EVIDENCE MOBILIZATION ACTION COLLABORATIVE SUMMER WEBINAR
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MICHAEL MCGINNIS

I'm Michael McGinnis. The Executive Officer of the National Academy of Medicine and it's my distinct pleasure and privilege to welcome you all to this National Academy of Medicine meeting of our evidence mobilization action collaborative, which is going to focus on the issues of evidence of development generation and use during the COVID-19 pandemic. Obviously a critical issue from every possible perspective and critical issue and a critical opportunity for learning and improving as we move forward in the development and use of evidence for better health.

The spirit of this morning's session is very much in line with the spirit of the overall theme of activity for the National Academy of Medicine's leadership Consortium for a value and science driven health system and that is working as we can to develop a continuous learning health system. And I'm going to come back to that in just a second. But, I first want to offer thanks to all of you for tuning in to the session today to the collaborative co chairs rich Platt and recurrence, who I will introduce in just a moment, but who have worked together with the speakers, a remarkable set of speakers, along with a superb staff consisting of Laura Adams Elaine Fontaine Fasika Gebru Noor Ahmed and others on staff to pull together today's meeting.

I think that you'll find it most informative. I'm going to just give you a brief contextual overview of the collaborative And the consortium under which the collaborative works and then turn it over to our co chairs. If I can have the first slide, please. I mentioned that the NAM and leadership consortium, which is a group of senior leaders from multiple sectors around the nation has been working under the common commitment to a continuous learning health system, the definition of a learning health system which has been operative since the inception of the consortium. Is that a learning health care system is wondering which science informatics incentives and culture. Remember those four because we'll come back to them later are aligned for continuous improvement innovation and equity with best practices seamlessly embedded in the care process. Patients and families active participants in all elements and new knowledge captured as an integral byproduct of the care experience. We have the technology and the scientific understanding to do this and we're collectively working to marshal the societal commitment to move towards the vision. Next slide please.

Over the period of the work of the leadership consortium, we focused on increasing understanding about the multiple key components and not going to enter into each of those are I'm just going to say that there have been about two dozen deep dives into various aspects of a learning health system published together as part of the learning health system series. And the evidence mobilization action collaborative has been a key contributor in guiding the way to the kinds of issues that need to be engaged. If we're going to advance our progress.

You see here that over the course of that period of time. The anchor principles that guide health system performance and also evolved. Most of you on Who have joined us today are familiar with the path breaking publications At the turn of the century, published by the Institute of Medicine. Now, the National

Academy of Medicine on crossing the quality chasm and to err is human. The six anchor principles identified as important for health system performance at that time, largely health care system performance were services that are patient centered safe, effective equitable efficient and timely, we have evolved through the work of the Of the consortium and the learning health system series so that we have added to personal safe, effective equitable efficient and accessible the notions of transparency at activity and security, and I mentioned those because Over the course of the work of the consortium.

The activities have evolved around four domains evidence. We're going to be discussing today and we'll come back to the strategy there and just a moment. The Digital Health domain. The financing domain and the culture domain and those these anchor principles map onto each of those domains and provide guidance to the stakeholder actors and organizations in each of the domains. Next slide please.

Today's session. Is an important example of what we in the National Academy medicine leadership consortium are undertaking In order to draw to the strength of our multiple sector representation and assessing the impact of the COVID-19 pandemic. On each of the major sectors that are represented nine major sectors represented on the consortium. And seeking to in those assessments learn lessons that can then be applied to broad health system transformation that's all I'm going to say about the context of the broader context for today's Meeting in the in the work of the evidence mobilization action collaborative

I'd like now to I'll come back to this specific strategy around evidence in just a bit. But I want now first to introduce rich Platt of Harvard University and recruits of Medtronic the CO chairs of the action collaborative and turn it over to them to get us started.

RICHARD PLATT
So you can see my former self on the on the slide here. Rick has held up better than I have in that regard. But we're both delighted to be part of today's session as Michael said our, our collaborative remit has been to focus on the fact that, despite Our being in the midst of the greatest wave of Research in in our lifetimes, the knowledge gap is actually growing the number of things for which we either don't know the right answer or don't know how to implement the right answer is, is growing even faster. And so that's broadly in broad strokes. That's the challenge that our collaborative is trying to deal with and our hope for a learning health system. The COVID-19 epidemic has created an opportunity, in a sense, because it has forced us to rethink so much of the way we regenerate and apply knowledge and our hope today is to try to distill as much as we can from the from that structural learning as we can with the Hope that both will come out of today's discussion with a better understanding of the status of our knowledge about the COVID-19 but also to be able to apply the General lessons learned into ways that the things that we might apply otherwise. So we have organized the discussion around five presentations by individuals who've really been setting the, the National example for how we can wrestle with this new challenge. First we'll hear from Ashish Jha, who will Take a national and global perspective on how we understand the challenge of COVID-19 then Howard Zucker who's the health commissioner, the State of New York will talk from the perspective of a of a large locale about understanding The occurrence of the disease in a in a geographic area. How to Organize care around it, how to communicate with the citizens in the hidden that area next slide will Move then to Deitram scheufele who will Pick up the, the theme of communication with The general public about what we know. And what's important to do and then See, and then Amy Abernethy will bring us back to a national perspective On how the US Food and Drug Administration is creating an evidence accelerator to pull together the best information that we have. You know I somehow left out, Carlos, Del Rio. Is he not on the slider, did I just read over him. But in any event, or our third presentation will be by Carlos, Del Rio from Emory University who will talk about the development of … I was going to say new treatments but of treatment for a condition that we haven't had

so five lead presentations with discussions to follow to follow each of them. And just to just to review the bidding. It's Ashish first Howard second Carlos third deitram Fourth, and an Amy to follow up and then we'll have a summary discussion.

Rick will talk with us about the logistics of how to make this into a conversation that could involve As many of the 323 of us who are on this. Webinar as possible, Rick.

RICHARD KUNTZ
Thanks rich and so as rich said I'm cover a few of the housekeeping issues. So for this meeting. After each presentation will have an opportunity to answer your questions. So speakers vs. You turn your video on when you're presenting and remember to keep yourself muted when you're not talking, they're the only ones can be muted unmuted. Will start by some pre selected prepared questions for the speakers, the time permits, will be able to answer questions that are generated from the audience. And if you're watching and one ask a question, please go ahead and type in your question into the Q & A located in the controls of the bottom of your screen on the zoom platform. And that's going to be in the chat box, as I understand, please include your name, organization, and if applicable. If you want the question direct the tours and finally according and a copy of this presentation will be available to view after the event is done so. On the screen or some other issues related to zoom instructions which I won't read through that they have covered most of them, but this is a typical zoom call, which I think most of us are familiar with. So With that, I'll turn it back over to Michael to introduce the first session.

MICHAEL MCGINNIS
Thank you very much, Rick and rich In introducing this first session. I'm actually speaking for Rick and rich who and fashion, the Structure, along with their other co leads From the other collaborative. The other three collaborative so working as part of the leadership consortium. And I'm going to run through a series, I think, three or four quick slides that will give you. First, a sense of the overall structure of operation of each of the collaborative Then a Review of the issues that are engaged in some fashion or another by the evidence mobilization action collaborative Then the key principles as they apply the anchor principles to the collaborative and finally the indicators that are being used. They're currently under development by the collaborative to map progress and believe it or not, I can do that fairly quickly.

This, you cannot read probably unless you've got a great zoom feature on your screen, but I will note that the slides that I'm reviewing Will be available as part of the series of materials available in conjunction with the session today. The short of it is, and I'll interpret for you. Is it the at the base of this graphic are the four domains in which the consortium works digital evidence economics and social cultural The evidence is the yellow portion. So, in the course of the collaborative activities. The work basically moves up the layers. And if you track the yellow band, you'll see that The evidence mobilization action collaborative has interpreted the anchor principles for use in evidence stewardship. The focus is on generation of real world evidence a network of organizations committed to Enhancing the generation and use of real world evidence for knowledge. For improved health of the American people. And a series of dashboard indicators that indicate overall progress. Individual collaborative projects are developed as part of the collaborative work as a whole. Next slide please.

Here you see the various dimensions that are addressed by the evidence mobilization collaborative at different points in time. And I won't go through them all, I'll just indicate that they relate to the sorts of things that you would expect data stewardship standardized multi level core indicators linked data interoperability data reliability and validation Artificial intelligence and machine learning data curation and analysis and the like the evidence mobilization collaborative Takes it all takes on the responsibility for

understanding at some level, the extent to which society is progressing in each of these domains and then drills down with specificity on one or another of the areas of for direct project involvement. Next slide please.

noted earlier, the anchor principles that were Used across all of the collaborative and here you see the mapping of the anchor principles for stewards of evidence generation and use That is to say, organizations and individuals developing interpreting and applying evidence and a learning health system. Are responsible for ensuring that those activities are personal that services are assessed and delivered and tailored to circumstances and individual goals, they're safe. Health services and research contain safeguards against unintended harm, they're effective evidence is generated are applied using objective standards to eliminate bias. They are efficient evidence is provided in content form and manner appropriate to need they're accessible. relevant evidence is available at the point of service. They're transparent. Evidences transparent as to source strengthen applicability there adaptive evidence protocols are continuously assessed for and responsive to new information and they're secure personal health data are securely tracked reported and stored

So those are the anchor principles Guiding the work of the evidence mobilization action collaborative final slide please, the collaborative and also developing a series of dashboard indicators to Identify the level of progress in society. Around the generation and use of evidence. That is needed in real time and the three that are currently in scope relate to the percent of standardized national guidelines that are supported by high quality evidence They relate to the percent of healthcare delivered and reimbursed, which is supported by high quality evidence And they relate to the percent of individuals endorsing protected use of their personal health data for evidence generation using an understandable uniform consent vehicle. With that, I'd like to

Thank you for your indulgence of that quick strategic overview of the work of the collaborative and thanks to our two co chairs for stewarding the progress of the collaborative That has resulted in what I've just presented to you. And now, Rick. I'll turn it back to you to introduce the first session.

RICHARD KUNTZ
Thanks Michael. We're about 10 minutes ahead of schedule here. So the speakers can have a little bit longer time. I just want to make another kind of housekeeping comment here about the presentations are engaging that the presenters will speak for about eight to 10 minutes each. And other speakers, if you can remain on muted during your presentation muted during when you're off. That'd be helpful. And the staff will advance the slides, the speaker just basically say next in the slides ago forward. Afterwards will then go ahead with the presentation of the questions.

One minute before the end of eight to 10 minutes you'll get a chat from our staff, saying that you've got about a minute left in your presentation. Again, I think we're a little bit early. So I think this first session can go a little longer than needs to them as needed so that It's my pleasure to introduce Dr. Ashish Jha, professor of global health at Harvard th Chan School public health and Director of the Harvard Global Health Institute.

ASHISH JHA
So good morning. I am online. Can everybody hear me okay Great. Fabulous. So I'm excited to get started and I'm excited to get started a little early. And what I'm going to do. I don't have slides. I want to speak. for about eight to 10 minutes on this issue of evidence for action in the context of this pandemic. So if we start with where we are as a country. It is I think without a doubt clear that we have the worst pandemic

response of possibly any country in the world and there may be a couple that are rivaling us, but we are certainly among The very, very worse. Um, there's a whole host of reasons why we're doing as badly as we are, but I believe very strongly, and I'll try to lay out the case for it. That fundamental one of the fundamental reasons why we are so far beyond where we ought to be Is the lack of high quality evidence and data and this speed with which it has arrived has been consistently too slow. So the issues around evidence and data and how it has hampered action is critical. And the other reason which is related is that we are also dealing as a nation with a torrent of misinformation. And when you have a vacuum of high quality information. I think it creates an opportunity for misinformation. To show up and to take root. And so if I think about things that I would want to improve in our pandemic.

If we could go back to January. It's actually quite a list of things I would do differently. But one of the top things would be to think differently about what kind of evidence and data we've had for fighting this pandemic. So Let me start off there and ask the question. So what's been missing, what would high quality data in this pandemic have looked like. So what we should have had sort of from the beginning, from day one. Is and I'm going to lay out some very basic things. And then I'm going to lay out what I think are some a bit more sophisticated things And what I'm going to try to share with you is that this is what a good response with in terms of data would have looked like because Data is fundamental to then being able to act and when you don't have high quality data, your actions are going to be hampered

So let's just be very simplistic about this, what would have been helpful and useful to have from the beginning. For every community, we would have wanted to have number of cases number of tests being done. Number of hospitalizations that are occurring from this disease number of people dying from this disease. So it's not rocket science. These are like the fundamental building blocks of any disease outbreak. We would have wanted that information broken down by critical factors such as the race and ethnicity of people who are being affected but neighborhood. The age the income. Because that would have taught us a lot about how this outbreak is playing out we wanted, we would have wanted that information updated real time daily And by the way, these are not pie in the sky ideas. These are things that lots of countries have done.

We would have wanted data from high priority places we would have wanted active data from nursing homes from essential workplaces like grocery stores meatpacking plants. And then what we would have wanted was surveillance data, data that gives us early looks into what's happening in individual communities. This is the evidence that one needs from a policy point of view, to act in this in this pendant So the question is have we had this and I would argue throughout much of this pandemic. The answer is largely. No, but I'm going to put a lot more nuanced on that.

It has largely not come from the federal government and it has largely not come from state governments. Now one of the points I want to make this very, very clear is in the middle of a major outbreak like this, we often turn to What used to be. I would argue the world's greatest public health agency. And that's the Centers for Disease Control and Prevention. And I will say that in this regard the CDC has not performed the way it needed to And I think that we can get into why the the fabulous scientists of the CDC or thankfully still there working incredibly hard. But I think they have been hampered in ways that have made it very, very difficult. So given that, Given that we are in a hodgepodge right now. What do we have from a data and openness point of view, what we have is every state collects and reports data a little bit differently. hospitalization and death date. I can often lag weeks. One of the things that we noticed and when we've been tracking this stuff across the country. Is for a long time. We couldn't get any hospitalizations data from Florida, the data from Georgia on deaths and hospitalizations consistently like two, three weeks behind what they did from other states.

We could go through Kansas is still also not reporting hospitalization. So it's just this incredible hodgepodge people reporting cases differently people reporting testing differently. Almost none of it was broken down by race and ethnicity and the testing data, the testing data that not just I but people like me relied on but the testing data that the White House coronavirus Task Force relied on Comes from COVID-19 tracking, which is a group of journalists who pulled together daily information about the state of testing in our country and the state of new cases. In our country. So basically, a group of journalists are pulling together and some of the central data that our countries.

So what is the consequence of all of this hodgepodge of data collection. Well, I started with. We are number one in the world, and I'm from some cases and we are number one in the world in terms of number of that's Um, but it goes beyond that we have this virus this disease has not affected all communities in America. Equally, it has had a massively disproportionate effect on black Americans and on Latino Americans. And it took us many, many weeks to figure that out. Because again, our data collection. We're not up to snuff. We didn't have the information we need it.

One of the hypotheses that I and others have had is that our entire testing infrastructure has been deployed in a way that Disproportionate makes it harder for black and Latino Americans to get test. Did I have evidence behind that. It took weeks and weeks of work from the National Public Radio and from 538 and other journalists. To track all of that down and put it together and piece it together. And indeed, that is what the evidence. Shows but that's all stuff. We need the government to be collecting that is all stuff. We need to have government collect and make transparent on an ongoing basis.

Last point, kind of on some of the consequences because we continue to be so consistently late in our data collection. It has allowed for a lot of missteps and slow responses I think back to Memorial Day when many of the states started opening up a week later, it started number of cases started rising And because we didn't have good data on forecasting because we didn't have sort of the surveillance data we needed For weeks we had this national debate of our cases actually going up. Maybe this is more testing. Maybe when we don't see increases in hospitalizations and that lag that four week lag where we had what I thought was a pretty inane debates. Basically meant that the virus got out of control across about half of the United States, leading to where we are now, where 1000 Americans are dying every day. And that was a data failure was not just a data failure, but it was a Dave affiliate

So let me finish off by just saying, what we need is high quality timely data specially focused on high risk groups, whether they are residents of nursing homes, whether they are racial ethnic minorities. And we also need really high quality surveillance data here is a place for instance where there's a lot of opportunity for doing things like wastewater surveillance, there's been Protect increasingly good evidence that sampling wastewater and municipalities across the country. Can give us an early look into where outbreaks are likely to get worse. We don't have a national strategy for collecting that kind of data. We need data on better modeling and forecasting right now. Much of the modeling and forecasting data. Is coming from Google and Open Table and other sources but no one's really pulling it together, certainly not our government So when I look at when I want to predict where things are going next. I go almost completely to to private websites that people have pulled together. One of the very best actually is coated projections, run by a 25 year old computer scientist who just has Managed to scrape together data from all sorts of different websites and just runs it, it's probably the most effective predictor Again, that kind of data. It's great to have you know 25 year olds sitting in basements. I don't know if he's in a basement.

