BARDA. And the idea in 2017 was to focus on epidemic diseases—to focus on Ebola, to focus on Nipah, Lassa, and importantly MERS, another coronavirus.

J. Stephen Morrison: Yes. Yes. So, but let's pause for one moment. Julie, you were part of the creation of this as well. So tell us a little bit your reflections of that moment when CEPI was formed up, and the expectations. You came in on the side of industry at that time, right?

Julie Gerberding, M.D.: You know, it's an example of great minds thinking alike, I would say. So there were so many people that saw the horror of the tragedy in Western Africa and knew we had to do something different than we had been doing all along. And so there were different schools of experts kind of coming together and saying: We have to do better than this. This is not a technological problem. It's not a science problem. It's an investment problem and, in a sense, a leadership problem. And all of the after-action reviews were kind of coming along saying the same thing, that we need a global mechanism to set the agenda, develop the strategy, get the funding, and then move this ball down the field.

And so the first board of CEPI was a complex array of people from multiple sectors. And we just rolled up our sleeves and said: This is really hard. We can't please everyone. But this is too important to fail. And we just really need to find the right leader—which I dare say we certainly did—and really set in motion that initial round of funding. So that I think it was at the World Economic Forum that year that we officially launched CEPI.

J. Stephen Morrison: And just tell us a bit about the other key partners coming together to launch this.

Julie Gerberding, M.D.: Well, there are many partners. But I think the Welcome Trust was really sort of the centralized equilibrium point that was able to bring in the Gates Foundation, the national governments from several different countries. There were just experts in vaccinology. Industry was well represented, both from the developed world manufacturing standpoint but also manufacturers in low-resource areas. So we tried to develop that wise crowd representing the patient point of view, the affected country's point of view, but also the best science that we could bring to the table. So you did herd cats for a while, I would say.

J. Stephen Morrison: And the Norwegian and U.K. governments were terribly important, right?

Richard Hatchett, M.D: In the initial establishment it was Norway, Germany, and Japan, in particular, and India as well.

Julie Gerberding, M.D.: India, mmm hmm.

J. Stephen Morrison: Yes. Yeah, I remember visiting your offices in Oslo in the summer of '19—so this was pre-Covid—and seeing how many folks there were there really doing a lot of scientific and back-room work to keep things moving.

So let's move forward then now to Covid, period, so – and focus on the maelstrom of the pandemic and how CEPI navigated that, and how it changed CEPI. I mean, you were catapulted forward, the creation of the ACT Accelerator. You can say a bit about that. You've moved forward agenda like the moonshot 100-day concept. You're now heading up a manufacturing taskforce. A lot of things unfolded rapidly over the course of the last 16 or 17 months. Tell us a bit about what's the storyline of CEPI in the midst of this unforeseen global pandemic?

Richard Hatchett, M.D: Well, it's pretty remarkable. I mean, we had not celebrated our third anniversary. I mean, we weren't yet three years old when the pandemic started. And we really had not conceived that our role was responding to pandemics. We had focused on epidemics. But when the pandemic started, I think we read the situation correctly. We assessed the threat very early on, by mid-January, as being really, really concerning. In fact, some people in CEPI thought I had my hair on fire and had gone over the edge. But we understood what was unfolding and we had practiced over the preceding couple of years moving as quickly as we could to establish new contracts. And in fact, we were able to establish our first vaccine development contracts when there were fewer than 600 cases of Covid in the world.

And we basically focused our efforts initially on the ignition of vaccine development projects. And by last spring, we also shifted gears. Now, CEPI's mission is to develop vaccines against emerging diseases and to ensure

access to those products. And we undertook efforts to try to ensure global access to vaccines, which led very quickly with our partners Gavi, and then WHO, and now UNICEF, to the creation of COVAX. And we've invested a tremendous amount of energy over the last 16 months trying not only to develop the vaccine but also to ensure that the entire world has access. And I will say, obviously we aren't where we want to be. But I think we have moved the needle.

