

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 #19: COVID-19 CONVERSATIONS:
LEARNING TO LIVE WITH COVID-19

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WEDNESDAY
MAY 26, 2021

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The webinar convened at 5:00 p.m. Eastern Daylight Time, Aaron Carroll, Moderator, presiding.

PRESENT

AARON CARROLL, Indiana University School of
Medicine, Moderator

JOSEPH FINS, Weill Cornell Medical College

KATE GALLEG0, City of Phoenix

JONEIGH KHALDUN, Michigan Department of Health
and Human Services

WALTER ORENSTEIN, Emory University

ALSO PRESENT

GEORGES BENJAMIN, Executive Director, American
Public Health Association

SUSAN POLAN, Associate Executive Director for
Public Affairs, American Public Health
Association

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5:01 p.m.

DR. BENJAMIN: Good evening, and good afternoon for those of you who are out West, I'm Dr. Georges Benjamin, I'm the Executive Director at the American Public Health Association here in Washington D.C.

And I want to welcome to this webinar on Learning to Live with Covid-19 brought to you by the American Public Health Association and the National Academy of Medicine.

Now, today's webinar has been approved for one and a half continuing education credits for CHES, CME, CNE, and CPH. The following speakers have no financial or commercial relationships to disclose from its online educational activity.

And we do have one speaker, Dr. Walter Orenstein, who has a relationship with a commercial interest that he wanted to disclose. As you can see, he's a member of the Scientific Advisory Board for Moderna.

Now, please note that if you want continuing education credits, you have to register

with your first and last name, and everyone who wants credit must have their own registration and watch today's event in its entirety.

All the participants for today will receive an email within a few days from the website email, CPD@confex.com. It will have information on how to claim your credits.

Now, all online evaluations must be submitted by July 7th of this year to receive continuing education credit.

Now, if you have any questions or topic you would like address today or on future webinars, please enter them in the Q&A box or you can email us at apha@apha.org.

So, that's Q&A box or emailing us at apha@apha.org. And if you experience technical difficulty during the webinar, please enter your concerns in the Q&A and please pay attention to the chat for announcements about how to troubleshoot.

We have had that happen and that's a great place to get that information. This webinar will be recorded and a recorded transcript will be available on [COVID-19conversations.org](https://www.covid-19conversations.org).

More information on this series of recordings or past webinars are also available at that link.

Now, I'd like to thank my co-sponsor, the National Academy of Medicine President, Dr. Victor Dzau as well as Co-Chairs of our webinar series advisory group, Dr. Carlos del Rio of Emory University and Dr. Nicki Lurie, who's the former assistant Secretary for preparedness and response at HHS.

And without further ado, I want to turn things over to our moderator for today's webinar, Dr. Aaron Carroll. Dr. Carroll is the Associate Dean for Research Mentoring at the University of Indiana School of Medicine.

He's also a contributing opinion writer at the New York Times, where he recently published an essay titled, When Can We Declare the Pandemic Over?

Dr. Carroll, over to you.

DR. CARROLL: Thank you for that introduction, Dr. Benjamin, and thank you to everyone who's joining us. When we talk about learning to

live with the pandemic, even that title I think comes as a surprise to some.

For some time, of course, we had been talking about how things have been very bad and that we need to take significant safety measures until the vaccines arrive.

But things have been starting to look better in many parts of the country, but even so, there is still a perception among many that that is over when the disease is gone, and that we are going to in the near future potentially get to somewhere where we could declare everything done and go back to our normal lives.

But evidence is mounting that's not going to happen, I think many people never thought it was but certainly, more people are coming to that conclusion every day. Vaccines are being taken but not at the high rates we might hope.

The disease and its prevalence and positivity rates have been dropping but not as quickly and as close to zero as we'd like. In a good flu season nearly 100 people a die might die of influenza and we have yet learned to live with that.

For years, many of us have said we wish people would all get vaccinated and wash their hands more rigorously, and stay home when they're sick and perhaps drive that number down even lower.