But doing this, but this is really the work of government. And this is really the work of our of our public health agencies and we haven't gotten it so Let me finish off by just saying, I think the purpose of this

entire gathering, which all of you have been really spearheading and leading in so many ways is we know that high quality data is fundamental to effective action. And we have not had the kind of data we need in our country and we continue to not have the kind of data that we need The bottom line is we can't fundamentally improve our performance on this pandemic. Without it, though. I think we can make changes that will get us through this a bit easier. But once we do get through this pandemic. I think we have to have a very substantial national conversation. About how we make sure that we are better prepared for the next one. So let me finish with that and say thank you for having me on.

RICHARD KUNTZ
Thanks Dr. Jha. as you were speaking, there were several questions from the audience about things like how can this country with all of its advanced technology. And it's fantastic private companies, Google, Amazon, be the worst. I mean, we're. What's the gap. What was the glue that was missing that other smaller companies were going to pull together like Taiwan or South Korea.

ASHISH JHA
Yeah, and actually, you know, one of the countries that gets very little attention is Vietnam has done a fabulous job relatively low resource. It isn't because they had the best Google models of predicting the future outbreak. They just did really superb shoe leather epidemiology and basic public health, you know, there. Let me just say one thing kind of about America versus much of the rest of the world. We can look to models like South Korea, New Zealand, Germany. There are a lot of very good model. So what we could have done differently. The most interesting two interesting points. One is they all are different from each other. So there isn't a single formula. But if you asked what is the one difference between us and most of those countries, it is they took the virus seriously and we continue not to There are still large parts of our country that continue to not take this virus seriously still get caught up in the This is nothing worse than the flu or it's a hoax or all the misinformation that you're all very aware of And so we have to do some very serious thinking about how do we counter that misinformation because that misinformation has shown up in other countries to in Germany, for instance, there's been a big misinformation campaign. The two big differences are. They've had a Polish they've had political leaders who have pushed back hard against that misinformation. I think that has been a really important part And then they have filled the gap with high quality information. And I think that's what brings us to our Gathering today is that, you know, kind of the nature abhors a vacuum poor quality data is a is fertile ground for misinformation and so part of the way we counter. It is by having really high quality evidence

RICHARD KUNTZ
Yes, it seems to me that because of the lack of a national approach we required all the small geographies as a country to come up with a solution for this very complicated epidemiological problem. Yeah, and from first principles, you end up with a whole spectrum of different ways of approaching and there is no scale of technology in order. So it's almost fundamental that lack of natural leadership has led to this massive Problem. I mean, would you agree than

ASHISH JHA
I do, I do know I've been, you know, it's interesting because I believe in. When I look at the history of public health in America. It is, and at its best moments. It has always had a very important role for states, I believe states have a critical role in public health. But it's always been a partnership. And the partnership is you know I'm in Massachusetts. Massachusetts, public health, people know if you want to set up a testing site in Somerville, where you ought to set that up because you want to. They have local knowledge.
But the federal government provides guidance leadership strategy resources and that partnership is what has always worked really well. And right now, one of the two partners is largely missing.

And so states are having to figure this out on their own, including filling in knowledge gaps that they have always relied on the federal government for so it's been a it that's really been a huge challenge. You can't fight a pandemic 50 states at a time.

RICHARD KUNTZ
Yeah, I wonder if you could also comment on just some of the disease models, it seems that there's a big focus on looking at the peak of cases and the decline of peak as a as a safe zone is it says a green light without much focus on the level of immunity. And it. Can you maybe talk a little bit about how we've been a little bit misled by opening up based on looking at peaks, rather than understanding that there is still very, very low immunity in the virus is somewhat ambiguous.

ASHISH JHA
Yeah. Now there's Some point there's going to have to be like a very, I think, thoughtful analysis of how modeling has both been helpful. At times it has has also gotten us off. And, you know, the folks that I teach me and many of whom I respect deeply and Chris Murray has been a friend for a long time, but I think there were some fundamental problems in their initial models. That essentially projected that the virus would go away by June 1. And I remember looking at those models in late March, early April and saying like By what mechanism does the virus, just go away, but they had. And again, we can get into the details of why their models predicted as such, but it was actually a fundamental part Of why the White House got things so wrong because what happened was they came to believe that those models were correct. And therefore, Believed for reasons that I still grappled with I can't quite figure out that if we opened up at the end of May, it was going to be fine, because the virus was essentially going to be gone. And an either because somehow the population immunity had happened. Anyway, we can get into the details of why those models were wrong, but it fundamentally caused massive problems. In our policy response. And that's what led the President to try to push for the states, open up and for states to open up when they weren't ready. And you're absolutely right, but One of the other I think miscommunication issues. And I'll tell you. I'll take some of the blame for this. We've often talked about flattening the curve. And I was actually the wrong thing to talk about. Because the goal wasn't to like have the rise and then flatten out of super high level. It was to bring the curve down, so bring the number of cases down some states did that. But of course, many States didn't. And we're seeing the cost of that.

RICHARD KUNTZ
And and maybe you could comment on the ubiquitous of his virus. Do you know of any geography where the virus has been eradicated, or do we just assume that it is still exists in every geography.

ASHISH JHA
I think it exists everywhere. I mean, I guess, there have been sort of moments where it looked like maybe New Zealand. But New Zealand has had a very aggressive and very effective response and they're an island and they're what 5,000,006 million like they're small. But, you know, but as soon as they open up travel, they'll get it reinfected I don't think there is any geography that can eliminate this virus. The virus is going to be with us. And certainly with us for a long time, even after we have vaccines and get to a level of high level of population immunity my senses of virus will continue to, you know, circulate in small numbers. So they're probably has no real opportunity to eradicate this, but we certainly can manage it much more effectively than we have.

RICHARD KUNTZ
So if we do come up with a decent testing tracing process. What, what, what do you think the best way to share those best practices are especially in small towns and may not have the resource sounds like New York house.

ASHISH JHA
Right. Um, so let me talk a little bit and I didn't talk as much about testing and racing. So let me maybe take 60 seconds to talk about That as part of the strategy. It has been widely heralded, of course, South Korea is like the the role model for how you do testing and tracing And one of the things people often say as well at this point in our country with a large outbreaks across much of the South. Testing and tracing would now be useless and I won't actually push back on that and say, of course, like if you're in Georgia. Or if you're in Florida testing and tracing can't be your only strategy, it won't work because the outbreaks are way too big. But even in those places. And again, it is dependent on having test results that don't take a week to come back. But even in those places. Testing and tracing can help you bring down your level of buyers maybe can knock off 20% of the new infections that would occur. So it has got to be part of a broader comprehensive strategy that includes mass wearing that includes not having large indoor gatherings, etc. I do think that testing and tracing I've been advocating for it from day one. I do think it's a really fundamental part of our of our when our national strategy has to be

I was heartened when Massachusetts kind of took the, the early lead and in partnering with partners in house. They're trying to build up a whole contact racing infrastructure and had been a little disappointed that they've pulled back They pulled back because it's been hard. And my sense is New York has has had some struggles I know these things are hard, but We've got to try harder. And we've got to stay with it longer, and we've got to do a better job of communicating to people what the value of this is. And the last part about this is it's not just testing and tracing, but it's also the third part which is supportive Isolation because it's Really a difficult sell to people to say, hey, you might have been exposed go quarantine for two weeks. And we'll let you know how things turn out like that. That's going to be very, very challenging for most people to live with and and so finding mechanisms by which we can get people tested early and often. Finding mechanisms by which we can provide support for people so they can quarantine and stay isolated, all of those are really important parts of this broader strategy and We just We haven't had that kind of comprehensive strategy nationally and even not from most of the individual states.

RICHARD KUNTZ
One other question from the audience. What's the current status of data going to HHS rather than the CDC right now.

ASHISH JHA
Yeah, this is, this is one where There's, there's, there's a little bit of if we if we peel away the kind of politics of it. Let me, let me share what I might be a little bit more of a nuanced view on this. There was a lot of, of course on happiness by by a lot of academics and a lot of public health people about this move. And the argument, at least from the White House Task Force people, not the political leaders. But the kind of more scientific leaders, was that the CDC has been really struggling to pull together data in a way that's effective and we needed this other mechanism My relatively strong preference was if the CDC is struggling fix the CDC, figure out what the problem is and and but keep it within the house of the CDC. So far the data has been available, you can go to HHS, protect and find the data. And I have to tell you that some of the things that I couldn't get in the CDC version of this before I can now get an HHS protect so that's good.

But I still believe that undermining our public health agency when it's already struggling is not the right strategy and I still think this data should have an can stay within Within CDC, but as long as the data is available and public and and you know and accessible to the broad American population, I can live with it, even if it's not my preferred approach to do this.

RICHARD KUNTZ
When the disadvantages of coming on. When we were ahead of schedule this and we're going to keep asking you some more questions.

ASHISH JHA
I'm fine, as long as you guys don't get bored. But I feel like you have such a power packed set of speakers that I that I personally rather hear from so feel free to stop whenever you guys are ready.

RICHARD KUNTZ
Um, one question that I know you've covered in your present and your appearances on CNN had been the problem of acceptance of a vaccine by the public. This is more of a theoretical problem becoming more and more realistic because we start to hear more and more about what Darren and other groups may have a solution within a year. What's the, what's the game plan to try to address this known fraction of individuals. We know that based on the art, not of this COVID-19 virus, we, I think at least 60 70% of population. Immune to attain herd immunity and 40 to 50% are stating now that they're not going to take the vaccine that's my problem. Yeah.

ASHISH JHA
Yeah, you know, the data is I have seen it is about 50% people say, yeah, they'd be willing to do it about 30% are not sure. And then 20% say absolutely not. So the big question in my mind is that 30% that says, Not sure what's driving that. Is that just they haven't seen the data they haven't seen the I mean, at this moment, I'm not sure I got to see the data. Right. And once we have high quality data and once it's been gotten FDA approval. But then, obviously, I will, I will be Happy to get the vaccine. But we've got to see the data on both efficacy and safety. I look, I think this is a broader problem about it just gets out this. The issue is talking about around misinformation and how we counter it. And misinformation is largely not countered by facts. I think one of things we have learned from the battles on climate change on anti vaccine sentiments in the past. Is you can't just go up to people and say, oh, let me tell you that greenhouse gases are real and we really automating them and temperatures are rising like that you can try that. But it largely doesn't work. And what's really important is not just the message, but the messenger and the Messenger has to be trusted. So I don't have a great idea, a great sense of what exactly the game plan is out of this White House for widespread. Acceptance and adoption of the vaccine but it absolutely has to include local civic leaders church leaders other community leaders. Who have to themselves become convinced that the, the data is good enough to explain and justify using these things. And then have to advocate for it because the bottom line. And here's a slightly different point. But I think it's related When I think back to previous outbreaks, whether it was under the Bush administration or the Obama administration. You know, the President would often go up and in a press conference kind of welcome people and start but then very quickly transition the conversation over to either the CDC director or to Dr. Fauci Because presidents and political leaders are by nature polarizing. Right. And that's not just President Trump is also President Obama and President Bush.

And so what you don't want is people to feel like my trust in the vaccine is somehow tied to either my love of President Trump or my disk or my hatred or present like that's not useful. We want to disconnect those things. And that's why it's really important to have scientists leading and talking about these things.

And one of the things that I think has been a huge problem in this pandemic response. Is that much of of what we have heard coming out of the White House has been from political leaders, whether it's the President or the Vice President. Where I would have much preferred a doctor Redfield. The doctor he or even Dr. Burke's to lead. Most of those conversations it de politicized is these fundamentally scientific issues.

RICHARD PLATT
Well I, I bring together several of the questions that our audience has as Ashish, and that is Since this pandemic isn't creating the, the National surveillance infrastructure that we ought to have What's the prescription for Either things to build out during the next year or two, or when the dust settles. What will put us in a better position for our future as a society.

ASHISH JHA
It's really like the hardest and most important question. So short answer is, I don't know, but there are some principles that I've been thinking about We need a public health agency that is largely de politicized and it has CDC has been, by the way, in the past, and I feel like It is really struggling to remain in that role and it really breaks my heart because I know the incredible scientists were there and they're still there and they're doing God's work. But it's been a challenge for them to be able to do what they need to do. So we need to think kind of from an organizational political point of view, how do we how do we build in some independence into the CDC. Second is, we obviously need to do massive upgrades OF THE KIND OF IT infrastructure of state public health departments and the CDC and I've been speaking quite a bit of a lot of members of Congress, there have been efforts to try to do that. I don't know enough about why that hasn't gone as far as it has But then, beyond, you know, if you look at the CDC website today on testing, for instance, they'll tell you what testing is happening in the public health lab. So I'll tell you what does things happening. In these very specific and state labs, they will not give you a lot of detail of what's happening more broadly in the private sector. And this idea that the public health agencies only kind of look at what's happening within the public health infrastructure doesn't make any sense. Our world is now incredibly complex with data flowing in from private companies that work in public health. Private companies that have nothing to it, public health, but their data like Open Table reservations, I have found that to be one of the most useful things. I looked at As a way to calibrate hard people behaving. When you see restaurant reservation starting to drop. You can tell people are actually voting with their feet and saying, I don't want to go indoors to a restaurant right incredibly valuable information we need all that information flowing into up into both our State Departments of Health, but also into our, our federal public health agency. I don't, I don't know if it's fixes. I don't know if it's a total reboot of our information technology infrastructure. But what I know is it's not just about it. It is also very much about creating The culture of independence and the ability to collect that and pull together that data so we don't have to rely on that, you know, young, young computer scientists sitting in the basement pulling all this stuff together. We really want that coming out of the CDC.

MICHAEL MCGINNIS
Thank you very much for as usual splendidly insightful and clear. Summary of the issues and the challenges and the opportunities. One of the questions that came in essentially noted that the Cures Act essentially provides the conceptual foundation for the kind of data access That we ought to have and it's so it's basically at this point, a question of how we implement the Cures Act. And so the question for you. I suppose if you are The Secretary of Health and Human Services, what would you do

ASHISH JHA
Yeah, it's a lot. It's a really good question and a lot of things we can do. I agree with the I agree with the premise of the question. That the 21st Century Cures Act really did lay some fundamental principles in around open access to data open API's. My senses that we could probably do a little bit more on that front. But I don't want to obsess on that, I think, I think a lot of the fundamentals are in the air. I do think if I were the secretary of HHS or the head of the CDC, or let's say kind of in charge of thinking about how to make the data infrastructure for health better in our country. I would absolutely think about data for so improving both where the data is being captured how that data is flowing in. Making sure that we are getting data from all sorts of sources. So the CDC is not just getting it from states, but also getting it from the private sector. And being a very open partner on partnering with organizations to pull in data, I think. You know, when I think about the forecasting models. If we were to try. I get asked all the time. I got asked this morning on CNN. How many Americans will have died by Thanksgiving, obviously. I don't know, but I can tell you what the models are saying, but none of those models are really coming from the CDC and none of those models are really incorporating all the sets of data that I think need to go in, so It, you know, as you know, Michael these things. You can have the legislation, they don't happen naturally. There's a ton of just blocking and tackling hard work in sorting out all these problems and getting the data to flow and I just don't think that it has been a priority. For this administration to build that kind of data infrastructure. So I guess if I were sexually of HHS, I would make it a priority, I would say this is the kind of lifeblood Of both a health care system and a public health system but America deserves and we just need to build it and I think we have the tools now politically policy wise and resources to do that.

It's well it's hard work. I mean, that's You know, one of the things that worries me a lot about our national response has been that we have and this goes completely to the, the debate that we're having about opening schools. Is none of this stuff is easy and people want like the easy answer is it yes or no. And the answer is, if you put in the hard work. We can do it. But without hard work. We can't. And then people just sort of, I feel like our political leaders lose interest at that point. And, you know, we've got to be a country that's willing to do the hard work.