J. Stephen Morrison: While we're on the subject of COVAX, this is a big week for COVAX, right? They're having—Gavi's having a board meeting. There are Reuters reports and others out about major sort of turning points, some very painful, hard lessons. Can you just tell us, what have been those painful hard lessons and how is COVAX going to change in this next period?

Richard Hatchett, M.D.: Well, I the last month or two—and I guess I should just say a quick word in case anyone's not aware of what COVAX is. It is this cooperative arrangement between WHO, CEPI, Gavi, and UNICEF to develop vaccines, to procure vaccines, to allocate those vaccines, and to deliver them globally. We actually have 193 countries that are participating, including high-income countries, middle-income countries, and low-income countries.

But as the pandemic has unfolded and as we've had the success with vaccines, and as particularly the high-income countries have procured their own vaccine, most of the attention now is on delivering vaccine to developing countries. And at this point I think we've delivered close to 90 million doses of vaccine to over 130 countries, which is terrific and is more doses than were delivered in the 13 months of the vaccine donation program in the last pandemic. But it's not where we want to be.

In the last couple of months, as developed countries like the U.S., like the United Kingdom, and increasingly in Europe, have been able to increase their vaccination rates, they have joined us and really increased their focus on delivering vaccine to the world. And so we've recently—you know, hopefully the viewers will have heard about the vaccine donations that were announced around the G-7 summit. The financial contributions to COVAX now are in the range of $10 billion. We're working with regional partners like the African Union, certainly the European Union, and PAHO, and others to try to now scale up that vaccine delivery.

Which has been a challenge. And it is a complicated story. I think the one of the biggest challenges that we've encountered was the race that high-income countries engaged in to secure vaccine from themselves—often buying—you know, or making arrangements to buy what amounts to more doses than they could possibly use. When they were doing that, they didn't know which vaccines would be successful so they were hedging their risk. But now

they've tied up the vaccine supply. And we've got to find a better way to distribute them.

J. Stephen Morrison: And then you had the problems in India that disrupted many of the plans for—

Richard Hatchett, M.D.: Well, we did. I mean, we actually recognized the risk of being over-reliant on single producers. And we actually, in setting up the COVAX R&D portfolio, very deliberately diversified that portfolio across a number of different technologies and across a number of different geographies. But then those vaccines each developed at their own pace. And we found ourselves in a position where a very large portion of the initial supply was going to be provided by the Serum Institute of India, which is the world's largest vaccine manufacturer and can produce at scale and very cheaply. But right when they were supposed to begin to supply, India was swept up in this devastating epidemic that they've been encountering. And of course, that supply was diverted to national needs. Which we understand, but which has severely, you know, jeopardized our ability to deliver vaccine to the rest of the world.

J. Stephen Morrison: Julie, you know, the vaccine world in terms of the role of multinationals has changed, right, dramatically in this period of the pandemic. You look at the mRNA platforms. You know, it's the big, muscular, multinational firms that are there, and in the other—some of the other vaccine models. You now have the Europeans on the R&D side creating something called HERA, which is to be, to look like BARDA, right? So institutionally things are different than what they were when CEPI was launched in 2017. From where you sit, what's the big value add now in this changed world in having a CEPI organization continue to move forward?

Julie Gerberding, M.D.: Well, there's still tremendous value in CEPI, even if this crisis is in our rear-view mirror. First of all, SARS coronavirus is not the last emerging infection we're going to see. And so, I think the proof of concept and the current experience has been that you can distribute investments in a broad array of countermeasure development very, very quickly, but it works best when you already have platforms to feed into.

And so, the idea of CEPI, of developing platforms for families of viruses, or families of threat agents that we're familiar with, maybe it isn't exactly this coronavirus, but it could be another coronavirus. So all of that investment then is sitting in the freezer and can be redeployed much more quickly. So getting development, say, through the 2B phase of clinical development so that we have proof of concept, and then it's just a matter of scaling the manufacture or tweaking it if the molecule needs to be different for this specific threat agent that emerges. So I think that's one very big piece of CEPI.

