

Center for Strategic and International Studies

Online Event

“Variants Rattle the World”

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FEATURING:

John Brooks, M.D.,
*Chief Medical Officer,
CDC COVID-19 Task Force*

Margaret “Peggy” Hamburg, M.D.,
*Former Commissioner,
U.S. Food and Drug Administration*

Maria Van Kerkhove,
*COVID-19 Technical Lead,
WHO Health Emergencies Programme*

Oliver Morgan,
*Director,
WHO Department of Health Emergency Information and Risk Assessment*

Loyce Pace,
*Executive Director, Global Health Council;
Member, Biden-Harris Transition COVID-19 Advisory Group*

Rochelle Walensky, M.D.,
*Director,
U.S. Centers for Disease Control and Prevention*

CSIS EXPERTS:

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*Transcript By
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J. Stephen
Morrison:

Welcome to today's CSIS session, COVID-19 "Variants Rattle the World." I'm J. Stephen Morrison, senior vice president and director of the CSIS Global Health Policy Center.

This session is sponsored by the CSIS Commission on Strengthening America's Health Security, which was founded 2018. That work is carrying forward through the end of 2022. We're delighted that one of our commissioners, Peggy Hamburg, the former FDA commissioner during the Obama administration, will be presiding today.

I want to offer special thanks to my colleague Amith Mandavilli for his careful efforts to put all of the pieces together very rapidly for today and to Anna McCaffrey, my colleague, who also contributed substantially, and a special thanks to all who are assembled here today to speak, Rochelle Walensky, Maria Van Kerkhove, Loyce Pace, Oliver Morgan, John Brooks. They'll be introduced momentarily by Peggy Hamburg.

Today's event grew out of a CSIS commentary that my colleague Anna McCaffrey and I published January 22nd, New Variants Rattle the World. We scrambled to put this session together rapidly for a few reasons. We're at a major moment, a turning point. The variants are threatening to change the pandemic, including the feasibility and development of vaccines and therapies. And there's a lot of fast-moving questions around what this all means.

(Inaudible, technical difficulties) – what it'll take to achieve herd immunity, how high the bar will have to be. And they're adding new urgency in how – in controlling the spread, in accelerating vaccination programs, in creating

genomic sequencing capacity, and R&D of adaptive vaccines and therapies. And in integrating efforts globally, we'll hear about all of these topics today.

We're also at a major moment when President Biden is renewing the U.S. relationship with the World Health Organization, something that all of us have advocated and we're delighted to see happening. We want to use today in part to celebrate that and show what it means. The U.S.-WHO relationship and the many collaborations remain vitally important across many fronts, and we'll hear about that today. We'll hear about the evolving collaborations.

This is the first of a series of high-level sessions where we will attempt to bring to the table the perspectives of both the Biden administration and senior levels at WHO on very important and urgent matters, along with other experts.

So, we're delighted that from WHO we have Maria Van Kerkhove, an American citizen. And we have Oliver Morgan, who served at CDC for 10 years.

Over to you, Peggy. Thank you so much for presiding with us, and thank you for all your contributions to the CSIS Commission.

Margaret "Peggy"
Hamburg, M.D.:

Well, thank you very much. I couldn't be happier to be with all of you, although I wish that it wasn't about a topic that is as worrisome and as urgent. But as Steve just said, you know, I think that the emergence of these variants really requires us to rethink and renew our commitment to how we invest in public health, the importance of science driving our actions, the importance of international collaboration and the importance of coming together across these different components to focus in and talk about problems that need meaningful solutions.

And so we hope that today's discussion will really be a contribution to deepening understanding of these challenges before us and what needs to be done. And for many of us, it's also our first introduction to our new CDC director, Rochelle Walensky. And so we're really so pleased that, with everything else on her plate, day 11, I think, into her tenure, that she has chosen to be with us. But she only has 30 minutes, so I'm not going to say anything further on framing the issue but will just quickly introduce our panelists and then get into the substance.

You know, as I said, we have Rochelle Walensky, the Biden administration's new CDC director, with us. She's the 19th director of the Centers for Disease Control and Prevention, and the 9th administrator of the Agency for Toxic Substances and Disease Registry as well. She is well-known in the infectious disease community and the public health community nationally and internationally, predominantly from her work on HIV/AIDS, but also the leadership and wisdom that she has provided throughout the COVID

crisis. After she leaves, then her colleague John Brooks will be available to stay with us and help be a voice for CDC programs and policies in our ongoing discussion.

We also, as has been noted, have Maria Van Kerkhove, the COVID-19 technical lead of the WHO Health Emergencies Program. And she's joining us from Geneva, along with her colleague Oliver Morgan. And she has really devoted her life and career to global public health. She's worked in several different roles with WHO over the years, and also has worked at the Imperial College. She is a U.S. citizen. I don't know that you're spending enough time here working in the U.S. or with U.S. institutions, but we'll welcome you back at any time. But she is just a distinguished and accomplished epidemiologist and public health specialist who I know will help us shed some light on the issues of the day.

And then finally, Loyce Pace, who's the executive director of the Global Health Council. And she has also been a longstanding leader in global public health and has devoted her career to working not just on programs and policies, but also on the ground in 10 countries or more, leading health programs and mobilizing advocates. Before joining the Global Health Council as president and executive director she had important leadership positions in global policy and strategic partnerships at Livestrong Foundation and at the American Cancer Society. And so she brings a breadth and depth of perspectives and experience to these issues.

So let me turn now – we're going to first hear from Rochelle. And we'll have a little bit of an exchange after her presentation. Then after she leaves, we'll have brief presentations from our other two major panelists, and then time for questions and answers and more discussion before our hour ends. So, with all of that introduction, let me turn to you, Rochelle, first, with a big welcome. And the podium, so to speak, is yours.