RICHARD KUNTZ
Well, thanks so much. Dr. Jha for their generosity of time and great insight and I'm sure everybody on Appreciate said the role you played so far in the United States trying to understand how we can get better. The ability to identify the problems and help us solve these problems as we go forward. So thank you very much for your time and with that alternative rich

RICHARD PLATT
Good, so Next up, it's my pleasure to introduce Howard Zucker. Who is the health commissioner for the state of New York. She pointed out that there were some Across the globe. There were some important exemplar societies that had managed to respond in an effective way to the pandemic, one of those examples is the state of New York's rising to the occasion and Howard has Been right in the center of that activity before he was doing this. He was a leader in New York's efforts to come back the opioid crisis to strengthen environmental health deeply involved in the response to the AIDS epidemic. And as, as I said, the reason he's here now is because of the experience that he and his colleagues acquired in in dealing with the covert epidemic in New York and Howard, we are very much looking forward to your, to your description of How you how you manage the way you did.

HOWARD ZUCKER
Thank you. Thank you very much. It's a pleasure to be here and Yes, that's also an early version of a picture of me. Well, you get these pictures that come out from the past. It's not realize it. So I'm so grateful to the Academy for inviting New York State to share our story of managing reversing an epidemic. The epidemic surge and COVID-19 infections and hospitalizations and deaths and and on March 1 New York began this really difficult in perilous But ultimately destructive journey to maintain public health and I wanted to share a little bit about that. Next slide please.

In partnership with every new yorker we we flatten the curve and we brought down the infection rate to about 1% we brought down hospitalizations from 18,825 on April 12 to 646 on Saturday, which is the Lowest number during the pandemic. We brought down the number of fatalities from a tragic high of about 800 per day in April two below 10 as of as of yesterday. So we really drove the curve, all the way down what New York did do to get down from that that mountain This outbreak curve and to maintain one of the lowest infection rates in the country. There are several things. So We based on decisions on facts on data on expert analysis, which is exactly what she was speaking about. We were fully transparent, which also Got weaknesses raised in in one of those key points that that he raised in the slide earlier, but we were fully transparent with the public. We're prioritizing their communication and easy access to the most Current statewide and county data that we had and we prioritize the testing and tracking We prepared for the worst case scenario to, to the best of our ability through the, the critical partnerships with our neighboring states that We that we had also with the nonprofits and with academic institutions and we leveraged our, our investment in public trust to establish their commitment for the long haul this pandemic and. Next slide please.

So from the start from the start. New York's decisions our policies or directives were guided by the best available a medical and scientific evidence that we had in through the six channels. I just mentioned. Up here we documented and communicator evolving understanding of the trajectory of this of this new disease and And we released 124 guidance documents alone. Our strategy focused on finding those who are ill and positive, which is our diagnostic testing issue, which is diagnostics and finding those who have been Li had been L which is our serology Part of this and then finding those who would make other people, which was our contact tracing. So we looked at it from the standpoint, who is ill, who was ill and who could become ill, and we also focus on therapeutics.

Including monoclonal antibodies studies that that were involved with the one of the pharmaceutical companies is working on this with our drive through testing. Sites. We also looked at the whole issue of hydroxyl flora twin, and it's it's my son, and we did a study on that. And we also looked at the pediatric and Simon child syndrome that that popped up in New York that early.

In in January, February relied on we relied on the date and the guidance from the CDC which relied obvious on the day of the guidance from who in the partners in China. So after our first case on March 1 and our emergency as the outbreak epicenter we shifted from the pure data consumption from the other entities to our internal data collection. And so our, our dedicated resources include our internal data team. We also contracted with the data team at McKinsey We updated the CDC guidance informations that we heard we looked at that updated information and we looked at the involving academic literature. So that's how we looked at data coming in and. Next slide. And as the Hopkins summary shows with each dot there representing a policy or guidance hundreds of decisions, had to be made for policy and guidance in a very short period of time.

So it's important to note that New York State was not informed by the Federal Government regarding that the cobra Nike was coming from. From Europe throughout February, and I know we've heard a lot about that. And this is what happens when something's all the information and as we've heard we don't have all the data. It makes it difficult, so we had millions of travelers coming from Europe, they came into JFK. They came to New York airport And so that resulted in what we found was an estimated about 10,000 plus cases of COVID-19 New York City in February. And that was obviously before we even knew about a case.

At the same time, the CDC diagnostic testing rollout was a major problem. So, it caused critical delays and an outbreak regions and we were sending test down For sampling so consequently for New York. These two factors were like truly stumbling and falling at the start of like a 400 meter relay race but we picked up.

So the department has a watch for central Laboratory, which is our state lab. And our state lab rush to create a viable COVID-19 diagnostic tests as the CDC tests kids had problems and therefore to so we became the first state. For a public health lab to perform a covert testing and the New York did secure through FDA is emergency use authorization to use that test on February 29 And to have further authorization. On March 12 for certain state labs as well to begin patient testing under certain circumstances. So we moved from just our state lab through all the other state labs that all the all the other labs within our state that could do testing as well. Next slide. The trajectory of the pandemic has validated. Our guiding principles that the most effective Actions for containing a virus were identifying the positive test positive cases through the diagnostic testing. Testing and tracing testing should say the context of those who tested positive and obviously isolating. Those are effective. These are the basic principles we all know

In addition to setting up the drive thru in the mobile testing sites. We work with the various partners to address the continued high infection rates, particularly in the low income minority communities in New York City. And we did notice that We increase the testing sites of public housing development, some places and at churches and community based providers and predominantly minority communities and some of the numbers. I'll show you. Which also showed us how prevalent is this disease. Probably was before we learned about this a simultaneous are was with center followed a SWAT team approach to manage all the aspects of the lab operations, including multiple shifts that provide 24 seven coverage. Next slide please.

So this slide shows the expansion of our lab capacity to accommodate the rapid increase of collection points. So New York has more than 700 testing sites across the state, and more than 225 sites in New York City in per capita diagnostic testing.

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Howard Zucker: It and we are testing about 70 to 80,000 people per day. So since July first the diagnostic and antibody testing have been available to all New Yorkers and. Next slide please. So this is a our, our covert tracker. So at the start of the outbreak. The department launched a COVID-19 tracker. A webpage provided daily testing data to the public, we realize. Once the numbers started taking out, we need to have all this information, we broke it down by county and when people were tested how many were positive. We looked at a lot of the demographics, which Was I was thinking about and we weren't there who has the disease. This is the who has the disease part of it. So our website also provides multiple online to tools to find a nearby testing site is a very interactive website actually You can click on it could

show you where the drivers, where, where the mobile sites where where the pharmacies were on all that information was there. So that was the diagnostic apart. The next slide.

Looks at the issue of who had the disease. So the department developed, one of the nation's first and most accurate sir illogical tested detective. COVID-making antibodies. So in April and May we use this test on more than 50,000 individuals, including the essential frontline workers of New York State's Coping responses, it's very interesting because we did look at grocery stores food service workers healthcare first responders State Police essential workers, we just kept sampling

So in this file, you'll see the first responders referred to everyone who was a New York Police Department or those in New York Police Department, the fire department in New York City metropolitan area and we noticed that as a 14% Reactive rate. We also looked at the help to workers and and that was about 15.3% city overall in the city was about 20% This department also had a web based Cobra antibody testing system which comprehensively tracked and organize the antibody collection data and the lab analysis to give uses A remote access to their results through an email or a text message. And we also looked across the state. Looking at zip codes to try to figure out which regions had a what level of antibodies. So that was the issue of when it came to Him to who had the disease in the next slide looks at the third part of how to figure out who may get the disease.

So this was our contact tracing playbook and which is obviously ongoing the partner with Bloomberg Philanthropies to build a nationally replicable. COVID-19 content tracing problem. So, one may ask, how many people have we traced in pen and how many cases have been so we've looked at over 24,000 cases. And we've had about 44 little over 44,000 contacts and we have Hundreds and hundreds of people working on this, and this is obviously a complex issue and we really believe in this is probably The key issue that we need to stay obviously on top of along with the diagnostics. To be sure that we control this the Bloomberg School at Hopkins in the department developed an online curriculum for the state's contact traces and result to save lives is providing tactical and operational advice. So we're working. This is a three prong group, along with the department, which is the fourth part to move forward on this issue. Next slide please.

So we use a was first co big test and on a dried Blood spot sample to to disrupt prevalence studies amount of a 15,100 or so adult statewide so that identified as soon about Least 2 million adult residence were infected through late March based on how we were doing our Analysis on this and there were a substantial racial disparities. We did notice that we spoke about that and this data constitute truly the largest us zero survey at that time. We also conduct an observational study on the hydroxyl cleric when in these information because you remember this was a An issue, even though it seems like it was long ago. It's only been three months ago. Or so, where the President was saying that this would be helpful. We decided that we wanted to look at this and look at the data. So we work with the SUNY Albany School of Public Health. We publish that in JAMA Back in May. So that was another whole issue that we were addressing as well. Next slide.

The other issue. We looked at when it came to data was the fact that this multi system. Inflammatory Syndrome and children, which was associated with cover my team was noticed in the United Kingdom, as well as a European reports about this and so I said to our team. Why don't we look across our hospitals to see what we Have That is those who are not familiar with this is a COVID-19 illness and children that then presents Later four to six months later, that's what we're seeing with very much similar to a callous archaea or toxic shock syndrome.

In children, so we looked at this and initially we found 160 or so children witness and now we're up to about 242 I believe as a term for you want it yesterday. But we recognize us and we wanted to get data some really pulled all the information we have from around the state. And we have a tracking system on this. And after evaluating the hospitalized patients under age 21 with our colleagues at the CDC and at SUNY Albany we published our, our first 99 pieces. That was our new journal article about the next slide.

So our New York forward reopening strategy is truly found on a metric system integrated within the 10 designated regions and this is This is where we felt that we much data we have is the most critical way that we can move forward. So our plan requires a control group in each region, the state. To ensure that the infection rate remains below 110 and each daily monitor the diagnostic testing we monitor how many cases have been traced the contact Tracy, we look at the hospital healthcare capacity based on based on race. Rates of hospitalization, we recognize That hospitalization rates, usually as we all know, sort of wagon. So that may not be the early indicator, but we felt that we wanted to look at all this and We consulted with the experts of the University Minnesota and with the Imperial College London on a regular basis to help us create the early warning dashboard, which is what I have up there right now. Which look at the seven reopening metrics track for the state 10 regions and we're constantly looking this and it's really quite live A piece of information that's available to the public and last slide please.

So New York State is already sharing best practices with City space in search and COVID-19 we spoke with Atlanta. With Savannah and Savannah, Georgia, both cities down in Georgia, but we are two major cities, obviously. But we've also spoken with Florida in Arizona, California and elsewhere. We're especially you get to share our replicable contact tracing system that is critical. As I mentioned, to ending this curve. And so our message. The other states is obviously it's trying to stop the spread as we all know. It doesn't matter what age group is spreading it we're trying to do this on all fronts, we're looking at the younger population, particularly those who are 2035 we're looking at issues of school and how to get That issue addressed as well and stopping the spread means putting all the available resources into both the diagnostic testing and the content tracing And obviously getting residents to wear masks wash their hands and maintains social distancing to all the other critical public health messages that we need to do so working pretty hard on this, on this and I'm happy to answer any questions.

RICHARD PLATT
Okay, well how are that was really extraordinary to run through. So let me start off the conversation. Because we do have a number of questions coming in through the, through the question box, but could you reflect on the balance between your executing. What I guess could be called standard public health responses things that You could have done that you would have been prepared for the basis of other outbreaks versus things you had to learn from this particular disease.

Well, some of what appeared to contribute to your success is the fact that you were able to execute on. Like, I guess I would call standard good public health practice. And some of it depended on your learning the particular aspect of This infection. And what's the relative balance there.

HOWARD ZUCKER
So I think part of it was that we were Able to see the evolving process. So what we do as new information to try to incorporate that into both our response, but also the message we provide to the public and I do feel that the constantly providing the information To the public on a regular basis. Which the government was doing that and the team, the government We were doing was helpful in letting everyone know if something changed than we will adapt accordingly because initially We did a lot of the stuff that we know

now, we didn't, we didn't even know back then, you know, you start to look backwards yes hindsight will give you a good assessment of like

RICHARD PLATT
What you could have done differently.

HOWARD ZUCKER
But we were moving forward and one of the great examples. Here is the issue of hospitalizations. So we did not know where we were going to end on the One that premise and it hit its peak, and there were predictions of 120,000 30,000 40,000 hospitalizations and return it. They have, what do we do. So what as we learn more knowledge about what how do you manage this. How do you manage this and it comes to ventilate patients or other ICU care that's needed, and then how to incorporate that in. And if we do that, let's check out

RICHARD PLATT
My understanding is that New York is either at the front of the pack or near the top in terms of having a robust public health agency that was ready to leap into action. So you could tell us if that's not the case. How does, how does the message of what you did to be successful play in states that don't begin to have the infrastructure that you do.

HOWARD ZUCKER
So I think part of this. This is This is a really critical point because I think the support. This is where the federal government does come into play and speaking with my fellow health conditions around the country. Many states do not have the luxury of a state lab like we have which gave us the opportunity to develop a test quickly and when everyone's being sent to CDC, we did have the opportunity, once they said It's approved by the FDA approval. We can then move forward with this. So now what. What can other states doing And so we in the region. Again, we were really, we were able to partner with our, our neighboring states. But what other states do and I did this returns back to federal, federal responsive, push, push this and it's one of the challenges that I think that we run up against at a national level. And then the other thing is that That is numbers are going up elsewhere. And it was the playbook which we wrote when we started this just because we ended up being Alone. The initial states in the personal and the big outbreak. But, but we were learning as we went along on some positions and they'll is the need to sort of be pretty creative about it.

RICHARD PLATT
As I read your article in the gem of the hydroxyl chloroquine is it for my son article which I thought was extraordinary on the number of grounds. So one was that you had the So I'll ask you two things. One is to serve about the way you were able to put that information together and the others about the part of the results. It, it looked as though you were able to have a small army of highly trained people read an abstract the records of very large number of hospitalized individuals. So let me ask, is that really true, and Can you imagine a universe where there are electronic health records that would make that simpler job.

HOWARD ZUCKER
That's a great question. So we did Parliament School of Public Health. I'm not drastic and I studied, you have a team here within the department and within our Lab and also in our public health team that worked. Literally, day and night without exception, day and night, looking at this, this information to try to extract the information from the charts. Not only on the eye drops and clerical and study, but also on the issue with the children would be inflammatory Centrum so we had 160 charts that came in.

Literally recognize that this was a very time sensitive issue because if other states. We're starting to see this problem. They weren't aware of it, then what do we need to do and so that also was a tour de force working with everyone. But I think everyone's recognize that the need to sort of get data out as quickly as possible. I dropped the clinical issue with some It's a little tricky because it was a belief in there.

Obviously, we know the presence was believed this was going to work. And we felt like we need to look at this data and figure out what was the real facts and I do know that there was a study recently it was published that would say that Maybe it's beneficial but when you look at that, though. They also administered steroids and their studies, Justin. The steroids are helpful so we realize that you need to really tease the data out and look and see what's really happening. That's what we're trying to do with

RICHARD PLATT
With the next generation of EHR obviate the need for dozens and dozens of highly trained people to spend day and night on this, or are we going to need them anyway. To tell us where you think that's going to land. So I, I was thinking about

HOWARD ZUCKER
This actually two days ago about where we will be in the year or two from now and and on many decisions about health, health records health transparency. The sharing of information. And I think that people recognize that as a result of the Pandemic and the information we need that there needs to be better sharing of records for whether it's infectious disease, but just in general, there's been a little skittish about this whole issue of health records and sharing, but we know that this is very beneficial. And the way I'm looking at the pandemic in general is is aware, look to when I was in the federal government and I was down there literally the week that 911 happened and I realized that the world. Looked at things as pre 911 right when it came to security, just in general, it's like well pre 911 and then post 911 and and our society adapted and changed. After 911 this as well, you know, take your shoes off the airport is that is we're going to do. We just adjusted To as sort of think that it's like pre pandemic and then post pandemic of how we will look at public health and part of this post pandemic will be the issues of electronic health records and sharing information. and tracking things sooner and looking at data and how we use data to make decisions that it's not that we don't do it now, but I'm saying how we look at Data and have a public look at the benefits of data and getting information out there. I think that that's what this is going to be one of those pivotal points of pre the pandemic and

RICHARD PLATT
Well, I guess there's a chance if you and your colleagues, make the case in a in a clear enough way that the rest of us can hear it and act on it. It does make sense that this is a real opportunity and I take the more broadly. You can frame that so that the rest of the learning health system can ride along with the public health system, the better.