But the other thing that I don't know that people are talking about so much, but CEPI has become an incubator for collaboration. And in all of the—

J. Stephen Morrison: Mm hmm, as a connector.

Julie Gerberding, M.D.: As a connector. And as a platform where competitors can cooperate. This is actually fairly challenging sometimes for people who are supposed to be in a competitive environment to come together. Merck, for example, is manufacturing some of J&J's vaccines. Well, under ordinary circumstances that would be very difficult to do. But because we have the U.S. government engagement and we have these mechanisms to connect people and create safe place for collaborations to emerge—we have the academicians, the industry players, small and large pharma, the governments, the nonprofit organizations. This is a tremendous cauldron for incubation, and it can happen fast. That's the other thing that CEPI does better than any of us, I would say. And that is act fast.

J. Stephen Morrison: Richard, your thoughts?

Richard Hatchett, M.D.: Well, Julie mentioned the engagement of industry and how the partners came together. And in describing COVAX at the beginning I didn't underscore that industry is at the table as a full partner—both the developed country manufacturers and the developing country manufacturers. And that was central to the conception of COVAX actually was that it be a public-private partnership. And, you know, in a crisis, people will sort of, you know, not proceed in the usual way that they do things, in the usual competitive way. They're much more open to cooperation.

And you know, CEPI has been a neutral broker, and tried to be a fair broker in terms of our interactions with countries and our interactions with industry. And we've tried to bridge, you know, bringing those partners together. The "C" in our name, the coalition aspect of CEPI, is really, really important to the organization's identity.

J. Stephen Morrison: So tell us a bit about the taskforce on manufacturing. You've jumped into this area. This wasn't where we would have predicted you would have been a few years ago. It's an outgrowth of the demands and the exigencies that we face today in the midst of this pandemic.

Richard Hatchett, M.D.: Yeah. No, so in rising to the challenge of the pandemic, obviously, you've got a number of manufacturers. I think there are now 17 vaccines that have been licensed in some jurisdiction and are being used as part of the response. And they are all trying to scale up their manufacturing simultaneously. Many of the partners, I'll mention just a couple of CEPI partners—AstraZeneca, certainly Novavax and Moderna and others—have engaged in a large

number of technology transfers. And those present challenges in and of their own right.

So while we're in an amazing position, I don't think anybody would have predicted 16 months ago that over 2 billion doses would have already been distributed at this point. So that's miraculous. But the miracle hasn't been shared, you know, equally. And many of the challenges, you know, are perceived to relate to the manufacturing, to inefficiencies in the manufacturing, delays in the manufacturing, access to goods, and the inequitable distribution of manufacturing. So you've got this whole array of problems around the large-scale manufacturing that people are calling attention to.

So through COVAX we have established this manufacturing taskforce with the support of heads of state, you know, in many countries, to try to address these many problems. And it's not just one problem. I mean, we're trying to address supply chain issues. We're trying to address, you know, accelerating the technology transfers that are already underway, finding finish partners for vaccine companies that may not have adequate access. And establishing a sustainable foundation for the future and trying to move towards a world where vaccine manufacturing is more equitably distributed.

J. Stephen Morrison: Distributed geographically, yeah.

Richard Hatchett, M.D.: Yeah.

J. Stephen Morrison: So you're looking for countries that are interested. You've mentioned South Africa, Senegal, Rwanda in Africa. You're looking for investors. You're trying to connect those that are interested – and how does this unfold in coming days?

Richard Hatchett, M.D.: Well, I mean, fortunately what we're seeing is there is an alignment of global interest in doing this. I mean, we have the G7, the G20 countries that see the value in having more manufacturing and more distributed manufacturing, and who are willing, through international financing institutions, to put resources on the table to facilitate that. You have a vast number of countries. I mean, the three you mentioned have been identified by the African Union. And there are—South Korea, I think just in the last 24–48 hours, announced a big investment in establishing mRNA manufacturing in South Korea—and countries in South America are interested. Everyone is interested, having lived through the searing experience of the pandemic, to have locally or regionally available manufacturing.