Rochelle
Walensky, M.D.:

(Laughs.) The two-dimensional podium. Thank you so very much. I'm really just quite honored to be with you today. Thank you for that lovely introduction and the invitation to be here. COVID-19 has brought to the forefront how interconnected we are as a global community, and the importance of our international, scientific, collaborative relationships. Thanks to you, Steve, and to the Center for Strategic and International Studies for convening us here today and for this really important dialogue.

The emergence of variants is, of course, concerning and underscores really the essential need for real-time surveillance and increased vigilance in the implementation of public health mitigation measures. So today's meeting focus is both timely and critical. We know that viruses mutate, and variants that emerge as dominant often do so to some advantage to the virus itself. The higher amount of virus in the community, the more opportunity there is for viral replication and for variants to develop. In the United States, 467

cases of the B117 variant lineage, that originated from the U.K., have been confirmed in 32 states, as of yesterday. In addition, one case of the P1 variant originally detected in Brazil has been identified in the United States, in Minnesota. And three cases of the B1351 variant, first detected in South Africa, have been confirmed in the United States – two in separate cities in South Carolina and one case in Maryland that was reported this weekend.

The available data on these variants suggests that they are more transmissible and may lead to more cases, taxing our already overwhelmed health-care system. And pressing questions remain about the impact of these variants that will – they will have on vaccine effectiveness, severity of disease, and mortality.

CDC has been acting on multiple fronts to increase the surveillance in the United States for variants of SARS-CoV-2. Since November, state health departments and other public health agencies have been regularly sending samples to CDC for sequencing and further analysis. This system is called NS3, or the National SARS-CoV-2 Strain Surveillance, and it is now being scaled to process 750 samples per week and will be increasing to 15(00) samples per week in the coming weeks, geographically distributed across all states. We have also contracted with large national commercial reference labs to look for variants, and expect that these labs will be able to analyze about 3,000 samples per week now and 6,000 samples per week by the middle of February.

As a result of these efforts our throughput of samples has increased tenfold in recent weeks, going from 251 sequences in the week of January 10th to 2,238 sequences during the week of January 24th, and this may well be among the reasons that we're finding more variants now. Additionally, CDC has contracts with seven universities that are working with public health agencies to identify variants. We've released \$15 million to several health departments in the United States to accelerate the integration of next-generation sequencing and bioinformatics into the United States public health system. And we're leading a coalition of 200 cross-sector organizations to set standards and share information about SARS-CoV-2 sequence-based surveillance.

In addition to these efforts, the CDC is conducting research to assess growth and replication properties of these variants in vitro to establish their fitness and conduct antibody neutralization testing of variant strains to identify potential vaccine escape phenotypes and to help prioritize new mutations of concern. CDC is also engaged with NIH's Accelerating COVID-19 Therapeutic Interventions and Vaccines, or ACTIV, public-private partnership that aims to facilitate the rapid development of the most promising treatments and vaccines. These efforts are fast-moving and variants continue to spread throughout the globe – throughout the globe. Hopefully, our efforts are moving faster than the variants.

This reality underscores our international – the need for our international collaboration and our regular information sharing. And that is why the CDC is so heartened – I am personally heartened by the recent efforts of the administration to renew our long history of partnership with the World Health Organization. WHO has been a critical partner and connector of public health, in particular in responding to public health emergencies like that which we are in today.

As you know well, the COVID-19 pandemic is the public health challenge of our lifetime. And the rapid emergence of readily transmissible variants across the globe underscores the critical need for strong scientific partnerships internationally. The CDC is committed to that partnership. I am personally committed to that partnership.

Thank you. I look forward to the discussion.

Dr. Hamburg:

Terrific. Well, thank you very much. You certainly are joining CDC at one of the more extraordinary moments in time and with so many urgent challenges before you, you know, to begin to understand how to set priorities. But this one has been delivered in your lap. But it is a very, very fundamental public health challenge.

And it's a reminder, I think, about, you know, the critical importance of public health and surveillance, and applying all of the best tools of science and technology to surveillance. And as you were describing the efforts that are gearing up to do genomic surveillance, you know, I of course was reflecting on the fact that it's ironic that the U.S., which has led in the area of genomics, you know, for now, you know, several decades, that we should have lagged so far behind in terms of applying that knowledge and capacity to the unfolding COVID pandemic. But what's also striking to me is that as we build this urgent capacity now to respond to the situation that we're in, are we doing it in a way that is creating an integrated surveillance system both nationally – at the, you know, local, state, and federal level – and internationally, but a system that can remain in place, also? Because this kind of surveillance needs to be applied to many other challenges, both routine and of course we all recognize that this may hopefully be the worst pandemic of our lifetimes, but these kinds of infectious disease threats will continue to occur.

Dr. Walensky:

I think you raise a fundamental point that I've been thinking about in our response from a public health standpoint. So, first, we have to get out of this pandemic. That's got to be the first 10 things that I do as part of my job. However, if we get out of this pandemic and we don't set the table for future generations in some several key areas that we missed coming into this pandemic, we will not have done anyone a service.

So we have to rebuild the public health infrastructure because it was frail to start. It was never able to take on small outbreaks, never mind really large pandemics. We need to rebuild that.

We need to rebuild the data systems so that when we have – when the data are starting to emerge, we can actually recognize the new trends. We could have seen this coming. I often will look back at our own state and see that there was influenza-like illness happening in February and March before we had tests, and yet influenza itself was coming down. Is this something that we should have detected if we had seen better case detection, better surveillance?

