

AMERICAN PUBLIC HEALTH ASSOCIATION

and

THE NATIONAL ACADEMY OF MEDICINE

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RESPONDING TO COVID-19: A SCIENCE-BASED APPROACH

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WEBINAR #7: "TOWARD THE 'NEW NORMAL' -
PROTECTING PUBLIC HEALTH AS AMERICA REOPENS"

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WEDNESDAY
MAY 13, 2020

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The Webinar met via
Video-Teleconference, at 5:00 p.m. EDT, Scott
Gottlieb, MD, Moderator, presiding.

PRESENT

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

5:00 p.m.

DR. DZAU: Good afternoon. I'm Victor Dzau, the president of the National Academy of Medicine. And welcome to the 7th webinar in the COVID-19 conversation series brought to you by the NAM and the American Public Health Association.

The purpose of this series is to explore the state of the science on COVID-19, to inform policymakers, public health and health care professionals, scientists, business leaders and the public.

I'd like to thank my co-sponsor, APHA Executive Director Georges Benjamin as well as the co-chairs of our webinar series advisory group, Carlos del Rio of Emory University and Nicole Lurie, former Assistant Secretary for Preparedness and Response.

More information on this series and meeting recordings of past webinars are available on covid19conversations.org. Today's webinar has been approved for 1.5 CME credits or CE, CHES, CME and CPH.

None of the speakers have any relevant financial relations to disclose. Please note that if you to continue education credits you should have registered with your first and last name. Anyone who wants credit must have their own registration and watch today's event in its entirety.

All of the participants today will receive an email within a few days from cpd@confex.com with information on claiming credits. And all online evaluations must be submitted by June 26th, 2020 to receive continuing education credit.

If there are any questions or topics you'd like us to address today or future webinars, please enter them in the Q&A box or email us at apha@apha.org.

If you experience technical difficulties during the webinar, please enter your questions in the box. Please pay attention to the chat for announcements about how to troubleshoot.

This webinar will be recorded and the recording, transcript and slides will be available

on covid19conversations.org.

Now I'd like to begin the session today and introduce our moderator, Dr. Scott Gottlieb.

Scott is a member of National Academy of Medicine and former commissioner of the FDA.

He is currently a resident fellow of the American Enterprise Institute where he focuses on improving public health through entrepreneurship, medical innovation and expanding regulatory approaches to maintain patient and physician autonomy.

Scott is a major leader. I've been very impressed with him, and he will lead the conversation today. So Scott, over to you.

DR. GOTTLIEB: Thanks a lot. And thanks for having me here today. I want to thank all of the distinguished panelists who are joining us, it's really an honor to be leading this discussion.

I thought I would just start out with a few thoughts of my own and then introduce the panel and then turn it over to them. And around 6:00 we'll start with questions from the audience.

So please send your questions in and I'll turn it over to the audience and read the questions that we get.

We've really been in a period of time right now where we're facing a once in a generation pathogen. And we should recognize what we've done to help prevent the worst outcomes and the worst epidemic based on the early estimates that we had and avoid the worst consequences.

But we also need to recognize that we paid a heavy price for this, both an economic price and a public health price in terms of the implications of the mitigation, the implications of the shutdown.

There were bad consequences on both sides of this ledger. There were no easy choices here, there were no good outcomes.

We choose the path of preserving life, but we all did it, I believe, with eyes wide open on how hard this road would be and how many consequences there would be. And how many challenges really lie ahead.

We are not out of the woods. This is

going to be a very long road. People rightly want to know when this is going to be over, and the answer is, it might not be over for a very long time, until we're able to more fully vanquish this pathogen with our technology.

And this may be an infection that's with us in perpetuity, that becomes endemic but becomes something that we can live with and that we can conquer with vaccines and with therapeutics.

But in the interim, until we get there, until we get that technology, we're going to need to define a new normal. And until we have those better drugs and a vaccine, we need to define a new normal where we can get back to the things we enjoyed, we can get back to work.

But we're going to have to do so differently. And we're going to have to do so in ways that we apply more vigilance to what we do.

We're going to have to sacrifice certain trappings and impose certain things that will make life different. And we're going to have to do things more safely than we've done before and with more awareness to the risk of viral

transmission.

Now, there's a lot of signs of progress when you look at the data. The U.S. had been in sort of this extended plateau, both when you included New York, and even when you backed out New York, you had seen an extended plateau in terms of the number of new cases on a daily basis and the number of deaths.

But if you look at the data over the last couple of weeks, and we have some experts on the panel who look at the data much more sharply and me and will be weighing in on this, you see signs of progress. You see reductions in hospitalizations in new cases, even as testing increases.

You see declines in positivity rates.

You've seen a trend towards sustained reduction in new cases, even when you exclude New York, but certainly when you include New York in the overall data, because New York is obviously experiencing sharper declines over a longer period of time than other parts of the nation.

Now, that's not to say it's all easy

roads ahead. There are states that have large outbreaks, there are states where the number of new cases are going up.

There is at least ten states that -- where the R is above 1.1 and maybe at 1.2. The doubling time is still probably around a month or more. And we still have a slowly expanding epidemic.

But there are signs of progress and there are signs that the mitigation is working, not just in the hard-hit cities like New Orleans and New York and Detroit in Michigan and Boston, but around the nation.

Even as we reopen against the backdrop of spread. And we reopen in a setting where some states are experiencing increases in new cases.

Now, there's a way to do this with reduced risk. We have to focus on at-risk communities, people who lack access to testing and good care because of places where they work or they live. They might be at higher risk for the infection.

We need to try to put forward thoughtful

guidance for businesses on how to reopen safely.

And for recreational activities.

We need to invest in public health tools like track and trace and trying to do the blocking and tackling of public health work, of tracking down people who have the infection.

And there might have been people who they might have been in contact with, and offering them testing and asking people to self-isolate for the period of time that they're infectious.

This is a highly infectious pathogen.

We're not going to get everyone, we're not going to be able to track down all the cases.

But even if we can track down a meaningful fraction of the cases, that might be enough to keep this epidemic from expanding, and we have to try. These are the tools we have to lean on now as we move away from the population-based mitigation, we move towards the case-base interventions, and lean very heavily on it.

A lot of this, and certainly part of, probably a lot of it is going to turn on better data. Data on how to target these interventions

more effectively, data on who is being disproportionately impacted by the infection, data on how to get testing into the community settings where it's going to have the biggest impact.

Because not everyone is at equal risk and we need to identify the groups that are at the most risk and make sure that we're martialing services and resources into those settings.

And so here to talk about that today is a really great panel, and I'd like to introduce them and then turn over some questions to them.

Mary Bassett is director of the FXB Center for Health and Human Rights and a professor at Harvard University. And the former Health Commissioner for New York City.

Heidi Larson is a professor of anthropology, risk and decision science at the London School of Hygiene and Tropical Medicine.

And a member of the webinar series advisory group.

David Michaels is a professor at George Washington University and a former Assistant Secretary of Labor for Occupational Safety and Health.

And Chris Murray is Director of the Institute for Health Metrics and Evaluation at the University of Washington, which maintains the model that we're all very familiar with, COVID-19 model.

That's become very influential, very closely watched by all of us and has been the subject of many of my tweets. So thank you, Chris, for giving me material.

I want to thank you all for being here.

We now have about 50 minutes for open discussion among the group and then I'm going to turn it over to questions from the extended audience.

So I just want to start out with one question. And I'll direct it to you, Chris, first and maybe everyone else can comment.

What data do we currently have that can help guide specific measures on reopening decisions?

What do you think we have in terms of effective data sets and what do you think we need to make these decisions more intelligently and more effectively?

DR. MURRAY: Thanks, Scott. Thanks for the intro and the question.

You know, I think what's been impressive during the pandemic so far is the extraordinary value of daily data. And that's all I live and breathe right now, coming in from states and counties.

On the other hand, what's been impressive is how hard it has been to go beyond case reporting and death reporting.