CEPI's role in that I think is, to Julie's point, to bring partners together, to help match partners, to, again, serve as a neutral broker, and to provide

technical assistance, for example, to the international financing institutions that don't necessarily know a lot specifically about vaccine manufacturing, and also technical assistance particularly to partners in lower and middle-income countries in terms of helping them with workforce development, regulatory capacity building. One of the roles that CEPI has played, not just in the manufacturing space but throughout the pandemic, is to fill gaps and to do things that others can't do, aren't doing, won't do, whatever. And to build those bridges between the partners.

J. Stephen Morrison: Julie, looking out on the global marketplace now, and this push to have greater manufacturing capacity distributed more equitably geographically, what are the risks associated with that? What do you need to be thinking about in terms of the sustainability?

Julie Gerberding, M.D.: Well, first, of course there's a need. And that is a long-term priority for global health and biosecurity. On the other hand, I'm very concerned about over-promising. Vaccine manufacturing is not for the faint hearted. And if you think about even the routine childhood immunizations that we've all grown up with, from time to time, even in the United States, our manufacturing fails. Quality has got to be perfect for vaccines that are given to healthy people.

J. Stephen Morrison: Just think about Emergent.

Julie Gerberding, M.D.: Exactly. And so, you know, it's one thing to make a pill. That's an area where tech transfer and localization is very feasible. But making a sterile product, and particularly the more complex molecules, is something that does take a very high degree of skill, regulatory compliance, quality assurance, and so forth. And it just takes a long runway to be able to build those competencies to the level where you would have trust in the safety and the quality of the product.

It can be done, and the time to start was yesterday not tomorrow. (Laughs.) So I don't mean in any way to imply that it shouldn't happen. But I'm just concerned that we've created the false impression that if we just turn the switch and start building manufacturing plants in country A, B or C, that suddenly we'll have solved the problem. And this is an area where intense cooperation is necessary. This is a scarce global resource, vaccine manufacturing known-how. And so we've got to find ways to share that scarce resource and build the people capacity, just as we build the supply chain and the manufacturing plants.

J. Stephen Morrison: Do you have thoughts on that, Richard?

Richard Hatchett, M.D.: No. I think Julie's absolutely right. I mean, I think there is a—it's easy for elected officials to rush to a bit project. You know, I mean, it's kind of sexy,

right? You know, you invest in manufacturing. But it's not easy. It's not fast. These facilities are going to take years to establish. And they're not going to solve our problems in the near term. That's part of the reason the manufacturing taskforce is taking on the array of challenges is there's some things that we can do in the very near term, or in the midterm, that are going to impact supply much sooner than building new manufacturing facilities.

And I do think that there—you know, there is a risk of irrational exuberance about creating facilities. And if we don't do it carefully, if we don't design in sustainability from the beginning and really think about how are these new facilities going to exist? What's the ecosystem going to be that's going to sustain them? You know, there is a risk for overbuilding and for grave disappointment in a few years when there's lots of failure. And we need to manage expectations.

J. Stephen Morrison: Yes. Let's talk about variants. They dominate every conversation, it seems. And I'm sure this has now changed your work life and the – and the prioritization of how you spend your time and expertise at CEPI. So tell us a bit about that.

Richard Hatchett, M.D.: Well, when the dangers presented by the variants began to be recognized sort of late last year, and you know I spend most of my time in the U.K., which was one of the first countries to really experience the consequences of a new variant, with the—I guess it's now the Alpha variant. I get them confounded. But they recognized that they had a problem because all of a sudden, interventions that were controlling disease transmission were failing, and nothing had changed. And that was when they began looking. And they discovered that what was changing was this rapidly emerging new, much more transmissible, variant.