HOWARD ZUCKER
Is a lot of information came in is, like, why did we not look at things a little bit differently, you know, not just New York but just us as a public health community, you know, and I thought a lot about that question, I feel that What may have happened is that when this was Presented as SARS and new SARS virus. And I think that there's a psychology involved here that when you just say Well, a new starters virus for all of us in the public health to me think SARS back in 2004 2003 say okay so this is going to be an infection. It's in China, they're going to get control over. It's a big city like last time, it may be in another big city, and they'll get control, there'll be thousand People get sick and 10% or five whatever percentage will die and then it was like 10% and they'll give control. I think when people thought well SARS another

SARS. The Thought process goes down the same way of what happened last time and you know one bad flu and sometimes people start taking pandemic flu, which is which is a different time for processed and I think that may have happened. Initially, early on.

RICHARD PLATT
I just want to this is, this is an observation, not really a question though I'd be happy for you to respond to it. Another takeaway. I had from that JAMA article was a comment that the outcomes. The clinical outcomes. Didn't differ by race or ethnicity and which You didn't make a big deal of it in the article, but I thought that that's a headline in its own way. So,

HOWARD ZUCKER
No, I don't. I, it did not as correct and I'm not sure, you know, Yes, we probably should have looked a little bit more as to why In this particular situation, it didn't, although we were giving know that it was given to different hospitals right and so we assume that was randomly given and so that probably would say why, you know, at least the distribution But why was the response not difficult.

RICHARD PLATT
It is for the physiology. Well, I mean, we are so used to hearing That minority populations fair worse. You know, this was the dog that didn't bark that If he were hospitalized and one of the New York hospitals, your chances of having a hospitalization didn't depend on the color of your skin.

HOWARD ZUCKER
Yes, I mean well as expressive effort, obviously, and all the hospitals and He provided an incredible amount Of cure, but what we did see was that the certain regions where we felt that a lot of essential workers were coming from. How to hire antibody. Rates and some of the zip codes in some of the areas of particularly New York City at rates even higher than 40% to sell it was averaging 20% But at the same zip codes which were really

RICHARD PLATT
All right, Phil Tierney asks a question that I'm going to, I'm going to paraphrase for you. He's, he's pointing to the fact that all the Sarah prevalent status suggests that only a minority of the cases the clinical cases, we find that we find only a minority of the cases by their being symptomatic and NTS Whether weather and when we should shift public policy decisions to two random zero prevalence Studies, rather than the whole bag of positive test results.

HOWARD ZUCKER
So we. Well, I think there's two parts that we have been joined the Sierra problem studies and looking and that Around the state. And that's how we will go into the grocery stores and looking at the first responders. We looked at people in the correction facilities we look to people in In the healthcare community and we got those numbers there. So we were doing that. But I think there's, it's also. So, okay, so someone has anti bias, but we don't know right now. What that truly means. And so just saying someone's has Antibodies and some people may not even have an advisor, you know, I've known Those even, you know, relatives who had coronavirus and never develop antibodies to it. But I do think that is critical to do the diagnostic testing because this allows us to do the contact tracing To find out Who was exposed, and I think that's so central to our efforts to control this in New York, and we were over, as I mentioned over you know five plus million people in testing, testing.

RICHARD PLATT
Okay, great. We've got just a few minutes left. And there are a couple more questions from the audience. But I think it'd be good to hear you hear you speak about You did talk about the very large workforce, you put together. Could, could you say a little more about how, how many of the people who spent all this time we're already in the employee of the health department. How many of them were Borrowed from other health departments. How many of them came from private organizations or schools.

HOWARD ZUCKER
So we have a department about 6000 Now, I would say over 1000 2000 people working on this because I know it's over 1000 that we have working on this and because this issue infiltrates so many different aspects of what we do. Whether it's hospital, those who work on hospitals those work in public health, those who work in legislation. There's so many different Areas that the team is has literally been consumed by working on this. We did bring in As I mentioned McKinsey as a consultant to look at look at a certain areas, working with our data team. We have incredible number of volunteers who Helped out there. People are retired from the department came back to help our purposes, institutional memory. The governance created an incredible team of Experts in and people work directly on issues specific issues on this, whether it was the diagnostic testing we're creating Getting lab capacity of the diagnostic testing up to speed, or in a system to track supplies and to look at what hospitals have many of those guidance documents went out as a result of many discussion obviously many discussions about what needs. To be done and then the whole governance concept of the surgeon flex approach of getting all these hospitals to rev up and to work together, which was a just a novel approaching at these systems in New York, which are big medical systems, who are you know Sort of Lives of their own and then to say, Okay, you got it. We all need to work together on this. We need to increase our capacity of beds from where you are up by 50% up by 100% and see everyone work together on this and this was a real collaborative effort and it still is because we recognize that the potential that the cases members. Could go up and we're tracking, to be sure that that's when we look at all the data that's coming in and we're tracking all these cases to prevent another hotspot from and becoming big

RICHARD PLATT
Extraordinary I was going to ask you to comment on how New York is going to handle the reopening of the public schools, but I don't think we have time for that. Maybe we can come back to that. If during our final discussion.

If I know it's not going to be a 30 seconds to answer. So I'll just sort of close us out by saying, hey, thanks very much for sort of sharing or inside you. Know we talked earlier about how New Zealand was a great national model for control. New York is two and a half times the size of New Zealand, and it has opened land border. So we think New Zealand did a good job. We should be particularly mindful of the real success. That you've had in New York.

HOWARD ZUCKER
Well, thank you very much. Now just say one as the governance said to everyone. In the country that we're here to help. And there's anything that we've learned and we can share and we're happy to share this with everybody.

RICHARD PLATT
Well, thanks. Thanks so much. And I know you're. You're a busy guy. So even the fact that you took the time for us today is really something we appreciate it. Okay. Terrific. So we're gonna we're going to move right along and Rick is going to moderate this next session.

RICHARD KUNTZ
Thanks, rich, the next session is that every generation immobilization during COVID-19 pandemic with regards to treatment. And it's a real pleasure for me to introduce Dr. Carlos, Del Rio professor of medicine at Emory University School of Medicine. And Dr. Del Rio's research focuses on early diagnosis ACCESS TO CARE engagement care compliance with antiretroviral therapies and prevention of HIV infection in this presentation. He will speak about the current status of COVID-19 Treatment research practical real

CARLOS DEL RIO
Thanks to Mike and everybody for the for the invitation and delighted to be here over the next few minutes, I'll talk to you where we are in treatment and what advances have been made. Next slide please.

I think one of the things I will start is by talking that that COVID-19 is not Is not one illness. We have an infection that causes a spectrum of disease like few of us have seen before. With all the way from asymptomatic or pre symptomatic people that have a positive test, but absolutely no symptoms, all the way to critically ill individuals who have respiratory failure shock and multi organ dysfunction and in that spectrum. Next, next slide please.

Is that we need to put ourselves in perspective. So about 80% of cases or more are either asymptomatic or mildly symptomatic. And it's only about 12 to 14% that are severe enough to be in the hospital and about 5% that are severe enough to be critically ill and end up in the ICU. So whenever we talked about treatment is when you say where, what are we talking about and I will start by saying that A lot of the treatments that have thus far been developed have been looking at looking at the tip of this pyramid of how do we prevent death and critically.

And we really have done very little, and how do we treat people who are mildly a symptomatic or asymptomatic, but are still transmitting infection. I think a lot of needs to happen in that sphere. The next one please. So if you think about the goals of treatment you can go all the way from before exposure to after exposure to during the illness to after the illness and you can really put things in perspective. And next one of answer. So the goal in before exposure, which would be to to prevent infection. So, for example, some of the monoclonal antibodies being tested. Other going to start to be tested. Is and people who've been let's say somebody diagnose and they go to the home.

And they look at people who have been exposed to the home, but are not infected, could we give them a pre, post exposure prophylaxis with a monoclonal antibody to prevent them from getting infected sort of a kind of a Mac vaccination approach. How about after exposure. But when you're incubating. Same thing, maybe a monoclonal antibody would work. Then you go to the duration of illness. How do we treat people to prevent the progression to breathe better applications. And yes, also to prevent transmission. We know that by Decreasing the viral load and individuals we can decrease transformation. And finally, how do we have in recovery. The next one.

So really, When we think and we link this to pathogenesis. It's really you know Erling disease is more about viral replication laden diseases more about treating the inflammation. The next one. And therefore you need to think about antivirals immune responses anti inflammatories and the spectrum, you would not use an anti inflammatory in the incubation period and an antiviral lane disease may not be as effective. The next one. So here's a representation of the viral Cycle of this virus have a SARS, Coby to and those who I was doing a Chevy are kind of used to this approach of looking at. Here's the virus that attaches to the ACE to receptor.

And therefore, you can use drugs. I will block them are low entry either as to receptor or some other drugs at that level. Then you can use drugs of ours has to fuse against the cell. So you can use drugs that will block the future on the endless titles and chloride, hydrogen chloroquine will start to work this way. Then you can work on the on the viral proteins. And that's where you know looping have a return of birth thought to be effective. And finally, you can work at the level of the RNA dependent RNA polymerase. And here is where the antivirals like Chrome disappear or far from it from your heavy and Trump to be effective. The next one.

So here's a list of all the different drugs that have currently been tested or looked at, or thought about useful. I'm not going to spend my time talking to all of them, but I'll mention a few of them. The next one. So let's talk about the case of hydrochloric when because there's been a lot of press about it, including, quite frankly, some very recent. tweets from last night from both Rudy Giuliani and and other people saying that this drug is effective. So initially thoughts were that could be some effectiveness based on single studies and observational cohorts. But you can see that even there an observational cohort publish a New England Journal medicine showed that there was really no difference. We didn't have Dr. Clark when P patients that received hydroxyl report and then those that did not receive the drug, the next one.

But the really the evidence comes from randomized control trials and those of us that do research sort of live and die at the randomized control trial alter the next one. And you can see here, next one, that when the study was done by investigators in Minnesota, looking at post exposure prophylaxis. They found that that there was no benefit or post exposure prophylaxis of use of hydrochloric hydrochloric and, furthermore, the recovery investigators showed very nicely, though there was no benefit. Of hydrochloric when compared to usual care in the treatment of people with covert infection. And for that reason, the NIH and went on to halt other clinical trials so hydroxyl player chloroquine because it really showed That there was no proven efficacy of this therapy. The next one.

Now how about the case I'm Brenda severe disabilities and you can say pro drug it inhibits the viral RNA polymerase is a chain Terminator It was developed in 2009 by galia I said drug to treat hepatitis C, it did not work. It was repurpose in 2015 for Ebola therapy. And then if you have it because it inhibited viral replication of mechanics, but a randomized trial in 2000 2018 and in the Dr. See, comparing ram desert dizzy map. And two other monoclonal antibodies showed that there was really no benefit of them disappear. So run this. It was putting the shelf by galia Until he was shown that also inhibits of our replication of source co ve of source code to have mercy and therefore was taking the clinical trials and there is data on face, you know, pre pre clinical and mechanics that it actually had some activity against SARS COV 2 the next one. This less the clinical trials and here are just a list of some of the clinical trials. Some of them have already been published, like the simple trial on the ACT trial, the next one.

And here's the results of the Act one, the trial, the preliminary results showing very nicely. The room disappear was effective. In reducing a hospital length of stay in reducing mortality in those that were requiring oxygen in those that were requiring more intensive care that in those that that But in those that already were receiving mechanical ventilation or where an ECMO it really had no benefit show again showing us that antivirals need to be use early in the course and not wait until further on in the disease process. The next one.

I mentioned antibody therapy antibody therapy has been used as passive antibodies for example convalesce and Sierra or monoclonal antibodies. And here, the idea is that you're using your body as a way to block the virus into therefore prevented from causing disease. The next one. The case of steroids. It's also interesting. There was a lot of controversy about the use of stairs in viral pneumonia. And there

was, it was thought that given the hyper inflammatory state and COVID-19 steroids needed to be evaluated and an open label randomized trial and conducted in the UK.

By the recovery group showed the deck Samantha some compared to usual care decrease mortality and about 30% and those who receive SMS or some therapy. The next one. Okay, and therefore it was concluded that dexamethasone was associated and decrease mortality among those on supplemental oxygen or on mechanical ventilation. But there was no benefit and those that did not require oxygen, and this is why it's really important to look at, again, this is a drug that is an anti inflammatory early in the course. It makes no sense that it didn't have any Africa, see the next one. There's also been a lot of interest in looking at anticoagulation and we know that infection with source copious associated with an inflammatory and programmatic state. And a lot of the patients go on to develop from bardic events, particularly those that are critically ill and hospitalized patients, therefore, should receive venous thromboembolism prophylaxis. And there are several studies now looking at how do we do anticoagulation therapy to decrease mortality in this individuals and excellent

There's also drug and alcohol abuse or anti inflammatory drugs like talk a listen up. Listen up as a as an interleukin six blocking agent and it's thought that this could be Kevin effect and patients and their for their clinical trials being conducted with this drug. So, next one. So as you can see where we are today of all that spectrum we really have solid evidence of the use of them disappear and solid evidence for the use of dexamethasone and those are the two drugs that have now been incorporated into the clinical guidelines and next one. There's also a drug being tested. Right now, it's an oral drug. This will be the first orally available drug It was developed by investigators here at Emory. So I have no interest or investment in that company that developed this drug.

It has now been purchased by Merck pharmaceuticals and it's being used as a potential drug to treat mild disease and outpatient settings, an area where we really need, and it's being looked at in that in that way in clinical trials. So, next one. So, in the midst of this of this storm in the midst of all this things happening. You have to develop guidelines, you have to write guidelines. And I will give credit to both the infection Society of America and the National Institutes of Health that have put together panels that have really developed treatment guidelines evidence based treatment guidelines that allow us to know what to do in the clinical setting, and why we are much better treating covered 19 today that we that we were back in March or April is because of clinical trials is because of research is because of research translated into guidelines. The next one.

So a couple of final thoughts around this is number one, you know, code 19 treatment requires a multi dimensional approach with an understanding of the house, the stage. The severity of disease and the intervention. And depending on the host the stage and the severity of disease optimal interventions may really very so you may go from antiviral drugs to immune modulator to combination therapy. The next one. And for those of us that have worked on HIV. We need to be careful that the pleasure to the pressure to Deploy interventions, it needs to be tempered by importance of finding out which treatment works best. That is how we do science.

And that finding research finding good therapy is really an iterative process, building on advances until the tipping point is achieved, and it's critical that we address disparities and inequities related to this sort of twin epidemics. The next one. I want to end by thanking both Dr. Rajiv Gandhi and Dr. Stan there's for facilitating them some of the slides and I'll be happy to answer. Now some questions.

RICHARD KUNTZ
Let me start with a couple of questions that may be more on the policy side. I'm from medical technology sector and when we noticed that there was a shortage of ventilators several of us got together and made it open source. Resource for all the blueprints, so that companies like Tesla and General Motors and others could build ventilators Is there a resource is a resource issue right now with them. Yes, severe and do you think maybe there should be some more open source and sharing of the data.

CARLOS DEL RIO
There is there is a resource issue. And I can tell you that Gilliam has actually, that's sort of given the recipe and giving the patent and giving everything To at least two companies in in in India for producing them disappear and the whole idea was the room disappear that Gilliam producer will be primarily for the US. And the ones that to other companies produce will be for the rest of the world are I think we just have a sort of a manufacturing, you know, block right now. Ah, I think that and when we have too many patients that need the drug. So yes, I think, you know, we need more production.

RICHARD KUNTZ
Okay, great. So here's another easy question. How do we basically kind of D implement these treatment strategies that are not based on evidence that are just so frequent across the country.