So, you mentioned hospitalization is a great indicator that is less subject to the bias that's in cases. Because as we scale up testing we will inevitably find more cases.

And so the trend in cases becomes very hard to interpret. But not that many states are reporting admission. Some states report census counts in hospitals, other states don't report at all.

When it comes to testing, which as you said, is going to be so important for the next wave of strategy, we really must know the difference between testing of people who show up at a hospital

or clinic with symptoms and testing out in the communities where we're proactively looking for groups at risk, vulnerable groups or contact tracing. And yet that basic information is not currently available.

And as we go ahead a little bit to, what's the early warning system for the next flare up or the next hot spots, I think we may need to start thinking about other innovative strategies that go beyond the testing data, go beyond hospitalizations and case reports.

There's lots of interesting ideas out there. They're not ready for prime time. Things like water treatment testing or sewage treatment testing that might give us, through quantitative PCR, a sort of signal of how much virus is in a particular community.

Lots of possibilities. I think we're going to want to understand those data sources as they may or may not come on line.

DR. GOTTLIEB: Mary, can I ask you to comment? I'll just go down the panel, if that's okay.

DR. BASSETT: Sure. Well, one of the things that has emerged very rapidly in terms of the data are large race, ethnic disparities in both cases, the number of people who are tested positive and in death.

But the race data are really woefully incomplete, including for death data. In Massachusetts, where I am now, over half the deaths have no race recorded.

So it means that it's difficult to, just as it is with testing, period, we still haven't gotten testing up to the levels that it should be to be confident that it reflects the prevalence in the population. We also don't have the data.

But the data we have suggests that the excess risk among Blacks and Latinos, Native Americans, ranges two to fourfold. I'm not sure why the data aren't better but they should be.

DR. GOTTLIEB: I was going to ask you why it's been so challenging to get good data, because it does feel like a frustration. Data about who is being affected, data about outcomes.

We haven't seen a lot of systematic

data. We now have 1.4 million Americans who have been infected, hundreds of thousands who have been hospitalized.

We haven't seen a lot of systematic reporting on the collective clinical experience.

Do you have any insight as to why it's been difficult?

DR. BASSETT: You know, the electronic health record was supposed to fix this for us, but I think everybody on the panel will agree that it's just been extremely disappointing.

DR. GOTTLIEB: Yes. A lot of the clinical information that we're using --

DR. BASSETT: Yes.

DR. GOTTLIEB: -- to make judgments right now is coming from Europe and China.

DR. BASSETT: Right.

DR. GOTTLIEB: And not from our own collection.

DR. BASSETT: Right. I'm afraid I can't help. Maybe somebody else can come in here but I really can't tell you. But it's not good enough and it can be fixed.

DR. GOTTLIEB: Yes. Yes. Heidi, any thoughts on --

DR. LARSON: Well I think, as Chris said, most of the data out there is case and death, to the extent that even that is straightforward. But there's other kinds of data that we could be tapping into.

I mean, in our research we do a lot of social media monitoring, we do look at Google searches, we look at, you know and there are ways to start looking into other data sources for symptoms, for people searching for what's going on or talking about new cases or behaviors.

We're also doing, starting to launch some post surveys that ask, you know, not just people's experience around this but are they going for testing, do they want to get tested and can't.

I mean, there is, I think if we open the box of different types of data it might give us some other access.

When you go into those types of data you don't have as much information, necessarily.

They're not all geotagged, they're not -- you

don't know who is telling, who is really behind some of the social media data.

But I think as an additional supplementary, indicative source of information, I think we should try to think about ways to use it in a much more systematic way.

DR. GOTTLIEB: What do you think, what information do you think is going to be most important for people to make decisions at a local level or a state level as they start to reopen businesses?

What kind of data do you think we should be relying on that, in and of itself, is also reliable that we can get access to?

DR. LARSON: Well, I mean I think people share a lot of information online and in social media communication. And you can, I mean, I'm sure you can at least get some indicative signals that there is, people are talking about cases or they're talking about where they can get treatments or can they get treatments.

Or you can pick up on a feeling that something is going on there, and as you say it's

highly infectious. Again, this isn't kind of definitive data in the same sense that you get kind of health data from official sources, but it does give you, especially for kind of warning signs or signals that we should work into the risk assessments.

You can also ask. I mean, I think surveys could be used more in different contexts.

DR. BASSETT: You know, I really think we've just got to do better on testing.

DR. LARSON: Yes. Yes.

DR. BASSETT: And we have to get the actual, you know, at least in the United States, since that's what we're talking about.

DR. LARSON: Yes.

DR. BASSETT: I can't really see a good reason that we can't get the testing rates up to much higher levels than they are now. We should be able to do that.

We should be able to get better prevalence estimates. And that's really a key driver. It's important to see the presence because the -- Scott, you said in your

introduction, there is variability.

We could classify the country into sort of green zones, yellow zones, red zones. But we need data in order to do that.

And we can get hints, as Professor Larson is outlining, but I think we should still say there really ought to be adequate testing.

DR. GOTTLIEB: Where do you think we should be in terms of testing? What do you --

DR. BASSETT: I mean, the numbers that are being estimated run from, you know, 150,000 to 5 million a day.

I read recently that the U.S. hit 400,000 and that was the first for national numbers of testing, tests for the country.

So, you know, I think that, maybe this is a question for Chris, that there is a very big range. But it certainly needs to be much higher than it is.

DR. GOTTLIEB: Yes. I mean, I'll just inject, I want to turn to David for his initial thoughts but --

DR. BASSETT: Okay.

DR. GOTTLIEB: -- I'll just inject a thought here. And then I want to come back Chris with another question.

But I think that the challenge is that we've been trying to use a PCR-based platform in this country to do most of the testing. And PCR has certain advantages, but certain disadvantages in terms of timeliness of turning around a test.

And if you look at the capacity of the PCR-based system, we probably will max out the capacity of the existing platforms in the supply chain at about 500,000 tests a day. And we're getting close to probably about 300,000 tests a day.

So I think our ability to get more testing is going to be dependent upon getting different kinds of testing platforms and different kinds of technologies and putting the right platform in the right setting where it's properly fit for purpose.

So in a primary care setting where you have a doctor providing the intervention, you know, the Abbott system or an energy-based system that

might have very good specificity but doesn't have perfect sensitivity might be perfectly appropriate because that doctor, in that setting, if they get a negative test but they suspect the patient has coronavirus, they're going to send off a confirmatory PCR test.

So you want to deploy those point of care systems, PCR can be a very good platform for confirmatory testing. And then also for doing some primary testing, particularly around settings where you need a definitive result, you need a high sensitivity.

But then to do mass screening, if you want to do workplace testing where you might want to do pooled samples, you need something that has a much higher detection rate. So things like next generation sequencing, which I've worked with in my private life, where you're looking for 200 amplicons as opposed to two. So you have a much better ability to detect a virus in a pooled sample.

That might be an appropriate technology for that purpose.

And so, I think we need to -- the only

way we're going to get further testing in my view is to get more technologies, but then make sure the technologies are appropriately used.

So for example, you shouldn't be using the Abbott machine to do asymptomatic screening of people outside of a clinical setting because you're going to have a false, a false negative rate and outside of a clinical study you won't follow up with those individuals.

So, that's just my injection as a moderator.

(Laughter.)

DR. GOTTLIEB: David, can I just turn to you for your thoughts? I'm sorry.

DR. MICHAELS: No, I think we see a lot of the same problems when we think about it from the worker safety point of view. You know, COVID-19 has become a massive worker safety crisis.

And the communities with the highest infection rate, and the ones where the infection rates are rising rapidly, are those places where the epidemic is being driven by job-based exposures.

And you've got extensive testing in some workplaces, most famously the protein industries. Pork, beef and poultry and warehouses, farms, some other workplaces.

But there's very little testing done in many workplaces. And for the most part, and this is sort of the equal part of the problem, there's no linkage between public health authorities and a lot of the testing that's done.