And of course, the other variants that have emerged in Africa, in South America most recently, in India with the Delta variant, have raised grave concerns because some of them are more highly transmissible. So make more intense epidemics when they emerge and strike unvaccinated populations. And the variant that emerged in South Africa in particular, the Beta variant, showed some evidence of evading the immune response and reducing the efficacy of the vaccines. So there's a—there's two things that are going on.

There are real challenges that have already materialized and there are the risks and things that we're concerned. The risks, the things that we're concerned about, is obviously a variant, you know, finding its way to a space where it is no longer impacted by our vaccines or our countermeasures. And that should be terrifying for the world. And reducing transmission globally to prevent or to reduce the likelihood of that happening is critically important.

In terms of the response, and in terms of sharing vaccines equitably, the emergence of the variants, and particularly the more transmissible variants, has increased the desire of countries that have ample supplies of vaccine to vaccinate larger percentages of their population. They are expressing concerns about do we, you know, begin booster programs? You know, greater utilization of vaccine in countries that already have a lot of vaccine. And that's going to put pressure on global vaccine supplies and, of course, perpetuate or even extend the inequitable distribution.

So yeah, the variants are—

J. Stephen Morrison: So how does this change CEPI's role?

Richard Hatchett, M.D.: Well, you know, I mean I think we have thought about, one, how do we extend the supplies of vaccine that we have? And/or make it easier to use that vaccine more flexibly? So we're making investments in research and development, doing what are called mix and match studies, combining two different vaccines. We're probably going soon to be funding studies looking at administering lower doses of vaccines to see if we can preserve the efficacy but give a lower dose, and thus extend the supply.

We have issued calls for proposals to develop hopefully variant-proof vaccines, so broadly protective Covid vaccines that no matter which direction the virus evolves, you know, the vaccine efficacy will be preserved. And we're also—and this is a little bit longer-term goal—hoping to promote research on developing broadly protective or even universal coronavirus vaccine, so that we protect against Covid and multiple strains of Covid, but also against other potentially future coronaviruses.

J. Stephen Morrison: And these same conversations, right, are happening in the executive suites of the major pharmaceuticals.

Julie Gerberding, M.D.: (Laughs.) Yeah, I mean, I think one frame is to think about the current generations of vaccines as the 1.0 vaccines. They're single valent, or single-protein, vaccines or, you know, very limited component of the coronavirus. You could imagine bivalent vaccines, where there are other immunologically relevant pieces of the virus that are not in most of the vaccines that we're using right now. There may be universal antigens, as you mentioned.

I think one of the scary things to me is that these variants have emerged before vaccine pressure. And we also don't know what's going to happen with single therapies for the single-stranded RNA virus. So are we going to see drug resistant variants also emerge? Which is what we often see with single-stranded RNA viruses. Those single-drug therapies are notorious for selecting for rapid resistance. This particular family of viruses is less prone

to do that than some of the other ones that we work with on a regular basis, but nevertheless that's a possibility we have to be on the watch for.

So there will be a second-generation of vaccines—probably multivalent vaccines would be my guess. And then maybe we'll get to the more broadly. The other question that we still don't have a complete answer to is how long will the vaccine last? Even if the virus doesn't change, what's the duration of protection? Again, all the more reason why we need to get the world vaccinated as quickly as possible.

J. Stephen Morrison: So let's use the balance of our time to talk about two things. One is, you have a new plan, a new vision. CEPI 2.0. You're hearing the conclusion of your first five-year phase, putting forward this vision. It's a step up in funding. It's a $3.5 billion vision over multiple years. And we'd like you to tell us a little bit about that vision and give us some—you've talked at points about the direction that you're moving there. And then let's talk a bit about your relationship with the United States. I mean, we're here in Washington. We've been strong advocates through the commission, CSIS commission. We're trying to build that relationship, that partnership between the U.S. government and CEPI. Want to go into that, but let's start with the CEPI 2.0. Tell us what that's all about.