And then, of course, the surveillance system that you are talking about.

So the final piece of that, I will say, is the health equity piece. If we are focusing on that now, if we're focusing on it in COVID and we're discussing that through COVID, if we only let it go there, we will have done a complete disservice. We need to make sure that the focus on that here is going to be throughout.

So the big – the overall response is we have to make sure we – (laughs) – can get to enough surveillance right now, but that itself is not enough. We need to make sure that we're building the infrastructure and the systems so that they are in place for not just COVID, but for all the infectious threats that come after it and that are here now.

Dr. Hamburg: Yes. Well, as we sort of learn more about these variants and where they are and how they're moving and the impact, obviously, that they're having on spread of disease, and also the ability of new therapeutics and importantly vaccines to protect against the SARS-Coronavirus-2, I just wanted to sort of dig a little bit deeper into where we are. You know, you were talking about how the U.K. strain clearly is causing enhanced transmission and spread. There has been some confusion, I think, in the coverage of this about whether it's actually more lethal. And of course, more studies need to be done, but is it that the virus itself is more lethal or that it's overwhelming the health-care system and so the quality of care and the ability to manage patients has declined? Is there more evidence on that? I noticed you did not say that it was more lethal, but I have heard others say that.

Dr. Walensky: So when we think about these variants, I think we worry about things in sort of four buckets. One is, is it more transmissible, as you suggest? Is it more lethal? Does it affect our treatments? And does it affect our vaccines?

So I – there are increasing data that suggest that it is somewhere between 50 and 70 percent more transmissible. That has a lot of implications for our – for what is needed for herd immunity and things like that. So I think the data are relatively strong and increasing that it's more transmissible. And from what the virology experts will tell me, that's probably the worst one,

actually, because if you have more transmission then everything downstream from that actually increases as well.

However, we also have now four relatively small studies out of the U.K. that have suggested also that not only is it more lethal, but it may – more transmissible, but it may, in fact, be also more lethal. I do think we need more data in this area. The increased rates of mortality have been anywhere between 30 and 90 percent. But, again, small studies. And so I think we have more information that we're going to need. And we'll see more there.

In terms of vaccines, data are starting to emerge right now. The press release from J&J suggested that there was perhaps a small hit to vaccine efficacy in the B117 strain compared to the native strain, but that overall I think the vaccine efficacy data from J&J were really quite good, especially when you look at the rates of severe and deadly disease, hospitalizations, which were really pretty well averted by the vaccine, to the efficacy of 85 percent. So I think overall we still have a lot more that we need to learn. There are data in the lab, in vivo data that suggest that suggests that – from pseudoviruses, and it suggests that our current Pfizer and Moderna vaccines are actually working – have the potential of working pretty well against the B117 strain. And I think we have a lot more to learn.

Dr. Hamburg:

Yeah. Well, I guess that in terms of the ability to evade the immune system there's more to worry about when we look at the variants that have emerged in South Africa and Brazil. And it looks like there the vaccine efficacy may not be quite as strong. But still, you know, adequate to prevent serious disease and death, and certainly a considerable protection.

But maybe you can tell us a little bit about what the role of the CDC in partnership with the other public health agencies is, in terms of making sure that the right studies are getting done, both by the companies and in other settings, to really better understand what the impact of new variants may be on the vaccine efficacy, as well as maybe touch on what the thinking is – I mean, we've heard that there may be investments in developing new vaccines for potential boosts over time. And of course, the mRNA technology for vaccines in particular lends itself to being able to quickly, you know, develop, using that platform, a new vaccine. So maybe a little bit about the impact of these new variants on the research and development agenda.

Dr. Walensky:

Yeah, that's – it's a key point. I think there are numerous spaces that I think we need to think about. One is this active collaboration that we're in collaboration with, with BARDA, DOD, NIH, as well as the CDC, so that when these variants emerge, when we actually have access to them, we can do – we can do science in the lab to look at whether neutralizing antibodies from either convalesced patients or from vaccinated patients is actually effective

against this variants. And there's a lot of cross-scientific collaboration and sharing there.

I think we need to really start thinking about how we're going to do population-based vaccine efficacy studies in the context of variants. What will the cohorts look like? How will we know? And our team is working actively on that right now, to sort of set up cohorts that's not just through passive surveillance of this person had gotten a vaccine and therefore – and how they're infected, now we need to look. So I think there are a lot of studies underway in the – in the basic lab, but then also at the population level, to say: How are we going to collect the data on the vaccine failures? That's not as easy as it otherwise might seem. We don't want to be passive about it.

And then finally, we want to be ahead of this. We have the great gift that these mRNA vaccines can be tweaked. And so the fact that they can be means that we should be starting to do that now. There's a lot of vaccine that's been purchased already, but I've been told – (laughs) – in not my words – that we're not – we didn't buy the Chevy, we bought the Cadillac. And whatever is the best vaccine for whenever it is available, that's the one that we'll be getting. So it may be that we have a two vaccine and then a booster suggested. It may be that we have bivalent or trivalent vaccines. It's not exactly clear where our steady state will be and what will be the vaccine to knock out whatever is left in the steady state. But we're working to try to get ahead of any of those potential.

Dr. Hamburg: Great. Thank you. There is a question from the audience I just want to ask you quickly, and then I want to see if Maria and Loyce want to respond a little bit to what you've been saying before I know you have to leave. But the question from the audience is: What's the best way to communicate information about variants in the public without undermining trust in vaccination efforts? And I guess along with that is the challenge of communicating at this critical time about the importance of the continued nonpharmaceutical interventions – the masks, the social distancing, avoiding, you know, large congregant settings, et cetera.