So there is a famous example now up in a Walmart in Worcester, Massachusetts where there were, have been so far, 85 cases and two deaths.

When the initial cases started to appear, local health authorities had no idea they were all linked to one workplace. Once they finally put it together, they shut down the store.

But instead, if they had known earlier, if the reports had come in to them directly, they could have done it much earlier. We don't yet have that tracking and tracing.

So we actually need, in addition to good testing, sort of a workplace-based surveillance system where workplaces are identified where

transmissions are occurring. When employers do that testing and they learn about it, they need to notify local health authorities.

They need to be working closely with OSHA and other agencies to figure out what needs to happen immediately in that workplace because that's where a lot of these transmissions are occurring, I think.

DR. GOTTLIEB: Do you see best practices that you would point to and where that's happening effectively?

DR. MICHAELS: Well, I certainly hear that -- I haven't, you know, I've gotten reports from Washington State and Oregon where there seems to be a real collaboration between state health departments, a lot of the employers, where they're doing it. But I haven't seen much of it.

The other thing we're seeing, unfortunately, is this real tension, certainly in some of these big industries where we heard for example that the meat industry in Nebraska didn't want to actually release any numbers about the workplaces, they told the health department they

didn't want any sort of intervention.

So, we've seen sort of worst practices, but I haven't seen too many best practices yet.

DR. GOTTLIEB: How much, I want to just shift a little bit to where we are right now in terms of starting to contemplate a states reopening of the economy. Really -- I want to pivot to a discussion of what we're contemplating now, which is really a staged reopening of the economy across the nation, with different states taking different measures, different staged approaches to reopening.

And just ask the group how much do we feel that the data we have is adequate for making those decisions, what should we be relying on as we make those decisions, and any observations as you see some states step forward or states that are doing it well, states that are looking at the right data, making the right decisions relative to the data?

And if anyone wants to comment on states that they feel maybe aren't looking at the data that they have in hand and making decisions that

are appropriate relative to the data set and what the data should be telling them. And I'll just toss it out there without picking on people and see if anyone wants to jump at that.

And then I want to pivot and ask, after that I want to ask Chris some questions, and then to the whole group about just handling, how we grapple with when the questions of data get pulled into sort of a political context where people are looking at the data through a lens of their particular sort of mind set about the epidemic and how we deal with that.

But I'll turn it over to the prior question about the states and the data and how they're using it.

DR. MURRAY: You know, Scott, I think the issue there is we can give, or I can give a public health or a health outcome answer. But most of the states are trying to balance the economic turmoil from shutdown versus the health outcomes.

Clearly, from a pure health point of view, not the balancing act that they have to go through, many states are opening up before they

have clearly brought transmission down to a reasonably low level where the testing and contact tracing and isolation strategies are likely to succeed.

So I think that's, you know, and Georgia is a great example of that sort of situation where there is relaxation, they haven't even peaked necessarily. Lots of other examples we can look at there.

So it's really easier for us to give the public health answer, much harder for, to think about that balancing act between public health and economic impacts.

DR. GOTTLIEB: Anybody else want to touch that?

Because it does seem like there is heterogeneity across the nation in terms of the kinds of metrics that states are looking at and the point at which they're making decisions to start to reopen relative to the data.

And there is heterogeneity also in the risk that different states face. Some states have less density, some states had less overall

infection at the outset, they're in a position to take more risk.

So it's very hard to make comparisons across states facing very unique circumstances.

But to the extent that there is some commonality, it does seem like there's a lot of heterogeneity in how decisions are being made across the country.

But I'll --

DR. BASSETT: Well, I think that everybody agrees that the cases shouldn't be going up, if from the public health point of view.

If you're still seeing the case counts going up every day then you haven't succeeded yet in reducing transmission. So that is worrying because that's been our principal strategy, to reduce the contact between people has been what has led to the flattening of the curve.

It's not just imaginary that if you increase the amount of mixing of people in the population transmission will go up. We've seen it happen across the Asian cities that successfully brought down transmission. Wuhan said that they had zero cases and now has had a reintroduction.

So we've seen clusters return, even when there was fairly good control. So it's very worrying to see states decide to increase the amount of population mixing when they still have cases going up. And that's more than half the states that have decided to reopen. Yes.

I mean, I'm a public health person, so I think that a goal of any strategy is to save lives and that we as a very wealthy nation can afford that strategy.

But we are seeing these astonishing economic impacts that are also having a bearing on people's health and well-being. Not just their income.

So, as Chris said, it's a hard balance.

DR. GOTTLIEB: Yes. David, did you want to comment? I wanted to turn back to Chris.

I wanted to Chris a series of questions.

We can get into a discussion about how we communicate data, how we communicate with the public about the public prerogatives here relative to the data and what we're observing in terms of the public health impacts.

But I wanted to just ask Chris a couple of questions about, Chris, what was the point when you realized that the model that you were working on was going to be the subject of intense national scrutiny?

Can you sort of describe that moment for us when you realized that you were going to be in the hot seat on this?

DR. MURRAY: You know, we started off, we were asked by our own hospital system to help them plan for the surge in the hospital. So we made them a model.

Word of mouth spread across other academic medical centers. We got flooded with requests. And so we decided rather than go hospital system by hospital system, we would just make models for every state in America and put them out.

So we put them out on a Thursday, if my memory -- and by Saturday we realized quite what we had launched into.

DR. GOTTLIEB: What was the point at which you realized it?

DR. MURRAY: Well, I guess when the White House called on a Saturday morning, that was probably when we realized.

DR. GOTTLIEB: I think yours was the only model that really, on a systematic basis, looked at resource utilization. I think that's partly what made it so seductive because it really helped identify when we were going to max out the health care system as opposed to trying to extrapolate just from case counts and things like that.

Is that how you perceived it as well?

DR. MURRAY: It was that, and I also think that there were, as we learned from a number of state governors' offices, there were a lot of models that were basically telling New York that they were going to keep expanding to the point where everybody was infected, or 80 percent.

And the implications of that were really so overwhelming in terms of, you know, that was where the 40,000 ventilator number came from for New York.

And when we were trying to factor in

the human behavioral response, you know, that social distancing actually can work, and then had a different trajectory and they might actually, you might reach a peak. I think that was also part of why people were interested in that.

DR. GOTTLIEB: Do you, obviously it was the subject of intense interest, you've been on Face the Nation alongside me a couple weeks in a row, and you've been speaking to your model a lot.

Any lessons learned that you would share with the group in terms of trying to communicate information and data in this kind of a setting where there is so much scrutiny and where the stakes are so high in terms of how people interpret the information and what they do with it?

DR. MURRAY: Yes, I think in academia we love to stress uncertainty in models and talk about the range is modeling outcomes. And that's appropriate, scientifically rigorous, statistically appropriate.

But of course in, or at least my perception is that in the policy arena and in the

public communications, that is irrelevant. What matters to the public, and actually to many decision makers is what's your best estimate, your best guess. Because people need to act on that.

And so, it puts a little bit more pressure on us in academia to do as good a job as you can and not say, oh, my range is from a 1,000 deaths, and then there is a model out there that the range is from 1,000 to a million deaths by the summer.

Sure, they're very likely going to be right, but it's not super helpful if you think of uncertainty as your way to communicate to the public. So that's one observation.

The other one is just how, as you know well from your engagement, trying to pick one message per engagement and stick to that message.

Because you can't get multiple messages across per engagement.

DR. GOTTLIEB: Any other observations from the group on just how to communicate effectively in this environment when we're trying to communicate information data that's going to

be the basis of important decisions when the stakes are so high.

Not just the public health stakes but the political stakes, the economic stakes. There's so much intense scrutiny on the data coming out of models like yours, Chris, or just the data set that we're accruing from daily testing or daily hospitalization rates.

Any other observations from Mary, Heidi, David? Anyone else want to weigh in on this?

DR. LARSON: Well, I would just weigh in, I mean, I think Chris is right in terms of the best estimate, best guess and speaking to one particular message. But on the other hand, we see here in the UK they got it too punchy and short and then there was a railing of complaints from public and others saying, that's not good enough, what does that mean.