But it's clear that we as a country are willing to tolerate a certain level of risk and still go about a normal level of life. And it's becoming clear that's likely what we're going to have to do with COVID-19, we're going to have to learn to live with it.

Now, of course, there will be things we need to talk about still, what do we do with vaccinations, what are the long-term strategies, will we need to re-vaccinate?

There are things to discuss about how do we mention and how do we keep track of what's going on in states, in cities, in the country as a whole.

There are things to determine in how we create public policy, how we might determine how to go back to normal ways of life and restart the economy and do everything we need to do.

All of these things are things we're

going to have to learn on the fly and they're important discussions to have. Luckily, today we have a number of experts who are going to help walk us through many of these parts.

It's my pleasure to introduce the presenters for today's session, Dr. Walter Orenstein is a professor and Associate Director of the Emory Vaccine Center, a professor at Emory University School of Medicine, and Director of the Emory UGA Center of Excellence for Influenza Research and Surveillance.

He's a past director of the U.S. immunization program at the Centers for Disease Control and Prevention.

Dr. Joneigh Khaldun is Chief medical Executive for the State of Michigan and Chief Deputy Director for Health in the Michigan Department of Health and Human Services. Previously, she was the Director and Health Officer for the Detroit Health Department and the Chief Medical Officer for Baltimore City.

We also have Dr. Joseph Fins who's the E. William Davis Junior MD Professor of Medical

Ethics and Chief of the Division of Medical Ethics at Weill Cornell Medical College.

He's also the Founding Chair of the Ethics Committee of New York-Presbyterian Weill Cornell Medical Center and the Solomon Center Distinguished Scholar in Medicine, Bioethics and the Law at Yale Law School.

And last but not least, we'll have Mayor Kate Gallego, who is the Mayor of Phoenix, Arizona. She's the second elected female mayor in the City's history and the youngest big-city mayor in the United States.

She graduated from Harvard University and earned an MBA from the Wharton School of Business at the University of Pennsylvania. Dr. Orenstein, I'll turn things over to you to get started and then we'll go through other presenters.

DR. ORENSTEIN: Thank you very much. My focus today will be on the continuing role of vaccination with regards to controlling this pandemic, epidemic, and the importance of vaccines to optimize disease prevention and return to normal.

Can I have the next slide, please? I

grew up in the Bronx, I spent the first 24 years of my life there. The New York Yankees were king at the time and Yogi Berra was a very famous catcher and had a lot of quotes.

And one of my favorites is it's tough to make predictions, especially about the future.

And that's part of the problem, there's a lot of we don't know.

It's easy to be a historian and look backwards at what you should have done, but to have to make history when you don't know all you want to know, we have to do that and we will try to do it as well as we can.

Next slide, please. Will we be able to stop vaccination? I think fairly certainly this virus will not eradicate itself and even if we eliminate, sustain transmission in the United States, we will still need to vaccinate.

This is a global problem, the viruses are circulating around the world. There's only one disease we've eradicated globally, smallpox, which allowed us to stop vaccination.

And we have examples of when we've gotten

rid of transmission in the U.S., a sustained transmission, I should say, measles and polio, because the viruses circulate elsewhere in the world and imports can occur.

With regards to COVID-19, imports to the U.S. will likely occur even if we interrupt transmission. And regardless of whether we need to revaccinate or change vaccines, new susceptibles will be added to the pool every year with new births.

So, we will not be able to in the foreseeable future to stop vaccination in my opinion.

Next slide, please. Will we need to re-vaccinate people already vaccinated? And here I'm a little bit more uncertain.

I think it's likely we will but we don't know for sure. What do we not know yet that would be important? One is the duration of immunity induced by current vaccines.

These vaccines were given emergency use authorization and hence, we don't know how long immunity will last but it's likely it's not going to last a lifetime, that we will need to do boosters.

The second issue is that mutations of the SARS-CoV-2 viruses potentially could lead to invasion of vaccine-induced immunity such as with influenza.