CARLOS DEL RIO
You mentioned. Well, you know, I think what happens and You know, again, those of us that are old enough to remember the earlier so HIV. There's nothing more frustrating for a position to have a patient with a disease. And not be able to do anything and you start doing all sorts of things and start doing all sorts of unproven therapies and you just want to, you know, Throw the kitchen sink and hope the person gets better right and that's how a lot of the therapies were developed and they're based on Well, you know, there's evidence that this drug may work and therefore we ought to Kiva, you know, because it's better to give this and not to give that to give nothing. And that happens early in the disease. But eventually, sort of the that really effective therapies show that they are making a difference. And I would say that, you know, while rum disappear. I'm excited about. And if I was if I had COVID-19 today and I was needing oxygen, I would like to get from their severe It's still not. I mean, you know, using baseball analogy I would say it's a solid single, you know, maybe a double but it's certainly not a homerun I feel like in the early stages of HIV, we still need better therapies. We need more effective therapies and those are only going to come through research and you know the research process is a, it's a slow process. So, the process of discovery doesn't happen overnight.

RICHARD KUNTZ
What do you think that timeline of required good therapies will be for us, even though we say, for example, we are able to get the positive vaccine within the next calendar year. What, how much longer we need a secretary therapies.

CARLOS DEL RIO
Well, you know, I think we will still need effective therapies, because not everybody will be vaccinated. And I think even if we have a vaccine. The vaccine is not going to be I'll be very honest with you, I don't think it's going to be a great vaccine is going to be like a flu vaccine 40% effort, effective, it's going to be good, but it's not going to be You know, a perfect vaccine. It's not going to be like the HPV vaccine that has 100% efficacy, you know, the FDA saying we want something with 50% efficacy And I think that's they're recognizing how difficult it is to develop a vaccine for respiratory virus. So I think we're going to need therapies. You know, you never know.

In 1994 we were all very depressed that nothing was working for HIV till years later we had highly active antiretroviral therapy. And we had now a way to keep people with HIV essentially free of viral replication on live and live a normal life. And that happened, you know, I don't think anybody would have predicted. But that's how Science Richard did tipping point at that tipping point, then things improved. So I think we just, you know, again, we just need to continue Trusting our investigators trusting our basic scientists develop new drugs or pharmacologist, are you know industry partners and then clinical trials to show us what works and what doesn't. And I can tell you that, you know, We've talked a lot about the things that are not working in this country that testing is not working the reporting is not working. The contact racing is not working. I can tell you the research infrastructure is working and it's working really well because the fact that we were able to go from finding A new virus discovering a new of ours and getting a first vaccine to a human within 65 days. And getting it now into phase three clinical trials in such a short period of time. It's unbelievable. I mean, that really shows that something is working very well in that working very well. It's called research.

RICHARD KUNTZ
It's a great point. What do you think next to therapies that are going to be positive are going forward.

CARLOS DEL RIO
I think it's going to be antiviral, so I think it's going to be oral empty bottles. I think it's also going to be inhale antivirals, I can see ourselves developing, you know, Things like similar to run disappear. That could be given through inhalation, like a, you know, A meter dose inhaler or something like that, something that you can do right now is you know room disappears and IV drug. You have to be in the hospital, you have to have an IV. It's reserved for fairly You know, fairly sick individuals. But let's suppose you had somebody with mild COVID-19. And you can give them something oral or something that that would, uh, You know, being hailed that would not only limit their disease progression, but that would limit transmission would be fantastic. As you know from HIV. By giving people antiviral therapy and bring the viral replication down to zero. We can we can prevent transmission. We call that undetectable equals on transmissible right So we can get the viral replication in influenza, for example, giving something like Tamiflu in the first 72 hours of the onset of symptoms limits transmission So limit, giving him a drug that blocks viral replication and limits transmission is going to be huge to decrease the spread of this infection.

RICHARD KUNTZ
I'm going to paraphrase a question from Sally Okun who raised the issue of we're in a very confusing time right now, different levels of evidence different levels of methodology. In a very complex new pathophysiology, which most, most of us have not really understood until now, how do we basically leverage all the different cultural assets we have faith based groups celebrities and others to be able to say what is good evidence, what isn't good evidence and is that something that we need to basically focus on because I think people are overwhelmed. With the spectrum of different viewpoints about this disease and the different viewpoints about good or bad therapies. You know, I think, I think that it is a very important point. And I don't know the answer. I think this is the first pandemic of social media era. And I think, therefore, you know, you have more than one source of information more than one trusted source of information and I'd say to people look at the trusted sources of information, unfortunately. There's a lot of people looking at the what they think is trusted sources of information that are giving wrong information. I simply don't know any way to combat that. I think it's just part of a culture that that is so you know even right now there's this

CARLOS DEL RIO
You know, tweet going around saying that hydroxychloroquine works and you have Rudy Giuliani last night tweeting that hydroxychroloquine works. You know, when the evidence is totally against it. So, I don't know i mean i think i, quite frankly, consider that irresponsible that and I have no idea what people are doing that. We need to, you know, when there's 150,000 people in this country that have died from this infection. We need to get serious about it and we need to stop. Making evidence that doesn't exist and we need to start stop making you know pseudoscience that doesn't that doesn't help anybody so it's very frustrating and I honestly don't know the answer to that question.

RICHARD KUNTZ
As we look at developing the Liberty health care system should the National Academy of Medicine be focusing on how to develop the trusted learning healthcare system. And maybe this is a new goal for then am in understanding how to how to basically market a trusted source of information, compared to the alternatives.

MICHAEL MCGINNIS
Well, that's a key question for us. In some ways, in this fashion that turtle says indicated, and that is, it's an obligation, but we're not quite sure how to fulfill it. One of our major interests as part of the collaborative that you're co chairing Is to help identify the ways in which we can better use social media as a source of reliable information. What is the vetting process, how can we team with large organizations such as the Googles and the Twitter's and Facebook's In a responsible fashion to ensure that better information gets out. But those are all in a rapidly. Moving dynamic environment, such as the sort that we face. The, the answers aren't clear but we view very seriously the challenge.

CARLOS DEL RIO
I would just add to what Michael said I put there in the in the chat, you know, sort of a plugin for something that I'm doing together with the National Academies. I'm the American Public Health Association. And am an American Public Health Association has partnered together in a series called COVID-19 conversations, and this has been a webinar series that this Wednesday. Tomorrow we'll have the 12th episode. And it's really been an incredible source of information this a great webinar series with five to 10,000 people watching the webinars. And the whole point has been exactly to bring You know, experts into the conversation and tried to provide information that is reliable that access SEC accessible. And that really highlights some of the things that we're talking about. So Again, I think the Academy has a major role to play, because the Academy is a trusted source of information.

MICHAEL MCGINNIS
Thank you for raising that Carlos. It is a it's an important initiative, our part of the question now is how do we scale.

RICHARD KUNTZ
It's a great point. We just got another question from the audience. And let me just read it to you do what will take before monoclonal antibodies can be part of the typical protocol for COVID-19 patients with moderate to severe cases as part of the cocktail to be treated immediately.

CARLOS DEL RIO
I think clinical research right those trials are starting. And I think as we advance those trials have they shown to be effective, they're going to be included in their show not to be effective, they're not going to be included. I think it's a It's a, it's an iterative process I'm you know we're following what we call in clinical trials and adaptive design. So you try something it doesn't work you quickly pivot to something else, rather than continue trying something That mean driving continued beating your head against the wall and saying, oh, you know, we need to find eventually will open a hole here. You know, you go somewhere else and that that is really the way that that we're advancing things and that's the right way to do it. And that's why the hydrochloric when story. It's so clear, but it's also frustrating. The evidence is there, which is stop banging your head against the wall that it's going to work. But instead of that there are people still trying to show us that it works and it just, it just creates a eight. It doesn't allow things to advance it just makes things go back, unfortunately.

RICHARD PLATT
So I'm interested in your assessment of the of the Adequacy of the clinical trial infrastructure that we have and you've, you've done a great job of showing us lots of therapeutics that that need evaluation. And do we have, do we have the trial infrastructure that we need. And it's not what should, what should we have in addition

CARLOS DEL RIO
You know we do And we do because we had a lot of Clinical Trial infrastructure done for other things. And I'll give you the example of the things that I'm involved with For years the NIH has been investing in something called the HIV Clinical Trials Network and the HIV clinical trials networks does Research and HIV treatment or the AC T g in HIV prevention through the HPV and HIV therapy for vaccines are the HTTPS in microbicides for the MTN And there's this incredible clinical trials infrastructure doing HIV research as part of An operation work speed and trying to bring everything together. The NIH told took those clinical trials and HIV and the clinical trials of its networks in vaccines and other clinical trials and put them Together under an umbrella called co VPN and the co VPN. Collaborative of HIV prevention and treatment network and now all of us doing HIV research, all of a sudden we have become covered researchers so that clinical trials infrastructure has rapidly pivoted To do something that was important. And you know, it's the same thing. It's just we're doing, we're doing studying drugs and you have a An incredibly functional well oral machinery that rapidly is able to do multicenter trials. So I think that we do have the clinical trial infrastructure and I think It's the lesson is that just because it was a bill for HIV. It doesn't just do HIV, it could pivot to something else. And the vaccine work is doing that and the cancer work is doing that and the so different.

Parts of the HIV clinical trials. Now, it cannot just be done by the government funded researchers right you need that partnership with academia, you need that. You need that partnership with industry you need that partnership and the partnership with industry, like so, for example, in the vaccine studies, you have the companies. You have the clinical research organizations, a car owes you have the networks and essentially how we're how we're. How was the NIH and the co VPN and the and the operation work speed. Was able to put together a network of 86 sites that are going to be enrolling in the vaccine. The modern of actually study right away. It's only because you have that infrastructure and you know how to move it around. So I would say we do have the clinical trials infrastructure to the studies that need to be done.

RICHARD KUNTZ
Thanks so much for your time and a great and very timely presentation. Much appreciated.

CARLOS DEL RIO
I would just say that You know that this slides may go stale within a couple of weeks so So I would just be careful. Michael about You know, posting them because it's important to post them, but I will tell you. In three weeks within three months, we may be giving a very dear friend therapy, a very different approaches so rapidly evolving field and, as such, what we present today may not be what we talked about tomorrow. But that's what's exciting about it.

MICHAEL MCGINNIS
Excellent. So we'll see everyone back at 1215

Well welcome back folks. In the interest of The warp speed initiative of the US government and COVID-19 we've had a warp speed lunch hope everyone is back and refreshed and I'm going to turn it over to rich plateau, I believe, is moderating the next session.

RICHARD PLATT
Okay, that if there's one theme that has pervaded the conversation. So far it's been the importance of effective communication about COVID and so we're going to confront that issue head on in this session. Dietram Schuefele is the Distinguished Achievement professor at the University of Wisconsin in Madison and His research focuses on public attitudes and public policy dynamics around emerging science and he's going to bring that perspective to bear on the situation. So we confront with the with covert 19 I actually don't see you data on the, on the, on the board here. So, I hope, I hope you're here. I'm here. So we're looking forward to your you're telling us how to make it through this particular set of Barriers that we're facing. Thank you.

DIETRAM A. SCHEUFELE
Well, thank you so much. First of all, for, for having me. It's, it's been a fascinating morning so far and and i think a lot of the previous speakers. Have set me up really well for some of the things that I want to spend the next 1012 minutes talking about and then hopefully also get to some of the Questions that I think have already raised some interesting pathways for

I want to start with something that has as the theme come up a couple times today and that is what the World Health Organization. That's called an infodemic And revisit that a little bit empirically, and maybe in a more optimistic way than some of us think about it. And I think there's some really constructive pathways forward and maybe things that aren't quite as bleak as they as they may seem

Carlos just set me up nicely by by saying, well, be careful about posting my slides because things will change. And that's my second point that we're dealing with a moving target. When it comes to the best available science to counter potentially misinformation and that has created a unique challenge during, during COVID-19 And of course, all of that interacts with human nature. And I just want to highlight a few things of how they have and how they have played out.

During this this pandemic in terms of us looking at the same facts very differently depending on what are our tribal affiliations for our for lack of a better term. And then leave you with a couple thoughts on one productive ways forward may look like, but let me start with the with the with the COVID-19 infodemic

because it's, it's, it's something that we've all repeated a lot and but that that is worth of a closer look and I would ask three questions around that one is

This often comes up while we're seeing a declining trust in science and a lot of people, including our team here has written about this. And I think there are two key takeaways. One is that science is among the most trusted institutions in the United States. As Congress is the White House as the presses major corporations. I've seen declines and trust sciences either States since the 1960s and I've only plotted with a small number. Of years here from the General Social Survey has either states stable or even increase the little bit, including the last couple years that these data has been collected

The only institution that's ahead of us. So second takeaway is the military and they overtook science on 911 have never given up their lead. But in general, science is actually a really good spot as public as far as public trust is concerned, then of course there have been these very visible loony conspiracy theories going around about but the Gates Foundation. Foundations motivations might be that they're in it for personal gain or four to Four political control. Those are also not new to covert 19 have been going around the vaccine community for a long, long time. So, to which degree. There's more misinformation for COVID-19 there than it has been before, is also a fairly open question.

And this is the most important question, do we actually know that people being misinformed as the major driver behind activities. That they should be engaging and that they should be socially distancing they should be wearing masks. Is vaccine by and once the vaccine becomes available a vaccine becomes available going to be lower because of misinformation and the answer to all of these questions is either no We don't have as much of a problem as we think are we, there's really little data yet that will tell us What to do and that means our fall back, and I think this came up a little bit in the in the in some of the questions in the chat today as well. Our fall back is always to do informational interventions we need to educate people. They need to understand the science.

But I'm going to make an argument that for COVID-19 that is only one part of what needs to be a much broader portfolio of how we need to engage With the public and I want to highlight that along to problems and then leave you, as I said, with a few lessons in the first problem we knew was coming.

Ivan urbanski and Adam Marcus wrote in March that both co founders of Retraction Watch, which many of you know for tracking scientific retractions and In journals and doing other things wrote in Wired magazine that that look. Most of the science, we're doing on COVID-19 will turn out to be wrong will be proven wrong by subsequent science. The problem with is it's happening very quickly and it happens under public scrutiny. So we knew the problem was coming. But that really didn't help us much because we had to make recommendations based on that science. For policy, the mask wearing and the CDC recommendations, being a great example based on asymptomatic or pre symptomatic. Spread and but of course that hit a bump in the road if you will win the World Health Organization. Came out and said, well, it may be very rare. What they really meant is, it's, it's hard to pin down into and to demonstrate that by the time. Two days later they walk that back.

Already the public was utterly confused on well is there data. Now, or is there not data and that probably wouldn't be wouldn't have been as much of an issue. If we hadn't had political players than jumping on this and saying, well, even doctor felt he went back and forth on mass wearing In spite of him giving an interview and install magazine and then again ABC this morning. Really explaining what some of the thought processes were about protecting P supplies for hospitals and then really making recommendations wants the science became clear, so I posted this for the quote and be for an awesome

cover of installment magazine. And of course, all of that is again in, you need to think about this as public perceptions among most Americans who don't have public health or medical expertise.

Now they're reading The New York Times that scientists are battling with each other, which of course is exactly what should be happening. That we're vetting research and we're trying to figure out what the reliable bodies of knowledge aren't that are emerging. And those are of course in immediately politicized. This is a tweet from Laura Ingram who said, you know, next time they tell you to trust science and the best available evidence

Remember what they did with all those studies from the Lancet, and the New England Journal of Medicine, which led to policy that turned out to be based on data that turned out to be wrong. So facts have been the facts that we're using to counter misinformation or to correct misinformation have by design. That's not a bad thing. Been somewhat elusive. But of course, that makes it really hard for people to judge what that what the best available science looks like and I will come back to that at the end.

All of that interacts with human nature with who we are. And many of us on this call have know the idea of motivated reasoning, many of us know how it works. It basically says if we all agree on even just five basic facts on COVID-19. We will all way more heavily confirmation biases those facts that fit our prior beliefs, our values things we hold sacred things that we that we believe are true and how the world works. And we will weigh less heavily those facts that this confirm those priors as we call them and communication or political science. what that leads to is what's called biased assimilation, meaning we take new information about COVID-19 and we assimilated into our existing belief systems, rather than the other way around. One would help that we adjust our belief systems.