And people want a bit more detail. So it's finding this balance between, okay, give us the headlines and then tell us how to get there.

Not that Chris, in your, I mean for the

kind of briefs you're doing for the policy level, that's one thing, but at the next level when you say, stay alert, for instance, here, what does that mean?

So I think it's this balance of keeping it brief but also, what are the actions, what are the implications for people's decisions, what does this mean for my decision.

DR. BASSETT: I --

DR. LARSON: Because the individuals -- sorry, go ahead.

DR. BASSETT: No, please finish, I'm sorry.

DR. LARSON: I was just going to say, it's true that at a policy level they are weighing economics and health, but it's true at an individual level, individuals are weighing those.

I don't really feel comfortable going to work but I got to pay for my rent or I need -- so they're also weighing which risk is going to be harder on me. Go ahead, Mary.

DR. GOTTLIEB: Mary, sorry.

DR. BASSETT: I was just going to say

that I'm not sure, and this is me also, how literate we are about how to assess models. And the extent to which we understand why they vary.

Whether it's what's being put into them, the data differs or is what's being built into them, the conceptual structure differs. And so that makes it more likely that people will take them as sort of received truth when they aren't educated about how they work.

I guess it would be interesting for me to hear from Chris what he thought were the main action items. I felt very assured with your remarks that you made about these may change as we get more data, these are models that we make based on the available information at this time.

They only project out over a certain period of time. I found that all reassuring.

DR. MURRAY: Yes, I've been trying to get the public, I think it's a long slow process, to think of these models like weather models. Lots of data --

DR. LARSON: Like weather.

DR. BASSETT: But we can't change the

weather.

DR. LARSON: Yes.

DR. BASSETT: But we can change the outcome of this virus.

DR. MURRAY: True, somewhere between weather and economic forecasts. Those are the real elements. You know, just an idea that forecasts should change as we get more understanding, more data. There is a lot of wildcards here. It's not something that you're going to do once and this is what's going to happen type phenomena.

There is real nervousness in our community, on the public health side, about changing forecasts. We get a lot of feedback that you should just make one forecast and not change. But our view is, nobody knows and we should reflect all the data that's there right now.

And what goes with that is this sort of messaging that says, we're not omniscient and we're going to have to reflect the data that comes in.

DR. GOTTLIEB: Not to challenge the way you've been describing this, Chris, but I'll just

sort of share with you.

When I'm asked about the models my standard talk point is that this is not like forecasting the weather where you make a forecast and wait to see what happens, but when we make models we're actually taking action based on those models that's going to affect the outcome. So it's a dynamic relationship to the model.

Which I think has been true in the case of your model. I mean, I think your model has affected policy. In fact, I know it's affected policy.

In a very tangible way those early models did in impact policy makers in a very meaningful, and I think a very helpful way. So that's been my talk point.

(Laughter.)

DR. GOTTLIEB: And I just want to offer it. Any other thoughts? David, anyone?

I just want to, I thought I would transition. We've heard a lot about health monitoring and overall testing of the strategy to sort of guide the reopening.

Does the group have thoughts that we can share with how we should be effectively deploying these things, how we should be thinking about this?

How do we get testing and tracing out into the workplace, are there potential sort of pitfalls that we should be mindful of?

What are some of the best practices that you've been seeing that we can give for our guidance?

We have a lot of business leaders on the call right now that are thinking about how to do this in the workplace, testing and tracing in the workplace. We have state officials that are thinking about how to do this at a state level.

What kind of advice should we be giving them? And I'll just throw it out to the group.

DR. MICHAELS: I'm happy to jump in, at least to talk about the workplace aspect of it.

Because relationships of the workplace obviously can be fraught and workers can have some say in what's going on or have none in decisions to be made.

It's very tough if workers aren't involved in that decision making if they are told well, they test, and we'll decide what to do with that test, it's problematic. Because workers right now, in much of the country, are very scared. They don't know if their workplace is safe.

I think what, at least I advise employers to do in this case is, every employer should be developing an infection control plan.

One component of that plan is testing, but it's not separate from physical space, sanitation, PPE, et cetera, saying, we have a comprehensive plan to protect you at work.

You have to think about how you get to work. Make sure you don't get exposed or you bring the exposure home to your family.

And we think employers should be sitting down with their workers to figure this plan out. The big three automakers just reopened and they have very impressive, they just put out very impressive material for their workers that they worked out with the united auto workers saying, this is how we're going to do it safely. And

everybody is on board.

And that means that when workers come to work they are going to participate, they're going to cooperate, they're going to make sure they know they can stay home if they are sick, they're going to get paid.

All of those things are one piece, you can't just think about testing in the workplace apart from the larger prevention, the larger issue of how they're going to make sure everybody is safe at the workplace.

DR. GOTTLIEB: Steve, when you talk to workplaces, how do you think about giving them advice?

I mean, I think about it, and I just throw this out here to sort of challenge the discussion. I think about it in terms of how do we create a level of measures that's going to achieve a certain level of reduction in risk that if you have a cause at work you're not going to have an outbreak of X magnitude, because there are going to be cases, right?

DR. MICHAELS: Right.

DR. GOTTLIEB: And so what we're trying to guard against is an outbreak at a work site of more than X number of cases. How do you think about that? And how do you speak about it?

DR. MICHAELS: I would say, first of all, what you do with the workplace, at your workplace, is also going to be part of -- has to be part of the larger community activity. Is there tracing in your community, what's going to happen when you find a case.

But you have to recognize that you put in sort of various protections, is it regular temperature monitoring, asking people actively about their symptoms. Once you're opening you've got to make sure people, you're protecting people as much as possible and they know you're protecting them. And that they're going to tell you immediately if there is an issue because everybody's got to play a part.

And recognizing there will be cases.

People will be bringing cases in, there is no question. But you want to make sure you catch them immediately and everybody is onboard together.

And it's got to be collaborative. I mean, that's the thing. If everybody, if people feel like it's being done to them, it's not going to work.

DR. BASSETT: You know, I think that that's a really important point. And I've been trying to figure out how to articulate it well.

But this can't simply be a surveillance activity or an enforcement activity. In the end the ability to control transmission of this virus depends on the behavior of individual people. We can't watch people all the time.

So it's very important that it be viewed as a collaborative effort, as David has just said, as one that's based on social solidarity. That people look after themselves, declare their symptoms because they want to look after their personal health, their family's health, their community's health.

So if somebody is afraid that they're going to be fired if they test positive, which happens now, this is not a good thing. Because that's a worker who doesn't want to be diagnosed.

Now, that is not consistent with any logical disease control plan. But it will happen if people feel as precarious in their jobs as so many workers do in the United States.

The UAW is a union. Most workers don't have that. And so, this is one of the predicaments that we're facing, and it worries me. So much worries me. I'm waiting for people to say the positive stuff so thank you, Scott, for that.

DR. GOTTLIEB: What else, just to follow up on the point, what else do you think work sites could be doing to make sure that turning over a positive case is non-punitive or trying to build that shared sense of solidarity and community around the importance of self-identifying and self-isolating --

DR. BASSETT: That's stuff that costs money, right? That means that people have to have sick leave so that they don't come to work when they are sick.

They have to have health insurance so that they go to the doctor to be assessed. These are things that our colleagues in the UK don't think

about. But it's something that we have to think about in the United States. And I think we'd all be safer if we could implement these changes sooner than later.

I also, just on a technical point, that I don't know who on the panel can answer, but I know that there is pooling done of testing in Europe, they're doing it. I believe it was in Germany. They made it a center piece for their strategy.

I don't even know if that's going on but it certainly makes sense. Temperature monitoring makes sense, but it will only identify people who are symptomatic.

So, all of these are better than nothing and that helps. Just like face masks, you know, are not a perfect intervention but they're certainly better than nothing.

DR. GOTTLIEB: Now --

DR. BASSETT: Sorry -- worker protection, like health insurance, sick leave, protection against arbitrary fired -- firing.