Dr. Walensky: You know, this – you're talking about a really key point. You know, people are saying, well, what are we going to do about the variants? And the truth is it's the same disease, right. We're going to do the same thing for the variants that we've been doing all along. The problem is that not everybody's doing it.

I just looked at some data out of our two South Carolina variants. You know, there were at least 15 contacts of people among – of both those variants, and masks were not worn at all. So it's really – or at least to my knowledge. But limited mask wearing is my understanding in those contexts.

So it is probably the case that everything that we should be doing for the disease, we should also be doing for the variants. We are going to have a lot of communication challenges as we start seeing the data from these trials that are going to suggest that one vaccine against one variant may have less efficacy than another.

But I think we have to communicate often. We have to communicate in plain English. We need to be really transparent about what the data show. And quite honestly, the outcome here that we're trying to avoid is death and hospitalization. And the vaccinations that we're – the vaccines that we're seeing work against those end points. And so we really – I think the messaging has to be consistent and clear. We also need to convey that we're doing the science actively, and we have to be humble in what we're going to learn.

Dr. Hamburg: Well, thank you. And we're fortunate that you have real communication skill – (laughs) – though it's a very hard job.

Maria, you want to just weigh in a little bit before we lose Rochelle?

Maria Van Kerkhove: Well, thanks very much, Peggy.

And Rochelle, you've made my job easy in outlining all of these major issues. I mean, I think what you've outlined is the different aspects of trying to understand these variants of concern in real time. We are seeing science happen in real time. We are seeing collaboration. We are seeing innovation. We are seeing data sharing.

I think it's foreshadowing what we are going to have to do into this year. You know, the virus is under pressure. This is what viruses do. This is part of the evolution of these viruses. And we're in a situation now where we're having events within events. And I think that what we are seeing is that we want the world to understand that there's a process in place, to evaluate each of these mutations, each of these variants, in terms of transmission, in terms of severity, in terms of potential impact on diagnostics, therapeutics and vaccines.

Right now, as you've pointed out, we're in a situation where diagnostics and therapeutics and vaccines work. But we may be in a situation where that changes. We need to be on this where we have good eyes and ears around the world. And how you describe the situation in the U.S., we're trying to do on a global scale so that we can have that level of surveillance and eyes and ears in every country. And that's a pretty tall order right now in a challenging situation to start.

But the last point on communication, I couldn't agree more – open, honest, regular, humble. You know, we won't always get it right, but we have to tell the world that we are in this together and trying to understand this

together. So just to reemphasize just some of those points, I think, is really, really critical. And we're with you on this. You know, I think all scientists together are fighting the same virus. Variants are not. And we are in this no matter what. So our goal is to suppress transmission, save lives, and end this pandemic. And we will definitely do that together.

Dr. Hamburg: Great. And before Rochelle leaves, Loyce, do you want to just respond a little bit to her opening remarks?

Loyce Pace: Of course. Thanks, Peggy.

And Rochelle, we're all glad to see you in this role and to have you here today. I mean, like Maria said, you made our jobs easy.

I really appreciated the audience member's question about communication as well, because I sit and think about how we stay ahead of this, not just from a scientific standpoint but from a messaging standpoint. And I do think you're the right person for that job.

I would also add that it's not just up to scientists like the folks at CDC or WHO to communicate this either. We as advocates have a role in this. I think business leaders, I think other leaders around our country and around the world, can each step up and help people understand where we are in this and understand, as Maria said, how this is going to continue to evolve.

And we're just as tired as everyone else. I don't know if everyone realizes that, how hard it is for those of us on the – on a different type of front line it has been to keep up with this and to keep people's trust and faith in the science. But we are seeing this real time evolve, and we are doing our best to stay ahead of this. I think we can continue to do so, remembering all that we've done, where we were last year when we knew nothing. I think we have to also recognize that we have come a long way and we've made a lot of good progress.

And so we are with you, as Maria said, Rochelle, in the work that you do. And again, just happy to be joining you all today. Thanks, Peggy.

Dr. Hamburg: Well, thank you. And Rochelle, I know that you do need to go. You know, we really do thank you for your time, and I think that you can see the kind of support that you have, the eagerness of us all to come together across disciplines, across sectors, and across borders in order to be able to, you know, fight this virus together and to help us all move – all nations and all people – to a better place. So never hesitate to call on us. And I know you've got other tasks before you for today.

Dr. Walensky: (Laughs.)

Dr. Hamburg: So you'll be ably represented, I know, by your colleague, but thank you for spending the time and helping to introduce this topic for today's session.

Dr. Walensky: Thank you so much for having me, for the partnership, the great work that you all are doing. As I said, this ship is going to rise because we're doing this together. Thank you very, very much.

Dr. Hamburg: Terrific. Take care of yourself.

Dr. Walensky: (Laughs.) I will. You too. You all, too.

Dr. Hamburg: All right. Terrific. Thanks so much. We'll say goodbye to Rochelle, but I will turn to you, Maria, next, to maybe just enlighten us a little bit about the work that WHO is doing, the new activities that you're engaged in as we learn more about these variants and respond to them, and also your perspective on the reengagement of the U.S. government with all of its resources and expertise back into the WHO family and what – some of the priorities you see in terms of next steps in that important collaboration.

Ms. Van Kerkhove: Well, Peggy, thanks so much, again, for the opportunity to be on this panel. And Rochelle definitely gave me an easy way in by describing all of the different situations with the – with the variants of concern around the world.