Richard Hatchett, M.D.: Well, CEPI 2.0 is actually about the opportunities that have been created by the response to the pandemic. And it—Julie, when you started and were talking about CEPI's creation and the idea that it was founded because there was a realization that there weren't technical barriers or scientific barriers necessarily but there were funding barriers and there was an absence of political will. And I think we're kind of in the same situation with respect to pandemic risk, in that we're going to emerge from this pandemic with a whole suite of new tools and new technology platforms that have been validated and that have demonstrated that, you know, rapid vaccine development is possible.

And we actually know what we need to do to, you know, vastly improve the world's preparedness for future pandemics, or even—I mean, vastly reduce the risk, or even potentially, you know, take pandemics off the table. I don't think that's as far-fetched as it might sound. And so what CEPI 2.0 is, or what we've put forward is a, you know, a proposal for the world. And then within that, CEPI has a role. And we've sketched out what we would do with, you know, if we were able to secure the resources.

And the $3.5 billion that we have talked about wouldn't deliver, you know, a pandemic-free world. But what we think would, you know, what we think the world should do, if it can muster its political will, if it can muster the resources even in the midst of fighting the current pandemic but looking

forward and take advantage of the opportunity, I mean, we think that we obviously need to finish the job on Covid. We need the generation 2.0 vaccines, and even generation 3.0—the oral vaccines and the mucosal vaccines.

We need to do everything that we can to take coronaviruses off the table. They are now—if anybody ever needed to argue that they were a pandemic threat before, we know they're a pandemic threat now. And we know there are other coronaviruses out there. Looking at our experience, we broke every speed record in the development of vaccines for Covid, and it wasn't fast enough. We need to dramatically shorten vaccine development times. And—

J. Stephen Morrison: This is where you get to your moonshot.

Richard Hatchett, M.D.: This is where you get to the 100-day goal. And then we need to break that down. I mean, we don't just throw that out as an aspiration. We have to actually have an idea of how we go about doing that. And we're looking at every step of vaccine development to think where we can achieve time savings. One of the most important places that we can achieve time savings is by being at least as prepared for future threats as we were actually prepared for Covid.

And that preparedness for Covid was based on concerns about coronaviruses and based on investments on understanding how to develop vaccines against SARS and MERS. And those investments paid off in spades during the response. And it essentially allowed new vaccines, which have now been shown to be 94-95 percent effective, to be designed, and I'm not speaking hyperbolically, literally within hours of getting the sequences. And we need to do all of this, you know, while laying the foundations for equity and leaving no one behind.

And so CEPI, in mapping out the 2.0 agenda, those are sort of the core components of the agenda. And it's a shared agenda. It's not something that CEPI's going to own and go off and do by itself. It's a proposal that we brought to the world, and which has been embraced by, you mentioned the United Kingdom. They've become a huge supporter of our efforts. And they have taken that core moonshot idea of the—

J. Stephen Morrison: And embraced it.

Richard Hatchett, M.D.: Embraced it. Took it to the G7, who welcomed it. And now we're talking with the U.K., with the U.S., with other partners about how do we, you know, collectively, collaboratively, you know, bring that vision to pass?

J. Stephen Morrison: Now, congratulations on the G7 embracing and putting into the communique many of these ideas that you've developed. We were meeting earlier today with some officials from the British embassy, some of whom will join us later this evening, about this very phenomenon. That these ideas were taken up, and they were pushed forward.

Julie, launching—you know, launching CEPI into this next phase is not, by definition, going to be easy, right? We're still in the middle of a dangerous – very dangerous global outbreak. It's extremely expensive. We have these other, we have, you know, there's a question around budgets of the major donors. Tell us a little bit about how you—what's your advice on trying to move that forward?

Julie Gerberding, M.D.: Well, we do have to finish the job in front of us. And I think everyone agrees that that has to happen. I think that there are some pieces to this plan that are upstream from where CEPI's focus is with the G7, and then there's some pieces that are downstream from there. The upstream pieces are really getting into a mindset, first of all, and then applying our science and technology to better be able to predict where spillovers will occur, and maybe preempt them. Which is very different from mitigation once you have an outbreak and it's beginning to propagate.