DR. GOTTLIEB: Chris, and then David.

I think you had a comment as well, David?

DR. MICHAELS: Well, no. And I think I'm happy with how it's coming.

DR. MURRAY: I was just going to say that in addition to, you know, the important things that were just discussed, two central issues, I think, in terms of the workplace that employers can help, you know, capitalize, one is wear masks.

I think the evidence is, you know, there aren't great studies. But there is certainly evidence that suggests that it may cut transmission by a reasonable amount.

And, even if you go to the low end of those studies, and it cuts transmission by 20 percent, if you're just close to an R of 1, that's probably enough if it's widely used to keep you well below. So, it may turn out to be hugely important.

And then the second one is if you look in a country like New Zealand that's done such a good job of essentially tracing everybody and screening. What we've learned from New Zealand is that half of all transmission is from large

transmission events. At least in that country.

And that really, I think, puts the onus on employers and local government keeping the limits on group gatherings down to a pretty small number. Like ten or less just to avoid the risk of those hundred people transmission events that we've seen with people.

DR. MICHAELS: Well, and this is going to mean then that as we reopen the country, it's the larger workplaces that really could be the threat. And these assembly lines especially where people are largely close to each other.

And so we probably have to think from a social level, is there some way to subsidize the cost of workers staying out if they're symptomatic or, you know, if they've been tested positive.

Right now we're saying essential workers only should be self-quarantining for a week rather than two weeks. Which is problematic in itself.

On one level, it isn't fair to have all those costs fall on the employer, or if they push it onto the workers. And so this is sort of like

an eminent domain cost. That the government has insisted on something and we need this to stop the epidemic for everybody's sake.

We should be thinking about an additional subsidy for workers to stay home in those situations where they really have to.

DR. GOTTLIEB: Just to change topics a little bit, I'm going to turn to the audience questions soon. We're getting a lot of good questions.

And I think I have like 260 questions right now. But, as we reopen, what should we be looking at?

How do we know that we're entering into a dangerous zone? And can health monitoring provide this information, the data that we have right now?

How -- should we be looking at the models? Should we be looking at testing data? How should people think about this?

DR. MURRAY: Your best bet in my view is still going to be watching really closely hospitalizations. It's the most comparable

indicator over time.

Short of that, watch the cases. But you've got to correct for the scale up of testing.

DR. GOTTLIEB: Right.

DR. MURRAY: And there's a way to do that. Because if you don't, we're getting already in our state here, essentially a false signal.

You know, the confirmed cases are going up, but hospitalizations and deaths are going down.

I put more faith that the epidemic is actually petering out because of those.

But, those are your early warnings right now. They're not super early, but that's probably what you've got to focus on, to sound the alarm.

DR. GOTTLIEB: Can I just push on that a little bit? How, in terms of modeling the impact of a policy change and the consequence in terms of an expanding epidemic when you're looking at hospitalizations, what is the lag?

How much of a lagging indicator is hospitalization?

DR. MURRAY: So, you know, again,

people will argue on the edges. But roughly speaking, the time from infection to death to those who die, is about 18 days. But up to 21, down as low as 16.

But, it's about 18 days on average. And you can parse that into about eight of those days are from being admitted to death.

So, you can reverse that out and say, it's about ten days from infection to hospitalization. So, it's a ten day lag on what's happening in the community.

And it's about the same for confirmed cases. It's about also about a ten day lag. So, it's a lagging indicating of what's happening in the community.

And we haven't got a great strategy yet that, you know, ready for prime time to look for something that's going to be less lag.

DR. GOTTLIEB: And this is why a lot of the reopen plans in states have sort of two week intervals built in, because they're looking at hospitalizations. But they want to wait a full replication cycle to see the impact on

hospitalizations.

Is that what you'd be recommending if you were designing policy? That kind of an interval? To reinstate business?

DR. MURRAY: Yeah. I mean, the way to -- you can use the model to be helpful on the timing in the following way, in the sense that, where are you getting headroom to like relax social distancing?

You know, that's changing in a setting where let's say transmission is just below one or so in terms of that famous R value. And there's only two things that are going to create headroom in the meantime.

One is what small temperature affect there is in seasonality. That may turn out to be bigger than we think. But that's one factor.

And the second one of course is scaling up testing and contact tracing and isolation. Again, specifically very well correlated with reductions in transmission.

So, you've got to sort of, you've got to expect that you've created some headroom there.

And then you can start to think about that.

And then look for confirmation that hospitalizations are on the way down. Especially after correcting for testing, they're on the way down.

DR. GOTTLIEB: Any other thoughts in the group on this in terms of what we should be looking at as we reopen? To try to gauge directionally where we're going?

I think Chris summed it up pretty well. And he's in the business of doing this now.

DR. LARSON: Yes. But you also, I mean, I think from the data point absolutely. But, I think also, the readiness for people actually to start, for things to start opening.

Does everybody know what they're supposed to be doing in whether whatever the work setting or if schools start opening, or whatever.

Do they know what they need to do?

Has the staff been briefed? Do you have enough masks? If you promote masks, are they available?

What do we mean by distancing? I mean,

here in London, there are lines on the streets.

And in front of the fish shop they have painted fish every two meters to know where to stand. On the buses and the tubes.

There's -- we're surrounded by -- by the end of the day, if you don't know what two meters is, you know, you haven't gone very far out of your house. Because it's everywhere.

So, there is the data that defines what technically is a good time. But then we need to have the readiness to have that kind of all-hazard protection, so people once they do start coming because the data and the -- from the -- what Chris was describing where we are on the curve, and that's really super critical.

But then the other side of it is, are we ready from a preparedness point of view?

DR. BASSETT: Scott, could I just say something about --

DR. GOTTLIEB: Sure, please.

DR. BASSETT: The triggers. Because I don't have a number. But, it seems to me that it's a good idea to have some kind of predetermined

strategy for how you're going to identify a surge.

And one that is explained to people so that -- so that with some luck perhaps that when the hospitalizations start going up, the intensive care unit beds are full, the number of -- and faced with robust testings, the number of newly diagnosed tests go up, that people aren't surprised.

That this is what they thought would happen. And then the actions can be taken. And a difficult decision will maybe be a little less difficult.

DR. GOTTLIEB: It seems like it's going to be awful complex to go backwards. If you do have a surge to reimplement mitigation steps, just as a political matter, as a policy matter, as an economic matter, as a social matter.

But, what we might do, is slow down a reopening based on the data. And stage it out more.

And that's not to say some states might not have to go backwards. I just think it's going to be very hard politically just to make the decision to do that.

I think there's going to be a lot of pressure on them. And that's why we need to get this right, I think, as we go forward.

DR. BASSETT: And the other thing that Professor Lawrence mentioned, I can't help but take advantage of such a great panel. Is something was discussed in an American magazine recently, that people regardless of what we tell them, will try to rank their risks.

They'll try and make a decision on what's the riskiest thing to do? What's a little less risky? And that's something that we in public health haven't engaged in yet when it comes to this virus.

But, it might be a good thing to think about, and to gather data on. Are outdoor activities safer than indoor ones? It stands to reason they would be.

And so it makes sense to start expanding the number of people who trust are not infected beyond your household. How would you do that?

But, those kinds of things people are going to what guidance on.

DR. MURRAY: I'm sorry, but Facebook has been collecting a survey of a million people in the U.S. a week with quite a long list of questions. Including, how many people do you come in contact with?

And so if you really want a leading indicator, we may -- I mean, we need to validate that that actually predicts transmission. But, it may turn out that it does.

And so you might actually get an indicator that is 10 days or even 12 days sooner than the numbers show up in your data. But, you know, I think that's something to watch carefully to see if that does predict this sort of, the next two week period in some way.

DR. GOTTLIEB: So, a final question from me. And then I want to turn it over to the questions that are coming in.

But, personal decision making of individuals across the country is going to make a big difference as we reopen. Whether or not people become complacent.