I mean, I think one of the things we start with is sort of where we are in this pandemic. We're in a situation now where we have more than a hundred million cases that have been reported worldwide, and that's an underestimate of the true level of infections that we've – that are likely to have occurred so far. But the virus and the spread is not the same around the world. You know, it's really the intensity is quite different in different countries. More than half of the cases are really restricted within five major countries right now.

But what we see globally – and if you look regionally – there are differences. There's heterogeneity within that. And we see countries around the world that have controlled COVID with public health and social measures, without the vaccine. Now, the vaccine coming online is an incredibly powerful additional tool that will help us, but we cannot forget about the public health and social measures that exist already that need to empower individuals, families, and communities to really prevent as many infections as we can.

So on the one hand, we are seeing countries that have controlled COVID, whose societies are opening up, and we have the extreme opposite end of that where we have some countries which are seeing surge after surge. But the good news is that this virus and the variants that are being identified can be controlled.

So you heard about the B117, so this is the variant of concern that originated – that was – that was identified first in the United Kingdom. I have data in front of me from Oliver’s team, in fact, updated as of a couple of hours ago, identified in 82 countries. We also have the variant that was first identified in South Africa, which is the B1351, or the 501Y.V2. I should stop myself because we’re working on the nomenclature. It’s too confusing with these variant names. I am on record multiple times as saying we need to fix this because it’s too hard to communicate all these numbers. But the variant that was identified in South Africa has been identified in 39 countries. And the variant – the P1 that has – was first identified in Brazil, has been identified in nine countries. So these viruses are spreading.

But as we’ve said before, this is what happens with viruses. This is a natural evolution of viruses, to mutate and to change. What we are trying to make sure that we have is a system in place to identify these mutations, to identify and study variants of interest and variants of concern. And so what WHO is doing is working to establish a risk monitoring framework globally which encapsulates several different aspects to be able to monitor. The first is surveillance. It starts with good epidemiologic surveillance, good molecular testing, the use of antigen-based tests. And in addition to that, genomic surveillance. So genomic surveillance worldwide is limited. There are some good areas of the world where capacity is very strong, and there are some other areas of the world where it’s quite weak. But what we’re doing is we’re leveraging the existing systems.

So we have a SARS-CoV-2 network that’s global. We also have a flu networks, the GISRS network, which we will leverage even further to be able to test and sequence for SARS-CoV-2. We’re looking at leveraging HIV and TB and polio systems. And we’re also looking within countries at academic labs, at commercial labs, at private labs that can do sequencing, because we want capacities in country. But we can’t just – we can’t just stop at the sequences. We have to make sure that we have systems in place to share those sequences with metadata, with epidemiologic data, so that we carry out what is called phylogenetic analyses and more detailed work to understand what these sequences mean.

In addition, once we identify these mutations and these variants of interest, we have – what we have established in June is a virus evolution working group which is looking at the suite of studies – in vitro and in vivo studies – working with collaborative labs around the world to understand differences in the viruses – the virus variants in terms of transmission, severity, and potential impact on diagnostics, therapeutics, and vaccines. We are linking to our R&D blueprint for epidemics with animal model working groups, and large numbers of labs around the world, and manufacturers to ensure that manufacturers and labs have access to these viruses.

And we are establishing a bio hub – this was announced by our director general a few months ago – around making sure that we have a lab. And this will eventually be labs around the world that can receive these samples, grow the samples under bio – the right conditions, and share those samples with others so that many people have access to these variants. So this is a framework that covers everything from surveillance all the way to the other end of looking at vaccine composition. Because if these viruses change enough, or they actually have an impact on the vaccines – and to date, we haven't seen any of these variants that render the vaccines that we have available to not work, and that's very, very good news – we may be in that situation in the future.

So we need to prepare for that. And ultimately, we want to be proactive instead of reactive. And so we're looking at mutations and combinations of mutations so that we can think ahead about those combinations of mutations and look at different variants to think about what that would mean for vaccine composition. But I think what is really, really critical is that while we are understanding these viruses, it's still SARS-CoV-2. It is still a highly transmissible and a deadly virus. And we still right now have measures in place that can prevent infections and can save lives. We have to emphasize this, because it's scary. People are fatigued.

That's the other major global challenge we have right now, is fatigue. People are tired. They want this to be over. I do too, and I know you do as well. But this virus is not sick of us. And so we really need to do everything that we can. And it's important that as scientists, as communicators, that we enable – engage, enable, and empower everyone on the planet to understand what they can do. Every single person on this planet right now has some power, needs to know what they need to do to be in this fight with us.

And then, just lastly, on the U.S.-WHO collaborations, that never changed. You know, I'm looking at John smile at me at the bottom here. And, you know, we have had – I'm an American myself. And we – the relationship between WHO and the United States has been strong for decades. It has been strong throughout this pandemic. We have had scientists working with us on all of our technical networks. We've had U.S. CDC folk embedded within us from day one. It's always been collaborative, constructive. We challenge each other, we push each other. But it's always been really wonderful. And it's gone from strength to strength, and it will continue to go from strength to strength.

So we are thrilled, you know, of you staying in the family. But quite frankly, you never left. (Laughter.) And we're really, really happy to continue that relationship because there are no borders in this world right now. And viruses don't care what nationalities we are or where we live. So we have to put our scientific minds, our compassionate minds together and make sure that we are consistent in the approach, and we give everybody the

tools that they need to end this pandemic. So thank you, again, for allowing us to be on this panel with you and inviting us to be on this panel. And we have a long way to go. And that partnership will help see us through.