And we may need to revaccinate not only with the same vaccine, but modify the vaccine to take into account and induce antigens that are in the mutants or variants so that vaccines will work.

It also may be that we may need to get in certain settings higher immunity than our current vaccines can deliver.

An example of that is measles, we thought with measles, with had about a 93 percent effectiveness in a single dose, was good enough to get us through, and then we saw outbreaks, particularly in colleges and some in high schools and middle schools where the force of infection was higher.

But we needed to get even higher immunity levels and we went to a two-dose schedule.

So, we'll have to see what happens but the bottom line is we don't know if it's likely

and it's also very important that we do the studies now so that we are prepared to initiate revaccination when we feel we have enough data to support that.

Next slide, please. Will future outbreaks be widespread or in clusters? And that again, I don't really know. It will depend on the level of vaccination coverage we achieve and the duration of immunity among vaccinees.

If waning immunity is common or if virus mutations are common evading the vaccine-induced community, there will be gaps in immunization coverage around the country that will lead to widespread outbreaks.

If waning immunity is not a major problem, future outbreaks will likely cluster in pockets of under-immunized individuals.

For example, we nearly lost our measles elimination status in 2019 with outbreaks lasting many, many months in subpopulations, particularly in New York State, or places where the force of infection is high, such as densely populated urban settings.

I think this calculation of herd immunity thresholds can be misleading because we are not a homogeneous population.

They give us targets but we need to remember that the force of infection may vary in different populations and that we may need higher immunity levels in certain populations, such as densely-populated urban areas than we do in sparsely-populated rural areas.

Next slide, please. All of this says we need ongoing surveillance and ongoing studies to determine a variety of things.

One, vaccine effectiveness in a real-world setting which can help us determine waning immunity, variant escape, and also potentially if vaccines are not handled appropriately and lose their potency because they're not kept in the cold chain appropriately.

When outbreaks occur, we need to determine whether it's a result of vaccine failure or failure to vaccinate or both. We need to understand where the variants emerge which invade vaccine-induced immunity.

And the World Health Organization has developed guidelines and methodologies to assess vaccine effectiveness and you can get to those guidelines at the website shown below.

Next slide, please. This is a slide we developed back in 1985 looking at three things.

One, PPV is the proportion of the population vaccinated with vaccine coverage.

PCV is the proportion of cases that are vaccinated and then you have individual lines at a given vaccine effectiveness, which can tell you the proportion of cases with a vaccine history you might expect given a certain population coverage and vaccine effectiveness.

So, for example, if you have a 90 percent effectiveness vaccine with 90 percent population coverage, you will expect if you have cases about 50 percent of your cases to have a history of vaccination.

To put that in perspective, if you had 1000 people and 90 percent are vaccinated, that's 900 vaccinated, 10 percent are susceptible, that's 90 susceptibles, 100 are unvaccinated and

susceptible so that's roughly 50-50.

And if you have cases it will be roughly 50-50. On the other hand, if you have a 50 percent effective vaccine given to 50 percent of the population, you would expect roughly a third of your cases will have a history of vaccination.

So, if you have 1000 people, you have 500 who are unvaccinated and susceptible. Of those vaccinated, 250 of the 500 vaccinated are susceptibles so 250 of the 750, or one-third, are vaccine failures.

Next slide, please. Now, there are a variety of observational studies that can be done.

One is cohort studies where you look at the incidence rate of disease in vaccinees versus non-vaccinees.

And you calculate effectiveness as traditional case control studies where you look at the vaccination status of cases, you select controls that are matched to the cases for most characteristics, and look at their vaccination status and you can actually calculate vaccine effectiveness.

One of the most popular methods is called the test-negative case control design.

It really is the standard now for measuring influenza vaccine effectiveness, and what is done is when people seek care with a COVID-19-compatible illness and are tested, the cases of those that test positive and the controls of those that test negative.

And you can look at their vaccination status and calculate vaccine effectiveness. The screening method was determined to help people decide when more methodologically rigorous methods were needed.