So how do we move upstream? That means improving detection. It means using AI and geo-medicine tools to try to understand the human, animal ecological interface, the one health kind of space here. There's a lot of science and a lot of collaboration. And it goes missing because the funding mechanisms don't address the intersection of that space. The downstream piece that's missing has to do with the deployment of vaccine. And we're seeing now that even in some resource-limited environments where vaccines have been delivered they can't be used because there is no infrastructure to get the vaccine into the arms of the people who need them. I mean, the world just doesn't have adult immunization programs everywhere, like we do in the resource-rich countries.

So we've got to also deal with that, because even, in fact, in some ways, in some environments we're already there, where the rate limiting step isn't the number of doses. It's the infrastructure, the people power, and the trust necessary to get them utilized. And we have to solve both of the extremes of the end-to-end. But the middle piece right now is job one, because that's the here and now of this pandemic.

J. Stephen Morrison: Let's talk about the relationship with the United States. There's a proposal for multiyear funding over a five-year period, about a billion dollars in support over those five years. There's a proposal for one of the emergency allocations, for a chunk of that to go towards supporting your efforts. There's

the hope that there will be strong political and technical partnership, that the United States will see CEPI as an integral asset in its future engagement internationally. And these are ideas that we've kicked around and been very supportive of.

Tell us, in your view, how do you make the case that all of this is in the U.S. national interest? Because ultimately that's the argument that's going to win the day.

Richard Hatchett, M.D.: Well, I think there's basically three, you know, areas that there's good alignment. I mean, there's good alignment around the scientific agenda. I mean, our adoption of the—you know, focusing on the prototype pathogens, you know, we've drawn from the National Institute of Allergy and Infectious Diseases. Barney Graham and colleagues at the Vaccine Research Center have evolved that concept and, you know, have promulgated it. And we think they're right. So the scientific approach, there's already alignment. We're ready to work hand-in-hand with the major science funding agencies within the U.S. to divide and conquer what is a very big R&D agenda.

There's a political aspect, a political moment for the United States in terms of sort of its return to multilateral efforts. And I think, you know, this is a good opportunity for the U.S. to be forward-looking, to, you know, take a progressive and longer-term view, and to do that in a way that invites other global partners to participate. And CEPI, as a—you know, I mean, we aren't a country. We don't have a point of view. We're just trying to solve one particular problem. And I think it's a good way for the U.S. to join with the 25 or so other countries that are supporting CEPI in a global effort around countermeasures development for epidemic and pandemic threats.

And then finally, I think there's an argument from self-interest, which is that if we see future epidemic or pandemic threats, the U.S. government has dual responsibilities. They have a responsibility to their own population, obviously, that will always be primary. But CEPI I think offers an opportunity for the U.S. to support international efforts and to support global equity simultaneously and in parallel, as—in future responses—as they're addressing the needs of the U.S. population. So I think the value proposition that CEPI can bring in terms of, you know, a partnership with the U.S. are, you know, operating on multiple levels. And they're all aligned with U.S. interests.

J. Stephen Morrison: Julie, how would you advise on—you're very familiar with how to make these arguments. You're very familiar with where the doubts or skepticism might enter into the conversation. It's a very crowded and very polarized environment that we have here. We've been successful, I think, at building a strong bipartisan understanding of CEPI on the Hill and across administrations. And I think that's—I think that needs to be highlighted as a

very elementary foundational advantage that you have here. But what's your advice on moving this forward and making the best case?

Julie Gerberding, M.D.: I realize that, you know, it's tempting to want to keep this in the mindset of public health, because it is a public health issue. But it's far more than a public health issue. This has been an economic catastrophe for countries, for businesses, and for individual families. But it's also a threat to our national security in a very direct way. When I saw the Navy ship with the outbreak of SARS-CoV-2, I realized a really important dimension of that threat, that you could take out a Navy with a respiratory pathogen. And that makes it something that is germane not just to the civilian population, but it's germane to our force protection and our whole ability to defend our nation.