Based on the best available information, but we do the exact opposite. That's the pernicious nature of it. And we do all of that, of course, to protect our political identity is a cover from the week. Where you see basically the political tribalism that has driven, some of the discussions about mask wearing and that is only recently with endorsement. From the president, hopefully, seeing a little bit of a truce, for lack of a better word, um, but it's not a problem that is attached to a particular Party or a particular type of prior and I just want to highlight this with two pieces of misinformation that have been floating around my Facebook feed, which I can tell you is hyper liberal academic

Because there's a lot of professors on there, a lot of them tend to be more left leaning and the one in the right is a really good example. About the hundreds of governors calling President Trump because one of the things that one of the reasons why this got forward, of course, is Is because people who oppose Trump thought, this is a reasonable piece of misinformation. So three seconds of a Google search or a Snopes search would have told them that it's wrong. But they afford it. Anyway, what's the point. The point is, it's not that we can't tell the difference. It's not that we cannot tell the difference. Is that we don't want to tell the difference between correct and incorrect information. And that's the problem with motivated reasoning.

Let me give you one example of how that plays out for covert 19 this is this is national survey data. About official government numbers being reported being either to higher being too low. So being under over reported and I want to highlight two numbers here in particular. Two thirds of Democrats in this poll thought that the numbers. The official government numbers were to level. So, earlier we heard a an impassioned Call for better government numbers and government really needing to collect these data.

Well, the problem with that might be that and again you on the Republican side, you see 252 out of five Republicans believing that those numbers are exaggerated. Are actually inflated and only about a third of each group believes that those numbers are true. So only about a third in each group believes that the official government numbers and actually correct. That's how powerful the motivated reasoning based on our priors based in our political values and so on can be and what a dysfunctional. Environment, it creates the last thing that I want to touch on is what we have called in that piece that has cited here accelerated wickedness and it's an by wicked. I mean, Or typically what is meant by that is that a COVID-19 is a problem that doesn't have a best case solution. Nobody wants to shut down the economy. Nobody wants to close barbershops

Nobody wants to force people to do things like wearing masks. But we have to. So the solutions are by definition on desirable and there's no best pathway forward. There's only relatively best but what pathways forward. And we have to make all of these decisions in an extremely compressed time frame with the science as I showed earlier being evolving as we making art as we are making these decisions. As a result for science communication, there is really not a simple single solution or saying, well, this is what we need to do and then it'll all be solved. Nothing in the Academy's has put out a report in 2017 I believe that I've, I've shared with Alan Leshner What we talked about the problem being there's not a single communication approach that will work across different controversies. That will apply to all different stakeholders that we want to talk to and that get that gets it all desirable outcomes. We do want to inform the public, but we also want them to change behaviors.

But there are a few lessons and I'm going to highlight just a couple of them here or a few of them. On my last slide. The first one is a little bit counterintuitive, but based on the best available social science. The important part, when we try to correct misinformation is to not repeat it. We talked a lot about us being a social media environment. Every mention and every retweet and every in engagement with a piece of misinformation increases its digital footprint. So, so the very idea of engaging with it, even if it's to put a little angry emoji below it gives it ultimately more traction and more shelf life.

The second one is also something that may be a little bit counterintuitive, but it's not just what we talked about. It's how we talk about it. The top graph here is data from Wharton. And if you look at the gray line and it's not important to read the labels. It's just the shapes of the lines. It's from left to right on the x axis you see liberals to conservatives and the grade indicates the willingness to purchase an energy efficient light ball. The green line shows how that changes. Once you put an environmental label on that light bulb. And the moment you put that on conservatives are much less likely to purchase that light bulb. Why, because I'm signaling with the environmental label that this is not for their political try this is an environmental issues or issues that tend to be more connected with liberals rightfully or not.

And so as a result, I'm basically using language. I did intentionally that has an equally unintentional outcome, meaning I'm not getting a product across simply because I use the wrong terms. The second one is from a piece in the conversation that, like my colleague Todd Newman road last week. Where he reported a national survey data when they tested which emotions people attach most to signs and which ones resonate across different Tribes, if you will, conservative liberal and hope was one of the key emotions that really cut across so that didn't produce the tribal sorting, but rather really brought liberals and conservatives together. The second. The next one is I think value propositions that we as scientists, very often don't see as primary but that for somebody who's barbershop was closed his primary consideration and that's the economy. How quickly can I can I reopen my barbershop again. and the answer for us. Maybe well mask wearing is important because of public health because of deaths, because of the devastation of the disease.

But for others and for citizens, it may well be about wearing masks is actually the best way of reopening the economy more quickly. You should wear masks because it really gets at your primary goal and that is economic growth or well being and livelihood and so very often. Framing messages in ways that resonates with goals that that consumers or voters have is much more effective than around the values that all of us, especially on this call may see a central The next one is related to, and this is a study from the 1940s. So this is 80 some years old, where basically they showed Participants in experiments fail at random shapes. This is out of the stone psychology circles triangles. Moving around. Why am I mentioning this because this is ultimately a meaningless movement of shapes and other things.

Many people and I'm simplifying them to design that they used to read many people interpret this As having motivations as having causal links. So that little triangle. Does this and then the circle tries to get out. But the other triangle is trying to prevent it, even though there's zero meaning behind it. This is what pandemic and conspiracy theories do they basically provide meaning to a large set of moving parts in a pandemic like this. That most citizens have don't have the medical or scientific infrastructure to make sense of and so conspiracy theories from many of us.

And of course, all of us hold views. If those are religious or spiritual That are that are not backed up by necessarily science, but that help us make sense of things in the world and. And so making sure that we acknowledged that into its own simply be a little it as just an informational problem is crucial. This one is actually, I think one of the most important ones coming back to my second bullet point but also something that came up earlier. The best evidence that we have doing COVID-19 is best presented as the best available evidence right now and I put intentionally chemotherapy here because I think it's a great example.

Where we know this is not the best therapy that medicine and science will have for cancer. We know they're going to be better therapies. We're working on them right now and we're trying to replace it in perfect therapy. But we know it's the best available. Therapy, we have right now. And that's our value proposition. So I think especially during COVID-19 to speak about the best available evidence that we have right now and that that may change and as science produces better evidence will share it with the public. Is a really important part, because in the long run I showed you the Laura Ingram Tweet in the long run. Otherwise, we may be losing the long term war over trust in science, if we're presented every piece of evidence as permanent as final if we know they're going to change anyway. And of course, that's exactly what code what what's happening during Kobe 19 and what should be happening doing COVID-19

And then the last one, I just want to point you to a report that the folks over at DBS and the Academy's put out last week. Where they looked at behavior change and how can we get broad buying into certain behavioral interventions and some of the very biases that I mentioned. Earlier, some of the heuristics that we all use that may not be based on facts, but we act we Dress in particular ways we follow fashion trends, because everybody else does it some of those very mechanisms we can use to change behaviors. And we can use to nudge people into engaging in behaviors that they ultimately do want to engage in But maybe are lacking the last motivation for it so that I just wanted to give a shout out to that report, because I think

It has a few very concrete recommendations and one that I think will be useful for this for this group as well. So thank you so much again for having me and I look forward to. I didn't follow the chat. But I will look over there now.

RICHARD PLATT
Okay. Well, thank you so much. And I have to say it's hard to believe that that big triangle wasn't really a bad actor In that little movie, you may say this, there was nothing really going on there. But many, many of us know the truth about exactly So, so, it all sounds so reasonable when you when you lay it out for us this way. What are our options for an action plan. I mean, we're living in a in this in this sea of problems that you've put your finger on and what's, what's your advice for us as sort of members of the community who are interested for Public health officials who are wrestling with these kinds of issues. So I don't want to drag Howard sucker right back into the conversation, but They seem to have a different set of needs, then governors who are managing states that are much less receptive to messages so what do you advise. Yeah.

DIETRAM A. SCHEUFELE
And my answer would be it along. Two lines, I think one is infrastructure and we're already seeing some of that. At the Academy's we have a standing committee on advancing science communication. What that's trying to do is to create that's house in deep as and I'm Co chair with with Kirsten ellenbogen who's a museum and informal science education person. And it has members who are journalists that have members who are public health that folks, it has members who are social scientists, political scientists So it brings together practitioners and social scientists And public health professional saying can we build infrastructure that allows us to react in that that helps us informed the practice of what we need to do during COVID-19 or other crises.

With an informed that with the best available social science that we have about changing behaviors about informing different stakeholder groups among building By in about building behind or sometimes just engaging the public in a broader conversation. So I think part of it. And this was actually the foresight of Ralph Cicerone Who I think thought ahead when climate change first came along, saying, we have a little bit of a problem that that communication of science is the one problem. Of science, we're not we're not approaching scientifically enough think he was the one who said that and which is what got us into a deep mess with climate change, part of what goes into a deep mess with climate change.

So half of it is infrastructure, the other half is and somebody asked this earlier in the in the chat. I just can't remember what asked the question. But can we use celebrities. Can we use other maybe really a typical ways of Approaching communication. And I think that's a second really interesting approach. Are there ways that the outside of our typical academic infrastructures, where we're saying, well, we need to educate the public hears our approaches. and there was a great example. When this was when California had on the balance of prop 71, a long time ago about private funding for stem cell research, and they basically sent a Brad Pitt to the morning shows To talk about Prop 71 Why is was that so important. Well, partly because Brad Pitt frame the issue really well. He was extremely well trained in terms of communicating But be because he is able to reach the part of the population that you are. I would not be able to reach because we don't have those social networks.

And I think there's similar examples of really new, creative ways of using messengers and other things. I think for this also came up earlier for COVID-19 in particular. We don't just have a problem with vulnerable populations being more affected by COVID-19. We're also have a problem with not being able to communicate as effectively. With some vulnerable populations in reaching them as easily as we reach some of the other groups. And I think that's also where we need a lot more and more investment.

RICHARD PLATT
Could, could you speak specifically to the problem of vaccines hesitancy. I mean, I know your comments generally applied to all topics, but that is sort of looming as a major, major challenge.

Dietram A. SCHEUFELE
Yeah, and that's going to be an interesting one. For a variety of reasons. So vaccine hesitancy. Of course there's been and I showed very briefly at the beginning of a study by Brendan I hand that he did in pediatrics, a long time ago, where he showed that under some circumstances. and in particular constellations more information if we if you If you, if you present that information to vaccine hesitant parents Can actually make them perform worse than the control group meeting if I hadn't talked to them at all. It would have been better than when I threw all the CDC back the information. Now, that's not a universal phenomenon. It doesn't happen all the time, but it can happen.

But I think for vaccine hesitancy I think one thing that is really important. In general, the American public believes in vaccines, the American public. You know vaccinates. The problem is a fairly finite proportion of the population. Typically, in particular pockets that then leads to outbreaks. And those tend to be not homogenous. That's the problem. So we've seen, for example, for measles vaccines. We've seen some of the lowest vaccination rates in the child care facilities of Silicon Valley meaning highly elite school educated parents Who think it's a natural and who tend to lean more left. But we've also, of course, seeing, seeing the current president early in his administration talking about vaccine schedules and so on and so forth.

So a lot of this. And this is, I think, where, where the report from the Sean report from de Bas that I mentioned at the very end is really helpful. A lot of the pro-social choices we make in this society. We actually don't make because We know more. We know from research that people don't buy flood insurance because they know that their house could get flooded are in the floodplain there by flood insurance because there's one of the strongest predictors, is that then neighbor bought flood insurance.

The same thing. We know that solar doesn't spread along the street when somebody gets solar because now all the other people learn about it, but because it basically now becomes social invitation. So these social norms campaigns are crucially important and say, well, that's just what one does. I also think, and this is this is You know, here's where the language matters tremendously again to which degree and I, this is a study. I would love to do and I haven't seen anybody do yet. But to which to be herd immunity is the best label and I think it's a really my guess is it's not. It's really about community. You want to contribute to your community's health. Do you want to be a member for her. And of course if you followed some of the means and social media around wearing masks in a. Don't be a sheep don't just put on a mask. So we have intuitive terms that we think intuitively makes sense, but that don't communicate. I think what we're trying to get across. And so rethinking how we describe heard or community immunity. I think will just be a really important step. This is also a problem. I think that we want to tackle now because by the time the vaccine is available. It's way too late.

RICHARD PLATT
Okay, you, you, you touched on social media in your last answer, could you could you focus on that now. I mean, we live in an environment where social media is just such a dominant player. How does, how to how to use it to advantage or to mitigate the, the problems that occur.

DIETRAM A. SCHEUFELE
And I think Michael mentioned already a project that in Dallas and the Academy's Collaboration with Google trying to make sure that when people do Google searches Carolina heads and others. That Google searches, get the best available academies bedded information when people do searches and the Basically, the, the challenge that we're in is that if you look at data from Oxford Reuters. The internet Institute there, you see that that older generations, and that includes everybody over 34 just for those of us who are on the So everybody over 34 is still using media in a very traditional way right we go to the website, we

We have news alerts set up on our phone and so on and so forth. Everybody who's younger you see more and more shifting court algorithmic delivery. So delivery that is tailored toward the individual Where I'm not getting a front page of The New York Times, but I guess basically getting a curated timeline on Twitter, Instagram, whatever else social media. And even, of course, Snapchat and tick tock, and so on. Now having, having bits of news or news channels.

So the problem that we're having is that we're going from a world where we had broadcasting one piece of information that we all know to be true goes out to a broad public to narrow casting mean everybody gets news tailored towards them. And on my Facebook feed I joked earlier about mind being hyper liberal. The same thing of course is true if I'm, if I'm, if I'm vaccine hesitant. I'm probably surrounded by a social network that's also vaccine has attend. So a lot of the stuff that ends up on my newsfeed is curated, not just by my preferences and Facebook. But everybody around me. So that's the world that we're that we're operating in And, and I think the next step is will have to be a collaboration between social media firms and places like the Academy or the scientific community and saying we need to figure out a way of how to rethink These infrastructures, the irony is, it's easier than ever before to find good accurate information on emerging disease. It's easier than ever before. I can do it quickly, no matter where I am.

The paradoxes. It's also easier than ever before to avoid any piece of accurate information if I really don't want to see it. And so that's why understanding the algorithms, working with Google with Facebook for the largest social good is really is. I think that will have to be the next step. This will not. This will not be a problem that solves itself. Because the, the economic incentives for Google for Facebook are to tailor information that's where the money comes from. So, then they're not going to switch around unless there's really a larger social good discussion that we need to

MICHAEL MCGINNIS
I want to thank you again for just a wonderful presentation. But I do want to pick up on this particular Issue of what the National Academy of Medicine or the National Academies can do Obviously, you indicated that are our biggest challenges priors in some way or another, and They don't seem to be too many ways to counter it other than perhaps economic Or honesty you about the transitory nature of We want to be a trusted source and in many ways. Let's conjecture, the trusted source of information on health and medicine. In some ways it's about first principles. And so what would be your three first principles for what we should do.

DIETRAM A. SCHEUFELE
Yeah, I think the one of the last points that I mentioned. So the idea that that we're being very honest about the nature of evidence, I think is really important. And I think it's especially important during that that accelerated wickedness that I mentioned, meaning we're under huge public scrutiny. And every back and forth is going to be interpreted as science, not being certain and that's been a frame that's been long standing that's been used for partisan purposes.

The non settled science. And I think we want to be very clear that that That, that, you know, when the science is not settled, or when it's the best available science we have right now. This is the best available evidence and we should act on it, it may change, but when it does change will let you know. I think the second thing is, and this I know there's a taste of temptation and this is what the Academy's are really good at is not being partisan. I think this is Virtually any other organization has not been able to avoid this in some way, shape, or form that at some point.

They got accused of artists and bias. I'm sure that has happened to the Academy's as well but but i think in principle or in the larger picture. They that hasn't been an issue. And I think that's that that's really important. That's where the last step comes in, in my opinion. Also something that the academies has been really good at. But I think the scientific community hasn't been and that is separating questions of policy from questions a science. The National Academies is asked to provide advice on science to the nation, but it's not asked to make policy.

And policy by definition is a weird mix of values of priorities of fiscal considerations and hopefully the best available science but policy has never been just based on science. And I think COVID-19 is a really great example for that and said, I can't remember if this came up today, but people often bring up the, you know, People speed and they die in cars and we don't outlaw driving. Yes. That is absolutely correct. It's it but that isn't a poor parallel to COVID-19, but it's a great illustration of our policies we constantly way different values.