And what you do there is you look at the vaccination status of the cases you see and you look for some source of what's the overall population vaccination.

And then you use that graph that I showed you just before and you can measure effectiveness, and if it's within expected bounds you probably do nothing. If it's not then you need to do more methodologically rigorous methods, and there are other methods.

Next slide, please. So, in conclusion, COVID-19 vaccination will likely need to be ongoing.

The need for boosters and the frequency of such boosters if needed, and the composition of booster vaccines if not needed is not known at this time but we need to do the studies to look at the safety, the immunogenicity, and have systems in place to monitor effectiveness and determine whether cases we see are vaccine failure versus failure to vaccinate.

If vaccine failure, why? Waning immunity, variant escape, improper handling, et cetera. And if failure to vaccinate, why? Problems with access, hesitancy, et cetera, and then we developed solutions based on what the cause of the problem is.

I think we can control this disease, I think we can terminate transmission but it means we need to get high levels of vaccination in all populations and we need to sustain that.

And then we need to modify with boosters and changes in vaccines depending on waning immunity

and whether variants emerged that escaped the vaccines we have.

Thank you.

DR. CARROLL: Thank you to Dr. Orenstein for those remarks. Next up is going to be Dr. Joneigh Khaldun.

DR. KHALDUN: So, good afternoon or good morning for some, wherever you may be. I'm excited to talk about Michigan's experience with COVID-19. Go ahead to the next slide? The next slide, actually.

So, this shows Michigan's cumulative case counts for COVID-19 compared to just a select few other states. Michigan is the purple line there of cases over time.

So, Michigan actually was one of the most hardest hit states early on particularly in our southeast Metropolitan Detroit area. Our Governor was very proactive in implementing her stay-at-home orders and we saw our case come down significantly in the end of April of 2020.

And you can see that depicted here on the curve. No, stay on that one.

We then had a surge, you can see right about the 250 ticker mark there, you can see that we had a surge in the fall and put very targeted restrictions in place. And quite frankly, we largely in Michigan avoided the post-holiday surge that occurred in January.

And you can see there, right around the 300 per 100K case count, 300 days, I'm sorry, you can see how Michigan's purple curve flattened out a bit and you saw some of those other states there with the cases still increased significantly.

And then you can see towards the end there where we see that last deflection of the curve where Michigan had most recently this past spring a significant increase in our cases and a surge that other states didn't quite have.

But I think what this really shows is that cumulatively, that surge has actually brought Michigan on a similar levels to other states when it comes to the number of COVID-19 cases.

And I will say that I'm very pleased that over the past six weeks or so we've seen a significant decrease in our case tolerance and our

positivity rates, hospitalizations, and of course deaths, which we're very pleased by.

But I thought it was really important to show how Michigan's curve has played out compared to some other states.

Next slide. So, this is another depiction of Michigan's curve but this one particularly fills out racial and ethnic disparities, which I think is really really important to talk about when we talk about COVID-19 and public health in general.

And so unfortunately, Michigan saw significant disparities due to inequities that were not a surprise, quite frankly, in COVID-19. You can see the purple line there is black and African American residents, black residents make up about 14 percent of Michigan's population.

But very early on black residents were about 32 percent of cases and 40 percent of deaths of here in the state. And you can see as our COVID-19 cases and as the pandemic moved on, we were actually able to, by implementing very strategic and targeted interventions, we were actually able to essentially

eliminate the black-white disparity here in Michigan when it came to COVID-19 cases and deaths.

And I'll talk about that in a little bit, it actually did continue through our fall surge and unfortunately, in our most recent spring surge we were unable to continue that, I think largely because of our difference in vaccination rates.

But again, it's really important to say that when you are intentional about disparities you can actually do something about them. Next slide.

What did Michigan do exactly? Again, I think intentionality, so first, we were actually one of the first states to even look for the data when it came to testing and deaths and racial disparities.