Now, that's an extreme example. I wouldn't use that as my leading argument. But I think we have to get ourselves into a mindset that this isn't an outbreak. It is a threat to individuals, to businesses, to countries, and to the global order. And we need to approach it with the level of strategy, the level of investment, and the long-term sustained commitment that we do approach other threats to national security. I'm not saying put it in the Pentagon, but I'm saying that it's a commensurate threat. And it's significant enough that it merits the same level of intention and political support, alliances, and long-term strategic investments.

J. Stephen Morrison: Thank you. Richard—

Julie Gerberding, M.D.: And I'm a little passionate on that subject. (Laughs.)

J. Stephen Morrison: Yes. So as we're closing here, put yourself sort of in the seat where you have a—your average American voter, who is—whose life has been disrupted significantly over the last 16 months. Maybe a Republican, maybe a Democrat, maybe an independent. But things are starting to get a little bit more stable, but it's still been very difficult. And the proposition is, the United States strike a deeper, longstanding relationship with CEPI in order to try to protect that person and her or his family and community. What's the best—what's the best line? What's the best case that you make to that person who may not know much about what CEPI is, and thinks that most of what – may think that much of what we do outside our borders isn't really all that directly relevant?

Richard Hatchett, M.D.: Well, I think everyone in the world, frankly, has now had this common experience with the pandemic. And it doesn't matter where you are on the political spectrum, it doesn't matter, frankly, where you are on the spectrum in terms of the different interventions that we use. We've all been hugely impacted by the pandemic. None of us ever wants to see another pandemic again.

My colleague in the Bush White House, and actually now a CEPI board member, Rajeev Venkayya, has made the point that if we had in front of us an opportunity for $20 or $30 billion, which is probably what a global effort to accomplish the agenda that I talked about would cost over five or 10 years—if we had that opportunity to, you know, stop climate change, to—you know, to secure global temperatures below the 1.5 degree threshold, we would jump at that opportunity. And we would jump at it collectively as the world.

We are going to have the technologies coming out of this pandemic to respond rapidly in the future. We understand the bio-surveillance requirements. We understand the need now for empowered public health to respond rapidly when new diseases emerge. And there—and we know and see a pathway to making definitive countermeasures like vaccines and therapeutics much more rapidly than ever before. And it comes at a significant cost, but a, you know, microscopic cost compared to the risk of another pandemic.

And we can accomplish that goal much faster, much more effectively, if we work at it collectively. And I think an organization like CEPI, operating in the international space, filling gaps, focused on equity, has an important role to play in that collective solution. And I would hope that that opportunity would appeal to everyone, whatever their experience, whatever, you know, their potential political leanings or position.

J. Stephen Morrison: Thank you so much.

Julie, you get the last word this evening no what this all means in the bigger picture as we look ahead.

Julie Gerberding, M.D.: Well, you know, as the commission has been working on the way ahead we've been really considering now just what do we need to do to accelerate our recovery from our current situation but what are the critical few things that we can articulate and really legislate and encourage the administration when it's within their power to administrate. What can we do as a commission to try to accelerate the investments and the focus and attention? As we all know, there does always—we run the risk of the boom or bust cycle, the crisis and then the complacency.

So I think probably the most important thing that we're all trying to do in support of CEPI and all of the other implementation measures that we see as priorities moving ahead, is to maintain the focus and to continuously deliver the message, engage the people who need to be informed, the true decisionmakers who are in positions of influence, and appeal to their nonpartisan, you know, intellect to recognize that, no, we all have jobs when

we're in government, but some jobs are—supersede our politics. And this has got to be one of them.

J. Stephen Morrison: Thank you so much. Thank you, Richard. Thank you, Julie.

Julie Gerberding, M.D.: Thank you.

Richard Hatchett, M.D.: Thank you.

J. Stephen Morrison: This has been a terrifically rich and valuable conversation this afternoon. Thank you.

(END)