But, but I do think so those would be the principles, the large principles. I do think that I'm coming when it come back to To my one of my first answers. I think building the infrastructure within the academies, so that we're ready to quickly hit the ground running. Somebody I can't remember who said it. I think Carlos said it earlier. It was fascinating says so much about whether research infrastructure in this country is that we were quickly getting up on diagnosis on vaccine development. And that we're actually at this stage that we're at that's it's truly impressive.

I think we need in parallel, an infrastructure to be able to communicate effectively understand where the deficits are understand where different pockets of the population are and be able to meaningfully engage them. With the best available science and the standing committees is one of that. And I think that sees itself as a partner with other parts of the academy. But I think that the same is true for most major universities where you know you have folks in the social sciences that are tackling these things. So I think we need to that needs to be really built into the DNA, more and more of how we do science is that we don't just think about, about the science itself, but But how to how to quickly bring it to the public. And that's, of course, ironically, what the land grant universities were all about, right, if you read the early

The early congressional language on the moral act. It was not just to teach farmers and not just to do research, but to also teach farmers to grow two blades of grass instead of one. And now we're right back where we started with 19

RICHARD PLATT
Okay, that this is the right place to Put a semi colon on this conversation details terrifically useful. Thank you, Rick, you're going to, you're going to take us into the next part of our discussion. Yes.

RICHARD KUNTZ
With the, the recent retraction and doing a journal medicine and Lancet, it says, as you pointed out, had had some major damage to these astute journals. What, what's the lessons learned from that. I mean, I

obviously trade off was speed to publication versus traditional peer review and I may be oversimplifying it, but I know if you have any insight or maybe the rebalance has to occur that maybe it's not that critical to go fast when Peer review processes are so critical.

DIETRAM A. SCHEUFELE
Yeah, and that's it's not a new problem. And this is something that came up a lot doing during when we wrote the report for replicability and reproducibility and science for the Academy's Because, of course, the idea for attractions and highly visible maybe unusual findings to be the driving impact factors and so on. So being incentive All of that is not necessarily new the tricky part that we have, I think, for COVID-19 and this this stuff happens before has happened before. And it doesn't mean that we didn't have a problem before I do want to make sure that The work that I've been around ski and add markers and others are doing with Retraction Watch with us, saying, well, you know, We may have a bit of a problem with peer review. I'm not commenting on that. I think that's really an important discussion to be had. So I'm not saying it's not a problem. It wasn't a problem before But it's certainly a very visible problem now because we're doing it very fast and we're doing it under public scrutiny papers have gotten retracted before and we typically extract Knowledge from a body of research that's better, that's replicated once a pattern emerges and emerges across multiple RCT then we start acting on it. We don't have that luxury right now. We simply don't. So what we end up with is basically pushing through peer review very, very quickly.

Research that sometimes gets peer reviewed and days. And with the idea that subsequent research will prove it wrong again that may not be a problem in principle when it comes to the underlying science, but it is a problem in terms of public perception. And so I think that's part of why I think it is so important to be on message when it comes to the best available science. I think we've all gotten caught up in in in arguments over what the science says, and how that's at odds with what some public officials may have said. Those are side battles that weren't particularly useful from a communication perspective, the, the, the main battle is basically saying, look, we're working on this. This is going to be a fluid body of knowledge and but at any given time. We have a relatively speaking, the best available science and I think Shifting to that acknowledgement and saying, science is going to constantly prove itself wrong.

This may actually be an opportunity to uncover it because that's a message that during routine times doesn't make it into most news coverage, right, this idea that science is a process. It's not here. It really is. And it's actually one where we're doing, I think, a fairly decent job. It's by to some of these retraction. So long story short, I think ultimately We need to provide context for what that means and why some of the why some of the papers cut retracted or ended up being proven wrong, and so on and so forth. And that will go a long way also toward highlighting why this is actionable in terms of in terms of policy, but I think we The only mistake that we made there is that we got lost inside battles over signs, having the final answer and then that final answer, turning out not to be so final that's, I think, was the pitfall that we that we created for ourselves.

CARLOS DEL RIO
I would also I would also add to that, you know, what we're seeing today that it's also really fascinating is At least as fascinating to me is to see how publication, there's almost like a post, post publication peer review and social media, for example in Twitter. We're seeing. I mean, a lot of the speakers corner attractive because there was a peer review happening. Online on social media, in which people were questioning the findings in that lab so that's not bad. I mean, you know, there was discussion about it. There was, you know, less than, like, that was published, and that was it. This this post publication peer review, I think, was very powerful.

DIETRAM A. SCHEUFELE
And we've seen it before. For many of you might remember the arsenic study that came out of NASA and the thing, if you're attracted at science. Exactly the same thing that pretty quickly. Led to social media discussions and then eventually a subsequent study and then every traction in science. So again, something that has happened in the past, but I think that that's happening at much higher rates and much more quickly now so I very much agree with that, that's not bad at it.

CARLOS DEL RIO
And I think that's a really important role for social media, which, you know, social media is When people ask me, Why are you in Twitter because I that's how I get a lot of my science information that's how I get a lot of the advances. That's how I hear A lot of things that I otherwise I would have not be reading, but it allows me to engage in conversations with other scientists. Absolutely.

RICHARD KUNTZ
That's great. Thanks. Thanks for joining the diagram. Maybe it's a real pleasure to introduce Dr Amy Abernethy the principal deputy commissioner of Food and Drugs at the FDA. Dr. Abernathy is a hematologist oncologist and palliative medicine physician and is an internationally recognized data expert in clinical data as well as clinical researcher. So she's going to present this new project called the FDA is Coby evidence accelerator. So with that, Dr. Abernathy.

AMY ABERNETHY
So hello and it's an honor and delight to be here with you even have pulled it off schedule. So I'm here, we are going to get going. I wanted to talk to you today about A project that's been called the rural evidence accelerator and why we set it up. And what we're learning as we go along. Next slide.

As I think today, as highlighted and we're certainly living in the middle of we've got an urgent need for data to help address a lot of critical questions within the context. Of COVID-19 the natural history is unfolding in front of our eyes what COVID-19 looked like to us and the problems that we're thinking about in March, such as Really just starting to think about mortality and risk of needing mechanical ventilation really has changed by May and June, as we were talking about coagulate apathy acute renal failure. So this rapidly changing natural history and using real world data to try and address that really also trying to understand Treatment patterns what patients are receiving and then other questions, such as real performance.

Of diagnostics. And as the story has been unfolding at FDA and within the real world data community. We've been trying to figure out how do we quickly leverage for will data to address. These are good questions while doing so with methodological rigor. And for that reason, next line the project that we've been working on is something called the evidence accelerator. Practically, it sits within a larger rural data community. But the goal was to harness the capabilities coming out of health data and technology partners. That may have not usually been a part of real data and real world evidence conversations as well as health systems and other Groups who we wanted to make sure we could also be leveraging their capabilities and have as a part of the conversation as we tried to figure out how we're going to address these questions quickly.

The evidence accelerator is partnered within a larger national and international global data community, including activities directly to FDA like the sentinel program best Nast activities across the United States such as p coordinate and then international activities. Next slide.

And the way that we did this was first to partner with the real Reagan you'd all foundation and this is practically managed through Reagan you doll, which is the congressionally mandated Foundation sitting next to FDA as well as their partner organization friends of cancer research and they help manage this community, so to speak. Where there are a number of methodological tools being brought to bear to try and accelerate our understanding of how rural data can be confidently used The first was to identify a set of prioritize research questions. I say this as research targets, everybody can understand here, the critical questions to go after also identify a practical shortlist of common data elements that could be utilized by teams as they were starting to address these research questions.

And then at FDA we generated a set of translation tables that allowed translation of the common data elements between common data models such as the sentinel model. Oh, mop see disk etc so that these are tools that can be brought to bear by the Community. The another tool is to develop a common main protocol that multiple teams are analyzing in parallel. This allows us to look at for replication and findings, as well as to help to design consistent Methods that multiple teams can use and helps to really share lessons learned an upscale different teams when appropriate.

Another part of the Tool Suite was a set of meetings and a forum for rapid cycle feedback and learning as I'll come back to. And then ultimately ways of organizing our work so that smaller teams could work together and get practical tasks done. Next slide. If you want to see any information. This is the website importantly we publish the tools on the website. The Reagan you'd all Foundation does. So as well as minutes from the various meetings. Next slide.

And this is an example of the prioritize research questions importantly we update the research questions as the story of COVID-19 unfolds. But you can see we're looking at questions such as natural history treatment patterns starting to ask questions such as, How can we understand Drug utilization surges, so that we can help to predict drug shortages asking questions such as, How can we understand performance of diagnostic tests, including RT PCR and serology tests. Next slide.

And this is just a highlight of the parallel analysis project this a grown out of work that had been done in the oncology community before COVID-19 And it was the idea that by having multiple teams analyze the same question using a common protocol and common data elements we could start to work together to get to stabilize high quality research methods, but also learn from each other to do this work more quickly. Next slide.

And probably the, I think the sort of flagship of the evidence accelerator is something that happens now three times a week that we call lab meeting really started out of the Concept of when you're in the fellow or a graduate student. The lab you have brown bag lunch and everybody comes together to look at findings and you need to be prepared enough that each That you can show your findings and people can comment on it. But that wasn't so formal that it was scary to show up and lab meeting now happens. There's three of them each week, and usually 150 plus Participants that come to lab meeting where different teams show their findings and there's usually a pretty robust discussion with different topics every week. And if you're interested in joining us for a lab meeting, I highly recommend you do and just email and we'll get you some details. Next slide.

Now that we've been going for 14 or 15 weeks. So we started to tailor the work for specific topics. And one of the first was the oncology group who watched what was happening in lab meeting and the Different prioritized search questions and then the oncology Center for Excellence at FDA sat down and identified a set of priorities research questions.

On the COVID-19 patient with cancer and what do they need to know as they think about reviewing drug applications and thinking about the impact of COVID-19 going forward on clinical trials and this list. Is now published through the evidence accelerator and there's a group of teams working on these kinds of questions. Next slide.

As I mentioned, we started to organize ourselves by a series of work streams. And so the three main work streams are the therapeutics work stream and there's two meetings per week, the parallel analysis meeting and lab meeting. There, there's the diagnostics works for him, and we have That lead lab meeting every week and we're just getting to the place of needing a parallel analysis meeting and we anticipate a vaccines work stream in the future. And then also we have these some work streams like oncology and potentially even By basic discovery working across these different groups that help us to think about identity.

Identified specific questions that may be needed for Keith nomadic areas and this allows us to keep our work organized but also keep learning from each other. By having information passed through the different work streams and inform each other. And as an example of that last week's therapeutics lab meeting was about the issue of inaccurate diagnostic tests. And how work to be being done around understanding real world performance of diagnostic tests should inform the work we're doing on looking at therapeutic impact. Next slide.

And this is just a slide about how quickly this has gotten up and running our first lab meeting was April 16 and we have now had 14 or 15 lab meetings and the different work streams have been rolling out. Next slide. And as I mentioned, the work of the evidence accelerator sits within the larger community and what's been fun. Is that we started off with the evidence accelerate of groups who have historically not been a part of the real world data community.

At the FDA had been seeing and now have started to partner that with Sentinel best nest other government. Government groups like the VA MP Corey so that we're really all working together last two slides. one of the things that goes along with the prior conversation that we've identified is key priorities of what high quality science looks like including protocol based on priorities have a high quality foot protocols and thinking about issues such as data quality and. Next slide. key principles of how we do our work together. As an example, one of the key areas of focus is ruthless transparency. The idea that it's very important to be transparent about everything from data quality to cohort selection to how work is done to where findings are not making sense.

We also talk about embracing convergence and discordance to facilitate understanding and really learning about the underlying data sets and what we need to understand about different ways. Of working, we really think about it from the point of view of acting fast and with urgency, but doing so with very deliberate and thoughtful methods. And with that, I'll take it to the last slide.

And hit on any questions that you may have about the work that's happening in the evidence accelerator.

RICHARD KUNTZ
Thanks. It was a fantastic and very fast presentation of some very complicated information and congratulations on the success of so far. I'll just start from the perspective of old school clinical trial just Part of the attractiveness. I think of rural data is its speed answers and also is real time quality, but my guess is compared to classical structured data. There is a trade off of less curation to some degree. Or how do we protect against the issues of the require curation is we'll, we'll knowledge is required and say a

prospective randomized control clinical trial. And the solid adherence to a protocol to reduce type one error and things like that when we have such an open data system that goes too many people

AMY ABERNETHY
So I think there's a number of points embedded and your question. So I'll use for hit on a few. And then if I miss them. Just bring me back to them. So the first point is your point about data curation. In fact, one of the reasons for the evidence accelerator, as I mentioned, we started off asking about companies in the health tech space That have historically not been brought to bear in the world data space. And part of the reason for that is that there's a number of companies working on deep curation of data sets, whether that's electronic health record data sets and using Abstraction, including human beings to pull out key data points.

So one of the things we were looking for is to understand what kinds of curated data sets are already ready to go. And what are the features of those data sets and The multiple parallel analysis projects allow us to understand that and really to understand both the opportunities as well as the risks.

The second thing is that, you know, practically speaking, this is not about real world data acting as a substitute for clinical trials, but real data acting As a contribution to the body of evidence that we need. And importantly, how come real data. Help us understand better design of clinical trials. And points that are rational within clinical trials. Also, how can rural data, help us to sort of point our clinical trial arrows to the right place and prioritize work. So we're very Careful about not seeing the rural data work within the context of the evidence accelerator as a substitute for clinical trials, but rather as a way of trying to understand totality of evidence.

Um, you know, the third point that I think that you're critically getting at is, you know, we're. Can we trust the output of rural data studies and where can't wait. And one of the key. Goals within the context of the evidence sell better is to be really honest about that question. And constantly come back to what are we learning and what is appropriate use for rural data. And so we have tried to be thoughtful pulling people back when it seems that there's sort of been too much push towards, for example, causal and friends or other activities and really bring that to the whole laboratory meeting community so that we can have thoughtful discussions of, you know what, look at what it's credible on what is it

RICHARD KUNTZ
Yep, your comment about the transparency being critical is obviously important, and I'm sure you've thought about this, but is there a role for things like immutable Ledger's like Blockchain to be able to Become a structure so that people could be sure that what's been written has been recorded.

AMY ABERNETHY
So I you know I think your point here is that there is a whole host of potential new technologies that pretend potentially have a role in this space. How we can understand what that role looks like. In this hopefully short time that we have a sorting this out right now and COVID-19 I think it's going to take a fair amount of work on one of those is blockchain and other one is tokenization to You know, basically identify patients for longitudinal follow up another one that we've been talking about now, but it's accelerators synthetic data sets. But I think that your key point, which is how do we take advantage of new technologies, including privacy scare sparing technologies. And solutions that ensure traceability back to source and we really want to use the evidence accelerator to start to essentially create the awakening. So then we can start to figure out how do we do this at least now and into the future.

RICHARD KUNTZ
And have you seen so far in the in the reference of COVID-19 that that you're seeing some different methods for evidence development that will be permanent. After the code was over.

AMY ABERNETHY
Um, it's a really great question. Um, I have seen a number of things, you know, if I go back to your prior question around black blockchain and sort of a Awakening of some of the new technological solutions that can be brought to bear. I've seen within the evidence accelerator a Realization of new capabilities that we may have been missing. Up until now, whether that's the availability of relatively real time data, data sets are ready for analysis. And now needing to thoughtfully apply analysis. To those ready made data sets. in new ways. The role of data visualization, the role of replication. So I think that many of those elements are going to be scrutinized carefully. And then the question will be what should we take up in the future. But I certainly have seen A fair amount of shift and AHA of a while we do have these capabilities sitting in front of us.

RICHARD KUNTZ
Who thinks it is one more question in the evolution of open science where we really think that there's a lot of traction here that nobody should own the data, including industry this data should be available to everybody. How does that play into this rapid Evans development and also I guess I'll just open up to the real world data access and how confident are we and sharing data again that that has various levels of curation so

AMY ABERNETHY
You know, I'm going to kind of hit on two points. And I don't really this is Amy speaking not as principal deputy commissioner FDA was a person's been thinking about this space. For a long time, and i agree with you that there's this importance of, um, You know, no one really owning it each other's data. There is a practical reality. But there's a lot of cost in developing these highly creative and curated Very carefully developed data sets, based on other on individual person's data and so figuring out what that looks like now and into the future. I think it's something that we have to think our way through.