And so, one, is just identifying the issue in the first place. We then worked very closely with community members to actually develop solutions and implement those solutions.

So, our Governor actually announced a racial disparities taskforce and we were one of the first in the country to have such a taskforce.

That was really made up of community members, academia, faith-based leaders, many people who know, boots on the ground, what's happening in their communities.

And we were able to actually develop and target strategies particularly in our marginalized and minoritized communities that I do believe contributed to our case rates coming down, and that disparity really being eliminated in last year's surges.

So, our Governor declared racism as a public health crisis and with that came a lot of, for the State Governor particularly, interventions with implicit bias training, changing the way the Michigan Department of Health and Human Services moves forward with allocating our dollars, how we move forward with hiring staff.

We actually put in place a multi-million-dollar media campaign targeted specifically in the southeastern Michigan area using people who we thought were trusted community members who distributed over six million free masks.

We also had a lot of early on free neighborhood-based testing sites providing over 24,000 free tests. And that was really important, as you all recall, over a year ago we were very limited in our ability to obtain a test and there were disparities in who was actually getting a test.

And I think this really helped address that. We partnered with several community-based organizations, actually gave funding to a lot of those organizations to implement on the ground interventions.

We had a lot of Human Service support and we expanded our SNAP benefits, we actually provided quarantine support with food, hygiene products, we actually supported our elderly as well, making sure they had access to the resources that they needed.

We also mandated right off the bat reporting from our providers when it came to testing, reporting race and ethnicity. And then as I already mentioned, implicit bias training for all state employees.

And we actually successfully have now implemented mandatory implicit bias training for everyone in the State of Michigan who's a healthcare professional as a condition of you renewing or receiving your license.

Next slide. So, we've also been very targeted and strategic in our vaccination efforts.

And so from the very beginning when there was a very limited amount of vaccine and our supply and demand is not what it is today, we have to divide our doses up amongst our counties and we, from the very beginning, used the social vulnerability index.

So, looking at things like poverty, educational status in a home, race, ethnicity, whether someone's first language is English, so all the things that go into the social vulnerability index, we actually used that as a factor when it came to how many vaccines went out into a particular community.

It's not a surprise that many of the communities that had a high SPI index also were

hardest-hit by COVID-19, so not a surprise. So, we actually did that very early on, targeting our vaccination efforts.

We also, and this was prior, actually, to it being done at the national level, we actually gave our vaccines directly to dialysis centers.

So, those took care of some of our most vulnerable and we also gave our vaccines to our federally qualified health centers as well, knowing they often are taking care of the most vulnerable.

So, the point here is with our vaccination efforts we need to think about moving forward to the point of living with COVID-19, being very intentional, targeted, strategic, when it comes to equity and how you're working with communities when it comes to access to testing, as I talked about earlier, but also vaccines.

Actually, something I'm very proud of, we implemented a special pilot program, essentially it was an RFP for vaccines where we actually had folks who had developed these partnerships, maybe worked with their local health department or not

in some cases, and they actually had to apply to receive vaccines based on how they were targeting their vaccination efforts based on access, disability status even, transportation, making sure they were eliminating those barriers.

So, I'm really proud of that.

And then, of course, communication is just so very important when it comes to vaccination efforts.

In December, so right when the vaccines were rolling out, we actually implemented a bipartisan Protect Michigan Commission.

So really, a coalition of multiple bipartisan, more than 60 people, community leaders who are really carrying the message about the safety efficacy of the vaccines.

They're hosting townhalls, they're doing press conferences so it's not just me, and government officials who are sharing the message.

But really getting out into the community, which I think is really, really important.

Next slide. So, I think another thing that's been really important in Michigan's approach

to battling COVID-19 has been our robust testing strategy.

Of course, we all know early on we weren't able to test rawly, but as we've gotten more access to testing we really wanted to make sure there was equitable access.

We really made sure we had early identification outbreaks and, of course, focused on protecting the vulnerable.

So, really, why the accessible and free community testing, which I've already talked about a little bit, neighborhood-based free testing sites, so sites at churches, community-based organizations that are in communities, really, really important.