Do they still practice good behaviors

to try to reduce transmission? Good hygiene, good, you know, hand hygiene. Do they wear masks?

What type of strategies have we seen that have proven successful in motivating people to follow those preventative health measures in the past?

Where you can sort of sustain it in perpetuity? And you don't get complacency among the population?

Any lessons that we can give to, you know, employers, state officials, local officials about what they -- how they should be thinking about engaging the public?

And just, you know, making sure that they stay vigilant?

DR. MICHAELS: Well, from the OSHA point of view, I mean, I -- well, the focus of the OSHA law and all of my work was always on employers.

And, you know, there's a range of interest in safety among employers. Some are incredibly committed and want to do the right thing. And others are really not.

And what I found is that

recommendations, guidelines, are really useful for some. But many employers will say well, I can't really do that.

And unfortunately the way to motivate many employers to do the right thing, is you need a law. You need a standard.

And unfortunately Scott, from the federal government they've made it very clear, we're not going to see OSHA standards saying you've got to protect workers from COVID-19.

And states are weighing in. Governor Baker of Massachusetts, just two days ago announced that they will issue -- he will issue an executive order with emergency standards for Massachusetts workers.

But, until we see essentially a law or a regulation, you know, we know from the meat industry, you know, the CDC has been putting out very good recommendations for months now. We have ten thousand workers in that industry and 50 -- you know, who are infected and 50 who have died.

So we need -- so unfortunately, you know, motivating people in some cases, we'll need

essentially requirements rather than just a recommendation.

DR. GOTTLIEB: Anyone else want to weigh in?

DR. LARSON: Well, it's Heidi. I would just pick up on what David has talked about earlier, in the context of the workplace and the engagement of the workers in the decision making.

I would take that principal cross the community. And whatever the place or the community, or you know, if it's whatever the setting.

But that it involves people, and they understand why they're doing these things. Why is it important that there's some structural nudges that help along which, I mean, whether it's a legal one or visual ones or other ones.

But I think that principal of involving people, it is absolutely across the board important. Because one of the biggest resistances, if people feel even more left out then they already feel these days on decisions being made, it's a quick way to lose them.

And, yeah.

DR. GOTTLIEB: So, I want to turn to some of the questions we're getting from the group. And so I'll start with this one.

What is the most valuable single metric for the lay public to track, such as the R not number to understand how the pandemic is evolving in different parts of the country?

So, what do we say?

DR. MURRAY: I'd have to put my money on what's happening to deaths. Although it's got warts on it, it's way more robust than anything else. Is it going up or down?

DR. BASSETT: And it's not hard to diagnose.

DR. GOTTLIEB: But a lagging indicator. I mean, it's going to take time to see an impact.

DR. MURRAY: Very lagging. Yep.

DR. GOTTLIEB: Next question. Do you have specific guidance for colleges and universities? In particular, housing considerations of how to quarantine, self-isolate

positive cases in a potential roommate part?

So, what guidance do we have for universities heading into the fall that want to contemplate reopening, assuming that we have a, you know, have a condition that would even enable it?

DR. MURRAY: That's a very hot topic in our sector. You know, I think large classes shouldn't be in the cards. You know, some pretty strict limit to class size if you're going to have in person instruction.

And then the dorm issue, you know, there's lots of ideas floating around there about where you put people for isolation purposes that test positive. Can you afford to have regular testing?

I think there will be a lot of discussion in the next month to try to weigh in on that. It's going to be a challenge.

DR. GOTTLIEB: Yeah. Yeah, apart from the group I'm looking at. I've looked at you, David, any thoughts on that?

DR. MICHAELS: Well, it's tough. I

mean, that's exactly the question. I mean, I see universities going to a hybrid model with some classes or parts of classes are online and people attend different things.

But, it's a tough issue with housing. And meals as well. But housing in particular.

DR. GOTTLIEB: Okay. All right, here's a good one that we kind of touched on, but I'll put it back. This are all really good practice questions.

The public is coming out of their homes and soon, ready or not. Give our best advice to that scenario. Not shaming, but practical guidelines and advice for people on how to lower their risks.

What should we be telling people about how to lower their personal risks?

DR. MICHAELS: Wear a mask. Stay six feet away.

DR. LARSON: Wear a mask.

DR. BASSETT: Wash your hands.

DR. LARSON: Wash your hands.

DR. GOTTLIEB: Do we have a sense yet

how much of the transmission here was from contaminated surfaces versus respiratory droplets?

Or do you think that this is following sort of a traditional pattern of other respiratory diseases in terms of how it's being transmitted?

Or could more of this be through contaminated surfaces versus respiratory droplets? Is there any literature to that? No?

DR. BASSETT: Well, I mean, I think that just talking to clinicians, I think most people think that the principal mode of spread is respiratory spread through the droplets or aerosol, as opposed surfacing.

But, I don't know -- I don't know of any detailed studies that establish that.

DR. GOTTLIEB: It's amazing how much we don't know about this pathogen.

DR. BASSETT: It really is. But we've only known about this pathogen for a couple of months as well.

DR. GOTTLIEB: Here's another one. Within a workplace, what are some of the best

practices of what should happen if a case is discovered?

What should the employer do from both a public health and communication standpoints? What kind of practical advice would we be giving workplaces?

And David, if you don't weigh in here, I'm going to call on you.

(Laughter.)

DR. MICHAELS: No, no. That's right.

I mean, you know, I mean, first of all in advance you've got to have that culture of people that are working together.

But you've got to say, you know, you've got to have a place to isolate people. Or just send them home obviously, if they're there when it's discovered.

But you want to be able to make sure that people are safe. That they're able to space, you know, distance out there. The sanitation is -- disinfection obviously in the area.

If for no other reasons, that's for reassuring to everybody that, you know, the

employer cares and various conclusions then. I mean, bring people together and say look, we had a case here. We want to investigate to make sure that if there's a risk of exposure at the plant, because the person got exposed to someone else for example, that we've investigated that.

You know, one of the real problems is, you know, my old agency isn't telling employers to do that. And I think it's really important to go out and say, if someone is infected, let's not just say, assume that they got it because they got it somewhere from their spouse or partner or they got it in the streets.

If it's happening, it could be happening in the workplace. So, it's really important to follow up and bring people together and say look, we have -- someone here got sick.

We're going to make sure it doesn't happen again.

So, a lot of it's common sense and following CDC recommendations. But, the way it's described how you get the workers involved if there's a union to bring them involved, is really key in some ways.

That's as important as the specifics of how do we respond, you know, technologically to the problem.

DR. GOTTLIEB: Anybody else want to weigh in on that?

DR. BASSETT: Just to say that as we reopen, it's a real opportunity to gain more information. And I just hope that it will be possible, at least in a handful of settings to do universal testing.

To see what happens in terms of -- in terms of workplaces. In terms of rising numbers of infections.

So, we have a natural experiment unfolding.

DR. GOTTLIEB: So, here's one about, the question is, please address the utility of using mobile data as one of the triggers for a surge, and how to communicate that there are people being tracked. And what -- that their data is being used.

But, how do we think about these tools?

And how much utility do they have relative to the

political sort of intrigues that they're likely to generate if we try to use mobile apps and other kinds of tools for track and trace?

And to just sort of follow up on that, if we're not going to be able to use them at a population level, or by local health authorities, could we use them in the workplace?

Here employers are going to be, it's going to be incumbent upon employers to have some system in place to do track and trace within the workplace in case they have an infection in the workplace. And maybe using these tools just within the confines of the workplace.

Any thoughts on that? On using them generally or just using them in a more isolated fashion?

DR. MICHAELS: Well, I don't think -- in the workplace I think you actually need them less. You know where people have been.

You know who they've been with, except in, you know, perhaps a giant workplace. That's not the question.

The real -- the bigger question is those

who are outside the workplace, in the community and other institutions that open up.

I think workers would be very concerned if it were track and trace only in their workplace.

That, you know, using an app or something like that that just follows you where you went in the workplace.