Within the context of, you know, open data science and one of the issues that I see here is that we simultaneously want data sets that are trustworthy from the standpoint of Transparent understanding of traceability back to source and our ability to go back and cross check which are complex expensive technologies to put in place. As well as curation of individual variables from, for example, unstructured documents and figuring out how to generate those data sets in a way that's low cost trustworthy and that are of high enough quality that we can use is one of the tasks are going to have to figure out future

Richard Kuntz: Great, thanks. This is so super exciting.

RICHARD PLATT
I've been admiring the accelerator since you since you launched it you know one thing that Would be really interesting to hear is how you and the accelerator leadership are thinking about Reconciling parallel analyses that come to different conclusions about what the investigators think are the same questions.

AMY ABERNETHY
Yes, it's a really great question. Um, you know, This has been an interesting thing that we were we were grappling with. When we were thinking about this in the oncology space and now is, you know, sitting in front of us right now as we Work on reconciling findings in the first parallel analysis project. And I don't

know if anybody noticed by gloss right by that the That the fact that the first parallel analysis project has been presented to the to the lab meeting group as rich, I probably knows and what we've tried to do as the evidence accelerator community is really be very transparent about asking, why do we think we're seeing differences in results. What's Related to Our the underlying data sets, which a lot of times is one of the biggest issues. What's related to the fact that we really haven't gotten it right yet in terms of identifying and being clear about study population and cohort selection. So, so what are some of the methodological things that we need to grapple with, as well as

Some of the analytic approaches and really as I'm going to kind of laugh. I'm not really going to call it leadership. Of the evidence accelerator, but more as sort of a forcing function within the community conversation like ask people to say, why do we think we see differences here, we've tried to bring methodological experts to the table data experts to the table. Epidemiologists clinicians and having a multi modal multi discipline and kind of multi disciplinary conversation. What's going to be interesting is when you write the paper. How do you summarize when those When those discrepancies that get exist and that which we can all agree as methodological or data versus that which is the nuance of belief and that's going to be one of the things I think we need to deal with.

What's been helpful is at least for the first project I think seven of the eight results were all exactly the same and the eighth, we're still having final discussion around them. The methods.

MICHAEL MCGINNIS
Oh, thank you very much, Rick rich and all the panelists. What a remarkable set of conversations today. We have a relatively limited amount of time for this. kind of wrap up reflection. So we're going to divide it into two components, if that's okay with each of you a component one will be Asking each of you and to Share or reflection that you on second thought, listening to others you wish you'd given greater emphasis to in the course of your, of your presentation and Q & A session and Section two will be a Lightning round of about a minute each in which will ask you to in effect address Two topics.

Both related to the general issue of the collaborative and today's session of evidence sharing development sharing and use. And so the first part of that is, from your perspective, and we have different perspectives here clearly we've got perspectives of those who are Dealing with the evidence from the public health. Arena from the treatment arena from the communication arena from the regulatory arena. But from your perspective, what is the single most important you're forced to pick one most important evidence innovation. That you feel could be game changing from your vantage point, and secondly what stakeholder has the greatest potential to help make a difference in that evidence innovation initiative.

So we'll come back to that. That's the, that's the lightning round at the end. But first, let's go to each of you and ask if you could share with us. Any reflections that you wish you'd given a little more emphasis to or you're glad you have the opportunity to give a little additional emphasis to and Ashish. Are you on

HOWARD ZUCKER
So I think, I think the issue that I would advise to raise a little bit more was the issue of trust. I know that. brought that up and others brought that up in their and their presentations in that the concept of trust among all the public as well as among Their understanding of the trust of scientists and I know this was part of a lot by others. And I said, I should have raised that a little bit more my presentation as we presented a lot of data. And what we did do by information.

MICHAEL MCGINNIS

And I'll just make a quick follow up there. Is there an element of trust that you feel In this trust strategy, if you will, that You have at your disposal that you'll use more extensively next time around.

HOWARD ZUCKER
Sure. Well, I think that there is there is a lot of trust. I think with the governor, doing, doing the daily presentations, was that they That he was able to provide a trust to the creator, but I felt that I didn't raise that point with everyone out of how we use that to convey our message to others and and I think there is a lot of mistrust about government in general. And I think that what we were doing was trying to provide trust to the public. Arch about the government New York State is working to try to solve this problem.

MICHAEL MCGINNIS
Appreciate that clarification, Howard because All of us feel that to generate a lot of trust.

CARLOS DEL RIO
You know, I think. I think that there are a couple things that to me. It's, it's very hard to I mean thinks this is a very fast moving train. This is a very advancing speed of light, and the information is changing. And I think to be able to You know, somebody said to me, you know, in a pandemic you wish you knew today. What you're going to know tomorrow because your recommendations are going to be better. Is, is how do we convey that how do you communicate that to the public. How do you say what I said today is not What I may be saying, tomorrow, and I'm still correct. I mean, this is what it's applicable today. And unfortunately, in this day and age in which a tweet persists there forever. Things come back to get you. So how do you How do you change information. How do you get the perception that the information is advancing and therefore changing and yet not necessarily. You're not wrong, you simply didn't know

You know, in a week, we may know something that we don't know today and may change totally how we recommend people do things. And that has been really hard to, to, to communicate. Even including within the hospital. I mean just within the hospital setting. With top clinicians. No, you don't need to wear a mask, except when you see patients with covered, then we said, yeah, maybe you need to wear a mask. Now, the most recent evidence of CDC is. Oh, by the way, you also need to put up and you know I protection. And it's not like we were. It's not like we were withholding that from people before it's simply the evidence suggests that that's probably what we ought to be doing today. And to me, that's probably one of the most difficult things to get across in a way that you do it and you don't lose trust.

DIETRAM A. SCHEUFELE
I'm gonna pick up on something that Howard said, and I think that's trust and I want to focus on one thing that I didn't emphasize as much with that but that highlights why trust is so important. I think science and Howard said this, the difference between scientists and a lot of political bodies is that they enjoy a huge level of trust among the general public. In a couple of the questions at this idea came through. We need to get the public to understand how science works with how scientific studies works, what good evidences And I think this is one that I wish I had gotten across a little bit more explicitly. That's not going to happen. For me, I didn't 30 million Americans are not going to think that like scientists, they're not going to vet scientific studies and work their way through it. They rely on bodies like the National Academies and scientific associations to do that for them. They, they give a huge amount of Investment to science to do just that for them. And so I think the, the one thing that I would Like to emphasize what we should avoid is this idea that while we need to get the public to think, just like us, and then they're going to work their way through evidence and believe the evidence more Decades of social science have disproven that and frankly, that's not their job that's ours.

And so we should take advantage of that trust that Howard mentioned that we have. And I think we've seen you know lots of people like him or some people like you and in the in the public eye doing exactly that very successfully.

MICHAEL MCGINNIS
Thank you very much. But before we do that, we're going to insert one more aspect of this reflections and that is if you have a question that you would like to ask one of your Counterpart Speakers Will give you that opportunity before we move to the lightning round.

So let's go to Amy. Terrific.

AMY ABERNETHY
So I think I would follow up on one of the questions that was asked of me as it related to clinical trials. And I, if I had to amend something about what I was talking about. I would have made it clear from the very beginning. That we shouldn't think of real data and real world evidence as a substitute for clinical trials, but rather as a way of answering questions. That are critical of a COVID-19 and allowing us to point our clinical trial resources to the most critical, critical questions that clinical trials and specifically randomized trials are most apt to address. I think that's what it might have been my man.

MICHAEL MCGINNIS
Thank you Amy. So here's your chance to ask questions of your panelists and we can't imagine a better group of folks position either to ask the right questions or to give the right answer. So who would like to lead off.

CARLOS DEL RIO
You know, I think, let me let me lead off by asking and saying something, but also asking when you initially had mentioned, what would we, what are we, my dream thing that I need right now. That could really make a difference. And to me, having a home test rapid test like a like a pregnancy test. I can do at home quickly effectively and that can tell me if somebody has COPD or not. Would really transform the way we approach this this disease from a public health standpoint and would real allow us to do. What we're not doing right now, which is really to rapidly isolate and quarantine individuals. So my question is, you know, I know the FDA is working on this and Other people are so, so how realistic is that will have something like that. And I think we'll start with Amy, but we can go to the trim.

AMY ABERNETHY
So, you know, if I play that back to the question is how realistic is that we're going to have at home testing or, you know, rapid testing that we can rely on. And I think that the key feature here is that testing that that testing needs to be something that where we trust the results and where we also have access to the right reagents and the right capabilities to get that work done. There are a number of new testing solutions coming down the pipeline, and I think the other important aspect here is the active program coming, excuse me, the red X coming program coming out of NIH, which also has promise of bringing new testing solutions. But, we not only want a test available to us, but we want to test that works, and we need both of those. Yeah.

MICHAEL MCGINNIS
Thank you. Did you give a question for one of your other panelists.

AMY ABERNETHY
So I'm gonna ask one to Howard, because I think you know he and I have lived in spaces in parallel and I'm curious for you. Howard, as you think about what would have been most helpfully for you in planning. What are the right studies to do and how do you efficiently take care of the population in New York and also do studies would have been helpful for you.

HOWARD ZUCKER
And I think that her that the issue is to be able to have gotten more data from other places, not just the data that we have from New York, and to be able to share A little bit more and to seen some limitations. What we saw as a lot of information coming through very quickly. And you and I have spoken about this and so In the effort to try to get something out there for the public to see and as others intervention and sometimes the data changes across the same. They don't change and adapt accordingly. I think if we were able to add more data from elsewhere and realize what was happening. Other parts, not just in the US, but even other parts of the world. That would have been helpful. And we research in the literature in China and trying to find out what was happening. They Were trying to get some information, Italy, I was calling over there trying to say and what are they see remember the whole issue with the blood grouping and whether there's a difference. Oh, and am. So what's the data on this and what are we see that would have been helpful.

MICHAEL MCGINNIS
Well, thanks to all of you on that account and now we go to our lightning round. And just to remind, there are two parts to two questions for you to give very quick responses to. And the first question is with respect to evidence generation. And use generation sharing and use what innovation could make the most difference in the evidence arena and, secondly, what stakeholder Could have the most power in helping to ensure that that innovation came about.

AMY ABERNETHY
Was afraid, I was going to get this one first. I'm going to say something potentially quite inflammatory but here goes. Um, so I think that one of the innovations that could have a lot of really positive power within the context of evidence generation and use Is new ways of publishing and getting information out that allows rapid public education cycles with peer review and somehow makes it so that we are Not constantly beholden to academic cycles and process, but rather run the credit critical question of how do we get the right information out. Into the public space to be able to use it. And I don't think we're there yet. And I don't think the solutions, we've got right now. Do Us justice and it's goes back to some of the conversation was being had before. So then I think that the actors with the most power. Actually are on the academic side of figuring out what would meet academic requirements, but also allow very rapid dissemination of information. Without getting too caught up in who gets to scoop who and what the win is and we've really started to make some progress on this on the evidence accelerator. But I think we've got a long way to go.

DIETRAM A. SCHEUFELE
And I wouldn't come back to something I think Michael, you said this earlier. And that is our information ecology is huge is new is constantly changing and social media and those being the primary sources. That 350 million Americans are using for their information and we know very little about how those functions what the how those function what the underbelly is A lot of these conversations happen behind password behind passwords on Facebook and whatever else. And I think we need to get a grasp of how that happens. And what that means and how to use that efficiently quickly.

And I think the stakeholders to that are groups that I mentioned earlier in 2007 Larry Page, gave a keynote at AAA as in San Francisco or San Jose, where he said science as a gigantic marketing problem. You guys are not connecting right with the right audiences. And at the time I think he got a lot of pushback. I think he was right. But I think it's time to cash that in and saying, well, you think we have a marketing problem you're the one among one of the key people Who can help us in solving that because Google searches and Facebook are some of the primary sources for information about COVID-19 And we don't know how to use them well.

HOWARD ZUCKER
So I am actually focus on the antibody effectiveness. Because I think that the public is so focused on this and believe that if I have antibodies. I can go anywhere. And we know that what Today last to the last. What does it mean, I think that this is the area that would be very helpful for the society in general to know And then, who should be the stakeholders. I think it's CDC and NIH and I think it's the academy, because the Academy is so trusted to carry that message power when two major government federal government agencies address it.

CARLOS DEL RIO
You know, I think, a lot, a lot of things that have been said are really important. And I'm totally, totally agree with them. I'm going to therefore say something a little different. I think it's important, I think, and it's not necessarily an innovation, but something that I would like to see is, and I think that has been a problem in this pandemic. I think we Don't know what the innovation would be when we have politicize the technical and we have not Done a good job of making of educating the political the politicians on the technical to the way we should be. So how do we how do we better educate our politicians who are and others on the technical aspects, but how do we are able to extract and, you know, Deitram mentioned in at some point in time is how do you get How do you extract the political from the technical, how can you Go further in delivering technical measures that are not political. And you know, I mean, I understand, you know, vaccines became have become political and you know COVID-19 vaccine is the first vaccine that has an anti vaccine movement before we even have a vaccine. But in in my life. I would have never imagined that a face cover will become political and the kinds of things that we're seeing becoming political I think are making the job of public health incredibly difficult. So we either invent a new way of doing public health or I don't know what we do, because otherwise I think public health will become essentially paralyzed by politics.

MICHAEL MCGINNIS
Thank you very much Carlos, the trumpet sounds like there's going to be a lot of pressure on you to come up with the right rate a message on behalf of everything that they each of us is doing. Again, thanks so much to each of our speakers and panelists for remarkably insightful presentations. And I'm going to turn it back over to rich and Rick for some wrap up comments.

RICHARD PLATT
My first comment is The best way to spend four hours. Of a hot summer. So thank you to all of all of our panelists for making this possible. I also want to note that We have consistently had 300 to 400 people who have been have been online during this entire periods so So thanks to the thanks to the 400 for being part of this activity. We've we're Paying attention to the questions and we will try to curate them and publish both the questions and the answers as part of the follow up to this to this meeting.

And I, I'd like to spend the next minute sort of thinking with starting the next set of conversations that I think the leadership consortium will be interested in because among the reasons we wanted to spend this

time focusing on COVID-19 was to Try to understand where the, where the things we've been forced to to learn from COVID-19 can apply to the larger set of activities that that the leadership consortium is interested in. So I, I see that as our next piece of work. They're all the things that were confronting us Before COVID came onto the scene will be issues for us, after we've wrestled covert to the ground and so It would be, it would be a great step forward. If we can extract from the, from the progress that COVID is is making insult that we're making in solving the covert problems apply them to the set of issues that The consortium is dealing with. Personally, I would pull out as one of the things that has been an issue for I think through each of the conversations we've had today is the critical importance of being able to use real world real world data and And the set of issues related to that, I think, as, as a society, and as a consortium. We haven't quite gotten to the point where we see as A critical, critical piece of a critical Foundation, the ability to use essentially all the data. We've, we've waffled between saying people should, we should rely on people volunteering their data versus saying one way or another, we have to have Privacy protecting respectful transparent methods for using all of the data. So among the many things. I hope we tee up for future conversations is that one.

RICHARD KUNTZ
What's the hard to follow. That's a great summary. I want to thank all the speakers for spending the four hours with us. It's been fantastic. Also want to thank Michael and your team, in particular, Noor and Fasika for really putting this together, especially virtually I think this came out very, very well. And I think that this may be a new way of going forward, even after code, but for some of our meetings. So I'm eager to process the information today and get back to working with staff and following through on the next steps that rich outlined.

MICHAEL MCGINNIS
Well, thanks to both of you. Wonderful co chairs and the meeting was terrific. And I do to our audience. You're all part of this collaborative And we would like to underscore the fact that The focus of the collaborative. The purpose of the collaborative is to generate action and to generate ideas for constructive action. So please Consider yourselves invited and requested now offer suggestions to the National Academy of Medicine and the evidence mobilization. Actually collaborative for ways that we might facilitate the kind of innovation that our speakers have given us a glimpse of And the kind of solutions that they've indicated are possible and important for society and move forward for our progress toward a learning health system very clear that the COVID pandemic has put in stark relief. Some of the challenges we have but implicitly as our speakers have emphasized also some of the potential solutions. So thanks to each of you.

Both on the panels and thanks to each of you in the web universe to be continued. We look forward to hearing from you. Be safe.