Dr. Hamburg: Well, thank you for a very rich overview of all that WHO is doing – or, not all – (laughs) – some of what WHO is doing. But it's a lot. And one way where the U.S., you know, reengagement now hopefully can make a very significant difference is the U.S. really helping to support the global vaccination effort, both by investing in the COVAX ACT Accelerator program but, you know, in other important ways as well, I would imagine. And, you know, you just made a very powerful case how the variants only underscore the need to really communicate clearly and advance the issues around the public health measures that can limit spread and reduce the disease.

Accelerating our vaccination efforts can make a difference too. And the recent reports have been very worrisome about the limits in supply and capacity for really achieving targets for vaccination in so many countries around the world. I wonder if you might just say a little bit more about that set of issues as we think about the many challenges before us.

Ms. Van Kerkhove: Yeah. So, I mean, one of the things that is really quite astounding is the fact that we have multiple vaccines that are safe and effective against COVID-19, against disease. And there are more in the pipeline. So we need to encourage more development and the phase two, phase three trials of the other vaccines that are in development as well, because the more vaccines we have, the more people that can be vaccinated, and more production that can be increased, more supplies in many different countries. And so there's a lot of work that's ongoing with that.

And I should say that the work on the SARS-CoV-2 vaccine, the COVID-19 vaccine, actually began before we even knew about SARS-CoV-2. And that began based on years of collaboration, including collaborations with U.S. scientists and agencies around the development of coronavirus vaccines, which were established for MERS. And this was something that was established in the R&D blueprint several years ago. And there was some investment in that, which we could leverage to start here.

But we need more vaccines worldwide that are safe and effective, because more vaccines means more production, and it means more availability in countries around the world so that we can get them to people quicker. So we are working with a number of companies, a number of researchers that are developing those, to make sure that we can increase supply and demand. And among the vaccines that are available, make sure that we get vaccines to those who need it most. Through COVAX and through all of our partners with the ACT Accelerator, our goal is to make sure that the people who are most vulnerable and most at-risk receive this vaccine first, because they are the ones that are on the front line, they are the ones that are at

most risk for severe disease. And so that we are working through with partnerships. And we're really thrilled for the U.S. to join COVAX.

Dr. Hamburg: Great. Well, I could ask you many more questions, but let me turn to Loyce now and bring her into the conversation. And her perspective is very important, both having worked on the ground in countries to help support health needs and advocate for health needs now in her critical leadership role. So, Loyce, over to you.

Ms. Pace: Well, thanks very much. Yeah, I'm interested in getting into a discussion as well. But I wanted to make a few points in response to both Rochelle and Maria now. You know, I have to say I'm heartened by being a part of this panel, not just because of what it represents sort of wholly around cooperation, but specifically because we're bringing WHO and CDC together in a way that I think we were all really wanting to continue and we, as advocates, were fully in support of the U.S. reengaging with WHO. And so it's glad for us to hear that that's welcome. It's obviously good news for us to see that continue, because there is just too much work to be done to be going it alone, frankly.

When I think about that partnership, though, it's not just technical. It's financial. It's operational. And it's – you know, it's obviously political. And so I guess I want to bring that to the fore as well.

Peggy, you mentioned investments in COVAX, for example. And we – our U.S. Congress ended up including some funding in their most recent emergency funding package for vaccine specifically. I think that was really encouraging. There's still a lot more in terms of need with regards to resources. And so advocates and others, frankly, are really pushing for additional resources for, as you said, Peggy, not just COVAX, but the ACT Accelerator and other components of the global response to COVID.

We still need more treatments. We still need more supplies. We still need these other partners, like CEPI and Global Fund and the like, to also be capable of responding, as we know they can. And so sort of building on these U.S. investments is going to be critically important, and again, all the more reason why we want to be working shoulder to shoulder with our international partners.

There's an operational piece, too, that's sort of been covered. It was the logistics around getting a vaccine around the globe, right. But I don't know if we often talk about just data and what's required just to understand where all countries are with their outbreaks or with their response to this crisis, and also other, you know, around genomic surveillance, for example. But there are other exchanges that we often see between the CDC and WHO that are critically important now, particularly in light of how things continue to shift and change over time. And so I think that's just another example of why I'm encouraged by people coming back to the table.

And that's why I mentioned earlier this idea of how we communicate what it is we're doing. It's more than the science. It's more than the tactics. It's got to come down to the narrative and what people understand with regards to the value of this relationship, because we've lost some of that in the past year. And Maria has said, sure, people were still very much connected and in touch, and I think that's very true. But there is still some missing points, right.

And the thing is, we know whether, you know, working with CDC, working at WHO – something like vaccine hesitancy is something that experts have faced over decades. It's come into play with polio. It's come into play with measles. How do they now join forces to address some of these same issues with COVID-19 and our vaccination efforts today? So that's one example of how sort of this partnership come into play with regards to communication. But I think there are plenty more as well. So I'm looking forward to seeing how that evolves over the next year, particularly as variants make that communication more challenging, unfortunately.

I also would be remiss if I didn't come back to the critical importance of global vaccine equity. And we've all seen the reports. We've all, you know, come to understand that no one is safe until we all are safe. But I – still we are in a position where 50 or some-odd doses have been distributed to the African continent, right. That's not OK. And I know that everyone in all countries and leaders of those countries are feeling a special kind of pressure to take care of their own, so to speak. And yet we will continue to see these variants emerge and evolve as long as people are left unvaccinated, as long as people are at risk for contracting this virus.

And so there is clearly a moral imperative here, and that's what motivates me largely. But there's also a very real economic imperative, right. And you have data dropping as recently as last week really speaking to the trillions of dollars lost by us not really working in solidarity with others. And there's just a very practical imperative too. Again, this virus will continue to outsmart us if we resist working in solidarity. And so I think the calls for vaccinating health workers worldwide at the very least, and otherwise really working to invest in facilities like COVAX, are just going to continue to be important moving forward in terms of a government response.