I think people would have to be very -- use that very gingerly, I would think.

DR. GOTTLIEB: Any other thoughts on using these at a population level? We've seen a lot of concern raised among some about the application of these tools.

We've seen countries use them successfully too not just, you know, not just the sort of tools that give you proximity, but tools even just for giving people a risk score, their overall risk.

You know, the pipeline that Google and Apple built and how we can make practical application of that. Any thoughts about how we make better use of these tools, if at all?

DR. MURRAY: Well, there's an

interesting initiative out there. I don't think it's ready for prime time yet. But, basically if you are going to go out and go somewhere, there's a consortium on the tech side to tell you where other people are, so you can avoid large crowds or lines.

And I think that's the sort of tool that will empower personal choice. And you know, in addition to wearing a mask and avoiding other people, you can avoid crowds.

So, there may be real value in that to helping guide individual choices ahead.

DR. BASSETT: And on an aggregate level, I've seen the use of cell phone data just to look at how much people are moving around. And it does support the fact that people have stopped moving around as much.

I just worry about it. And I guess that's why we're all being quiet. That I just worry about the punitive sense that seems to often enter into considerations of how to reduce transmission.

That a community that moves around a

lot, maybe a community with many essential workers who have to go to work. As opposed to a defiant community that's not following the social distancing rules.

So, those are -- those are the concerns that we have.

DR. MURRAY: You know, we use very extensively cell phone mobility data in our modeling by states, from four different vendor, I mean, providers. Not vendors.

So, it's very predictive in the past of transmission. And it would be, you know, at the central part of how we're sort of viewing how to see the next month or two unfold.

The degree of detail that is publically available is down to the census track. There's been really extraordinary detail about who and how America moves, in a way that, you know, it's understandable why the government's reluctant to make much use of that data, because of the perception that the public might have about that.

DR. BASSETT: And also, maybe the answer should be that work should be safer. That

public transport that people take to work should be safer and not, you know, that people are moving around too much.

I mean, estimates are that 40 percent of the workforce has been classed essential. That's a lot of people who are still going to work.

So, rather than saying, you know, are these people moving and they shouldn't be, maybe it would be better to think about the kinds of things that have people moving, and how to make those activities safer.

DR. GOTTLIEB: So Chris, can I ask you what you're seeing in the data on movement? Can you talk about some insights?

DR. MURRAY: Yeah. I mean, it's on our website now. If you go to the state page, you can see, because we take the four sources, we put it together, and we give you the line of mobility.

So, we did in March.

And, you know, it's super interesting by state. What we saw is, as the national discussion turned to relaxation, movement, mobility started to go up even in advance of

relaxing the mandate.

So, and we saw this on the way in, when there started to be a discussion in the state in March about putting on mandates, mobility went down. Some employers encouraged work from home.

So, you see anticipatory changes. We saw that on the upswing in late April. We're seeing big swings up in some but not all states.

So, that's definitely happening. People are out more. The push back we get is, are they out wearing a mask and being very cautious?

And therefore the mobility data may exaggerate transmission. We'll start to get an answer probably next week. You know, because the mobility rise started at the end of April.

A couple of weeks in, we'll know how well it's predicting, you know, transmission.

DR. GOTTLIEB: The mobility increases that you've seen, how do they track relative to a baseline? What's the percentage of current mobility relative to what a normal set would look like?

DR. MURRAY: Okay. So, if you go and

look in Italy and Spain, take Madrid let's say, right? They put on social distancing mandates, mobility dropped 90 percent.

The same thing happened in New Zealand.

They put on lockdown, 85, 90 percent reduction.

The biggest drops we've seen in the U.S. are about 55 percent. The smallest about 40. This was back in March, you know, when mandates came in.

Americans are just more mobile it seems than others. But, that did translate even in New York it's about 45 percent or 50. That translated into a peak and a decline.

And now we're seeing a bounce back of going from, you know, a 50 percent reduction in those units, back up to like 30 in some states.

The worst might be 25.

So, we're already half way back to the declines that we saw in March in some states. Which is why our models are shooting up in terms of our forecasting.

DR. GOTTLIEB: That's pretty profound.

I mean, that's a pretty profound change in a short

period of time, in behavior.

DR. MURRAY: Very. Very. People are sick of quarantine. Our worry is that they will sort of anticipate the next move, and they're getting out there and potentially have, you know, contact.

DR. BASSETT: Are there tempo trends in activity? I mean, at times of day when people are more mobile than others?

DR. MURRAY: Oh, my goodness. This stuff is fascinating stuff if you dig into the detail. You know, the weekend effect.

In Italy, you know, during the lockdown they had these very big reductions except on Sunday where people were still somehow going to church.

So, you know, there's books to be written by people like Heidi, anthropologists and others, on what all this means. And it's -- it is a new insight into human behavior that I don't think we've had in the past.

DR. BASSETT: At the center I work at, where there's been a lot of focus on migration. And the cell phone data has been in use for a while.

DR. MURRAY: Yeah.

DR. BASSETT: It is interesting.

DR. GOTTLIEB: There's a question here whether or not, how far we think we'll get to herd immunity before we get a vaccine?

I mean, if we continue on this sort of slow burn, doubling time every, you know, 45 days or a little bit more than that. You know, if we just continue where we are right now, by September we'll probably have 10 to 15 percent of the population exposed if we don't get cases down more from where we are.

What do we think about that? How much of the population? I mean, Chris have you, have you thought about this or anyone else in their modeling?

DR. MURRAY: You know, it spit out, and we haven't made it public, but we do spit out, you know, what would be -- I mean, we have infections in there. But easy enough to have accumulated infections and likely antibody testing.

You know, currently if we hold where we are on the mandate, we think nobody's going to

tip over to an R greater than 1 for a sustained period. There is a short period, temperature, testing kicks in, and we go back down below.

So, probably won't get much, you know, as we said, numbers well above 90 percent of the U.S. is still susceptible.

But, as we go into the fall and another wave comes back, if mobility picks up because of either fatigue or we also get the combined reversal of seasonality or temperature, you know, we will start to see more.

And it's down to this task that we find very hard that you talked about Scott, which is, will governments at the state level be willing to reimpose mandates once taken off, if things get bad enough?

Right, if you tip over into, you know, a faster doubling time, is there a level at which they'll say no, we need to go back to some mandate.

And that's almost the imponderable just sticking to the model and to answer the question you're asking.

DR. GOTTLIEB: Any other thoughts on

that?

DR. LARSON: Yeah. But we don't -- we still don't know how long immunity lasts. I mean, we had all these discussions here on this idea of an immunity passport.

But the reality is, we don't know after someone who is infected and recovers, if they'll have protection for a month, six months, a year?

So, it's a dynamic state.

It's yet another question we're trying to understand. So, the concept of herd immunity is -- has a number of still uncertain variables, aside from whether it's 60, 70, or 80, or 90 percent that you need.

I've heard everything from 70 to 80.

But, still the length of protection is still uncertain.

DR. GOTTLIEB: An interesting question here about the term reopening, and whether we're communicating appropriately about the sort of post- -- they use the term post-lockdown phase.

I probably wouldn't refer to it as a lockdown. But, then it ended up that maybe the

lexicon needs to be cleaned up on both sides.

But, it's a good question about whether or not we should be talking about this differently in terms of the kind of behavior that we're trying to inspire. Because we're restarting activity, but we want to restart activity very differently than what it was before.

Any thoughts about that? About some better ways to be speaking to the public about what this phase looks like?

And what it means to be in a reopening if you will? Or what's a better way to talk about that?

We can move onto the next one while people ponder that. Which is, -- well, because I think it's a good question. So, let's think about it and we can come back to it.

But, the other one is, what would be recommended for testing intervals? If a business is trying to test employees, do sort of background surveillance or do, you know, routine sentinel surveillance within a large employee setting.

Any -- has there been any work done on

that that we can identify and point to? Or any thinking about how to do that?

DR. LARSON: This is a question about the frequency of testing?