I think, beyond that, I just want to – I want to drive home Maria's point that we need more and better of everything. And it's not just about vaccines in this regard. Treatments are very much outsmarting these variants to – or, excuse me, variants are very much outsmarting treatments that we have available. And so we need more R&D for those innovations as well as just supply chain and PPE.

So coming back to the public-health measures we all know and love and the tried-and-true guidance that we've heard over the past year still stands.

But we need to ensure that we're getting masks and other PPE to people on the frontlines and others at risk, and we each need to be doing our part to ensure that's happening.

But it's – you know, I know that there is a lot of hope that's come into play with regards to the vaccine. We know that it's not a silver bullet, especially given not everyone's going to have access to that at the same time. And so I want to be sure that as we talk about these variants, as we talk about essential innovation around these variants, that it's holistic, it's inclusive of the range of technologies and innovations that are required. And our partners at Global Health Technologies Coalition talk about this a lot, and I think we need to heed their call to action that we truly look across what collaborations like ACT Accelerator are calling for in terms of the need and address that holistically. We want as many tools in our toolbox as possible when it comes to continuing to fight this over the next several months and perhaps even beyond.

The final thing I'll say, as well, is that it's not just this global opportunity or an opportunity for global partnership. As much as I love to see Geneva talking to Washington or Atlanta, I think a lot of people don't realize how embedded CDC has been with WHO country offices, for example, and that relationship on the ground. And as you said, Peggy, I am a person who has lived and worked on the ground in these countries, and frankly, I want to shine a light on all of the people in countries around the world who have been doing such terrific, painstaking work over the past year. They've done it with their hands tied behind their back in many cases, and yet they persist, right? And so I want to shine a light on that work because you have initiatives like the Global Health Security Agenda. You also have the Africa CDC, obviously, that's emerged as a beacon, really, I think, with regards to the response. But we have these regional, if not country or local, partnerships and initiatives that require just as much support, right, and could benefit from us reactivating the exchange that has worked so well when it's come to tackling public health crises over time.

So with that, I want to turn it back to you. But thank you, again, for allowing me to give my take on how COVID-19 is continuing to challenge us, but in ways we are also continuing to fight back.

Dr. Hamburg: Well, thank you. And you know, there certainly is no panacea, no magic bullet, but there are important strategies that we know we have to pursue.

We have, you know, the great luxury of having a very rich and expert panel, and sadly not enough time. But I do want to give both Oliver Morgan from WHO and John Brooks from CDC a chance to quickly weigh in, as they are day in, day out working on these challenges. Oliver, maybe you first?

Oliver Morgan: Great. Thanks, Peggy. And thanks very much for the other panelists.

I think most of it has been covered, but actually, I wanted to shine a little bit of light, actually, on the fact that a lot of these situations with emerging variants have actually been detected by astute epidemiologists who have been watching the trends in disease and cases in their countries and around the world and seen something different, and that initiated the investigation into, in many cases, the different types of variants. And there have been many other variants that have been looked into, as well, as part of reaching epidemiologic investigations.

I think it's also really important to recognize that – what we have learned so far. Particularly, we've got a very rich amount of information from the B117 transmission in the U.K. Has really been done at enormous speed by U.K. scientists and U.K. epidemiologists, and I think it's really, really important that we continue to encourage such great epidemiologic work around the world. We see also now in Southern Africa increasing epidemiological trends in Zambia, Zimbabwe, Mozambique, as well, and what we don't quite have yet is the laboratory capacity to match with the good on-the-ground work that the local epidemiologists are doing. And Maria mentioned the importance of us having a connected capacity around the world to support countries who have that capacity doesn't exist, and to leverage, again, in the most effective way possible to see what's happening in many different countries.

So thanks very much and I'll pass it over to John.

Dr. Hamburg: Great. Thank you.

John Brooks, M.D.: Thank you, Oliver. And thanks again, also, for the opportunity to be on this panel today. It's great to hear, despite this fight going on for a year, how invigorated people are by the changes that are happening. And it's particularly nice, of course, at our agency that we have Dr. Walensky and we continue to have a very good relationship with WHO.

It's hard for me to elaborate at great length on anything that anyone said. I guess the couple things I'd like to add is when we're thinking about what you need to invest in to end this epidemic and to be sure that we are ready for the next one – because this isn't the last one; history shows us there will be another one – I think we need to ensure we don't forget to invest in human capital. You know, we can do – we can spend a lot of money developing systems that sequence viruses, that transport the specimens, that, you know, manufacture the things, but as Oliver pointed out, it's the prepared mind that is often in the right place to quickly recognize there's a problem.

One of the issues we're seeing with all of these sequences is we're boosting thousands and thousands of sequences and they're being uploaded to databases that everyone in the world has access to. But the skill of the person – the number of people skilled to interpret those data meaningfully

are right now few. I mean, they're good and they're working hard, but that's an investment we can't forget to leave behind.

The other one is sort of what I like to call the silent problems that we – you don't see. There's a lot of issues around logistics and supply chain that, you know, if but for the grace of one factory that sometimes something is getting manufactured. You know, when you make a vial of vaccine, there are a whole bunch of pieces that go into it. And if all those aren't lined up – the company that's making some little rubber tops or prints the expiry date on the bottom of the thing, if that's not working – you're out of luck. So remembering that there's a lot of very mundane founding kinds of things that have to be continually funded to make this work. And I think that's part of what public health is, you know? It's both this excitement and commitment, but there's a very important, rather mundane part of keeping the car running and in good shape. And I look forward to really using this epidemic as an opportunity to firm that up around the world.

The only other thing I want to add is that with regard to complacency, we're hearing a lot about complacency as things go on. This is a place where we need political leadership. It feels increasingly like the political leadership between the United States, the WHO, and around the world is beginning to align very clearly on the same needs, the same messages, and talking the same way about this epidemic. If we're not talking the same way, the message gets garbled and people don't get a clear sense of what they need to do.

The other is dealing with fatigue. And I wish I had an easy answer to it, but we do need to build resilience and take time for ourselves from time to time so that we can keep our batteries charged moving forward.

Dr. Hamburg:

Well, thank you. And all of you have provided such excellent points and information, issues for us to think about and work on.

Before we close – and I want to give Stephen Morrison a chance to make some observations – I do want to just raise one other point, and it's a challenging one. I mean, I think I agree with what was just said, that we are aligning more than we perhaps have been in recent times as the U.S. and the global community around some of the critical steps that have to be taken, and the importance of a coordinated, concerned effort working together, and the recognition that, you know, no one and no nation can be safe until everyone around the world is. On the other hand, you know, we live in a world where we have experienced increased nationalism. We know that the fear of what may be happening in one country coming to another – Maria mentioned about the importance of the terminology, the lexicon for these emerging variants, and the importance of not labeling them U.K., South Africa, Brazil because while they may have been recognized there and they may be having profound impact in those specific countries, it isn't as though these variants are a product of those nations. They were the ones

that recognized them. And we have to create a world in which there can be an openness of information, good information and bad information, without countries shutting down, pointing fingers, and without countries being reluctant to share information for fear that there may be economic or other consequences that are negative of their actions.

So I did want to just put that on the table. Unfortunately, we don't have enough time, I think, to really adequately address it. But I might turn first to Maria and then to Stephen who's been working on these issues for such a long time to offer some thoughts. And then maybe Stephen can also – I think we're going to have to wrap up, unfortunately. But, Maria, you're in sort of a hot spot there for this concern.

Ms. Van Kerkhove: Yeah. Well, I mean, as you said, we could probably speak for another three days on that particular topic. But it's absolutely critical. It's easy to say that we need information to be shared – epidemiologic, clinical, genomic sequencing. But we need there to be a system in place to do so. And we need countries, people to feel comfortable to be able to do that without retribution, without punishment. And this is really important because what we are seeing right now – and COVID is the latest example of this, but we can give an example of any emerging pathogen, any humanitarian event over and over and over again. Countries need to be able to share that, so that people can act – so that we know what we're looking at, we know what we're dealing with.

And it needs to be done rapidly. We have the international health regulations, which is the global legal framework that we have to be able to do so. And we are following alerts. And Oliver could probably talk about this for the next few hours as well. You know, we're following all of these alerts. And they have to be investigated. But countries need the ability to share this information. This virus evolution working group that we've established is a group of – a small group of scientists around the world. South African contacted us to say: We have something we want to share. That was shared amongst this group. That alerted individuals in the U.K., you know, to look even further. But, as Oliver said, there's epidemiologic – astute epidemiologists and clinicians in place.

It's a patchwork that's an incredible intricate puzzle piece that needs the ability to share information, because information is power. Information allows us to design and develop public health actions that can prevent small events becoming something bigger. It can help us for the next one, because there certainly will be one. But it is really, really critical, that last point that you make, Peggy.

Dr. Hamburg: Well, I think maybe, Stephen, we're going to need to have another panel on that topic. But I – you know, I will admit that I have failed as the moderator, because we're already over time, but I do want to turn now – I want to thank all of the panelists for their extraordinary contributions to this panel,

but even more importantly, what they are doing every day working hard to really address the challenges of this unprecedented COVID pandemic. But, Stephen, I want to turn to you for some thoughts and concluding remarks.

Mr. Morrison:

Thank you. Thank you very much. I want to second the thank-yous to everyone who's participated. Very rich. There's a lot of statements that are going to, I think, be embedded in our minds going forward. Things like: We are with you on this. Or, this virus is not sick of us. (Laughter.) And we all need – we need more prepared minds. I mean, these are all very powerful statements.

This is a really dark moment. And you know, how we preserve our confidence, and our energy, and our optimism is so important. I mean, the – I had a conversation with someone earlier today who was describing this moment as this is the end of the beginning. This – that was a Churchillian statement made in a dark moment in the war. And perhaps that sort of captures a bit of where we are right now. I was very impressed with the energy and the enthusiasm. I continue to believe that WHO is such an asset, but a poorly understood asset here in the United States. And I think having Oliver and Maria with us today, very great thanks to Gabrielle Stern for helping put this all together. It's very important. We need to do more of this.

I also think that vaccine hesitancy doesn't begin to capture here in the United States what we're really at risk of. Our trust and confidence has been deeply damaged over the last four years. And we have an – we have the possibility, as we saw at Dodger Stadium yesterday – for expressions of hesitation to become acts of near-violent interventions and opposition. And the spillover of many of the deep tensions – unresolved tensions within our society that can migrate right into this – into this space. And I fear we can see more of that if we're not very, very careful. We didn't talk much about that. The Biden administration's been very deliberate in its national strategy around confronting these problems.

I want to offer special thanks to Clifton Jones and John Monts in producing this. And, again, to Amith Mandavilli, our colleague who put all of the pieces together.

The last point, the missing high-level political leadership has been a striking, conspicuous gap in the last year. And I hope we're beginning to get out of that with these changes that we are beginning to see. I know there's some plans possibly for a February 19th summit organized by the Munich Security Conference. Those details have not been finalized, but things like that are beginning to happen. And that's very, very important. Thank you all.

(END)