DR. GOTTLIEB: Yeah. Or setting up some surveillance testing at a work site where you have at risk employees.

People can't naturally social distance at work. Think about the shop floor, you know, grocery stores, things like that.

DR. LARSON: Okay. I've seen things, but I can't tell you what the backup is. Like a suggestion that people be tested every two weeks.

But, I can't tell you what the backup is for that.

DR. MICHAELS: Yeah. Until a lot of it, the whole testing system shakes out in terms of accuracy, the sensitivity is really -- we're just learning about the sensitivity and stuff we're seeing in some of these cases.

So, I think until we have some real better numbers on, you know, accuracy of these tests, it's going to be very hard to say here's

the right protocol.

DR. BASSETT: I have to say yeah. That when I think about what reopening will mean in terms of how stratified, the amount of social stratification of risks that will be amplified by reopening.

And someone like me, who works for the university, I'm likely to continue working remotely a lot of the time. Whereas, many other people who are more likely to be low wage workers and in settings where their risks may actually be higher than mine would be of going to my office, will be going back to work.

And I -- I'm just concerned about that.

DR. GOTTLIEB: So here's a question about the health implications of the economic shutdown. What do we think we're going to see on the back end of this?

Particularly on low, this says particularly on low wage workers and minorities.

How do we prevent further economic and health disparities resulting from the shutdown, separate from the disease itself?

So, what can we say to that?

DR. LARSON: I think the thing --

DR. MURRAY: Well, that we're -- sorry, Heidi, go ahead.

DR. LARSON: No, there's just -- go ahead. I was just saying it's a big challenge.

DR. MURRAY: I really think that we need to do the full health effect modeling. It hasn't been done yet.

Which is both arms, the direct effects of COVID and the effects on health that are mediated through loss and unemployment, increased poverty, and increased inequality. And see how that, you know, just from a pure health, public health point of view, you know, what does that look like?

Because we've been focused on, naturally, appropriately, in a setting of an acute pandemic, the direct effects. Nobody's really wired up the whole pathway through the economic effects back to health.

And I think that should be a priority for us all.

DR. BASSETT: But those are also, we

must say, modifiable. There are -- those, the economic impact can be modified by social decisions on providing people with more solutions to weather the storm and objects.

DR. MURRAY: But we're not doing that adequately right now.

DR. BASSETT: We're not. But, I mean, you know, and it's -- we're not. We're not going that adequately.

But, that's the political decision.

DR. MURRAY: Right.

DR. BASSETT: It's not -- it's not some kind of grand machine of our economy. Which Chris, is sort of what I thought you might be thinking of.

DR. MURRAY: Well, I just think we need to look at the policy choices in both spaces, and how they influence both sets of pathways.

DR. BASSETT: Hell, people who were worried that shutting down would cause more actual health consequences than the virus that would, have a -- you know, there was a basis for that concern.

DR. LARSON: Well, I mean, just to get

basic childhood immunization rates have dropped.

And that's, you know, one of many, you know, health interventions that people would have done normally, are not.

DR. BASSETT: Yes. We should figure that out.

DR. MICHAELS: Well, that should be part of the reopening. If we talk about --

DR. BASSETT: Yeah.

DR. MICHAELS: Well, if we're talking about reopening and climate, how do we make sure that, you know, the people who have been affected by this in many ways, we could immediately try to adjust those.

DR. GOTTLIEB: Chris, there's a lot of questions here. I've screened them, because I wanted to spare you.

But, there's a lot of questions about your model. And most -- and a lot of them I actually desperately want to ask myself.

So, I had to -- I had to exhibit immense self-control. But one of them, which I think is interesting, is you know, what kind of data do you

feel you're missing?

What would you want to incorporate into your model that you're having difficulty getting?

Or you feel the quality of the data is not sufficient?

DR. MURRAY: The -- number one would be to get for every state and then eventually every county, because we're going to move to the county level for our model quite soon, is daily admissions for hospitals.

We only get that from a subset of states. And in some states, including some big ones, we don't get admissions, we get the census count, like how many people are in hospitals. And that's a very lagging indicator, that census count of COVID admissions.

But, that would be really useful, not just in terms of tracking, but in terms of calibrating the policies that are the cases, because we know the case data has these sort of complicated trends in them.

The other one as we move into this phase that I mentioned at the beginning, where testing

is going to be such an important part of the strategy moving forward, is much more detail on testing.

Who is getting tested? Are they symptomatic? Are they at-risk vulnerable groups?

You know, testing by age and sex, socioeconomic status, race, ethnicity, all that extra information that will help us identify where transmission may still be occurring.

And I think that will feed into this general push that everybody who's looking at the epidemic is that, which is to be more local.

We're seeing that in the meat packing plant epidemic, the prison outbreaks, these are now starting to be huge signals. But they can really throw you off in a state if you're not aware that that's a particular at-risk population.

And so more detail on that is going to help an awful lot.

DR. GOTTLIEB: Do you find yourself having to adapt the model now that we're reopening?

Or is it just a matter of different data inputs and the model itself stays relatively

intact? Or does the model have to change because of these assumptions?

DR. MURRAY: Well, we're on our fourth generation model to try to adapt to, you know, a changing pandemic. I am sure we'll have a fifth or a sixth or a seventh generation.

The way we handle that is we've got a development team, you know, a bunch of smart statisticians, mathematicians, others. And then we have a separate production team that runs with whatever the current best model that we think we have is.

Intakes the data, runs the models, does quality checks on those. And does what we think is really important is, do the results make sense?

Because there's also an element here, because of the vagaries of the data that come with, sometimes, you know, for no fault to a state or a public health department, one day they report six deaths, and the next day they report 160 deaths.

And of course, any modeling effort really turns with that to say the least. And so the noise in the data is also a challenge.

And that's why we sort of separate the development team from the production team, because the production team is pretty busy just trying to make sense of what's coming in.

DR. GOTTLIEB: Interesting. So, what's the next update going to show? I promise I won't tell anyone.

(Laughter.)

DR. MURRAY: I'm not going to tell you.

DR. GOTTLIEB: I'm kidding.

DR. MURRAY: Well, you know, the thing that we're pushing hard on is, for the U.S., we're moving to other countries in the world, we'll release that in America.

The next thing, you know, Brazil is going to have a really big epidemic. Not quite as big as the U.S., but pretty similar in magnitude.

We're expanding too many other parts of the world. And submitting it to the world.

DR. GOTTLIEB: Yes.

DR. MURRAY: But, for the U.S. it's the push to county level. And it's the push to be able to map out what would be low risk strategies for

relaxing different mandates over time.

DR. GOTTLIEB: Well, I just want to thank -- I want to thank you, Chris, for those insights. They're wonderful.

I want to thank the whole panel for a very, a very provocative discussion. It's clear we have a lot of challenges ahead.

You know, there's not a broad consensus in this country on what we need to do. And I think it's really important that we get together like this and explore ways to explain these things better to the public.

Explain how people can reduce their individual risk. You know, how we can deploy these kinds of tools, increase the vigilance, increase the defensive care. Sacrifice around keeping people safe.

You know, people I think going forward are going to need to do things differently. And they're going to need to take on some level of community and shared sacrifice to keep each other safe.

And I think it's going to be incumbent

upon us as public health officials, and as people who have access to data information, to make that available to people in a way that can help them understand their individual risks.

And help them understand how they can reduce their individual risk through simple interventions that they can do in their daily lives, at work, that workplaces can do.

How we identify the at-risk communities and get resources and targeted services into those settings.

And so this is a great discussion along those lines. I want to thank you all. I want to wish everyone a good night.

Thanks so much.

DR. BASSETT: And thank you, Heidi, for all the way from the UK.

DR. GOTTLIEB: Yeah.

DR. MURRAY: Great. Well, thank you all.

DR. BASSETT: Great. Bye. Good night.

DR. MICHAELS: Bye.

DR. LARSON: Goodbye.

(Whereupon, the above-entitled matter
went off the record at 6:30 p.m.)