We've also more recently put testing, free testing, at points of entry into this state.

So, we have testing actually available at airports, available at rest areas throughout the state.

We do have a large state so a lot of people drive back and forth across the state. That's been really, really important.

We've also had some testing requirements

and mandates within orders in the state, including with our jail population, our long-term care settings.

We actually had a testing requirement for agricultural settings, which was really important, knowing that's where a lot of outbreaks were occurring.

We also with our most recent surge in the State, we actually implemented a mandatory weekly testing for youths ages 13 to 19, so mandatory asymptomatic surveillance screening for any child who wanted to participate in sports.

And that is because early on we saw with this most recent surge that there were a lot of sports outbreaks and so we wanted to continue to support people being able to do the things that they want to do again to the message of living with COVID-19.

But we wanted to make sure if there was a positive case on the team, we identified it early and that person was not a threat to other people in the team, so that was really, really important.

And then we also made testing widely

available for free at all schools across the entire state. And so we've actually trained many of the schools, they've gotten their CLIA waivers and they're actually implementing a lot of school testing.

Again, it's important that our children have in-person learning and so testing has been a part of that.

And of course, as was just discussed by my colleague, moving forward think about how we're doing surveillance, making sure we're identifying any outbreaks very rapidly.

I do believe that as we move forward with living with COVID-19, it's not going to be necessarily chasing every single case, but making sure that we do have really robust regional surveillance mechanisms in place for identifying any outbreaks or identifying any breakthroughs from vaccines and understanding if there are any signals there that mean that we need to pivot and respond differently.

So, overall, I'm very proud of our response in Michigan, we are seeing a decrease in

cases from our recent surge but I think moving forward we all have to pivot and be able to, one, focus on equity, but also as we think about testing, surveillance, how we work with communities, pivot as well so we don't see disparate impact of COVID-19 in some communities. So, thank you very much, I'll turn it back over to you, Dr. Carroll.

DR. CARROLL: Thank you so much to Dr. Joneigh Khaldun. Our third presenter is Dr. Joseph Fins. DR. FINS: Thank you.

So, I've been asked to talk about some of the ethical choices we'll face post-pandemic world when the virus is an endemic, chronic feature of civic life, not the catastrophic, nearly existential threat that we've faced for the last 17 months.

And to try and consider some of the trade-offs between acceptable levels of risk and mortality as we move into this new normal. It's a hopeful time to look ahead to a post-pandemic world as infection rates have fallen to 30,000 per day.

And with more than 61 percent of adults

and 49 percent of all Americans having received at least one shot, it's really tempting to take this victory lap and imagine an endemic America and the choices we'll need to make.

But before we do this, we need to look back and remember the pre-pandemic America that made us so vulnerable to COVID-19 despite our wealth and scientific prowess, both intellectual and institutional, given the capabilities of the NIH and the CDC as well as the private sector.

George Packer in a brilliant essay published in *The Atlantic* last June wrote of the underlying conditions that made us prone to the pandemic, and the list is familiar, distrust in government and scientific expertise, our divisive and dysfunctional politics and economic and health disparities.

These pre-existing conditions will be with us as COVID-19 becomes endemic and will complicate our value choices.

Our national recovery is not happening in a vacuum, those who were sanguine about recent progress need to recall the broader health status

of the body politic moving forward.

Can I have the first slide, please? I saw some of these challenges firsthand leading an ethics consultation service at a major academic medical center during the spring surge in New York City.

In retrospect, there were three challenges we faced last spring that will make ethical choices more difficult in an endemic America. They are political realism, structural inequities, and the limits of American bioethics to address questions of distributive justice.

Can I have the next slide, please? Let's start with political realism and an anecdote which is really a parable and a story with a moral lesson.

I'm a Member of the New York State Taskforce on Life and the Law and helped to draft the 2015 taskforce report on ventilator allocation guidelines.

It was written in anticipation of and in preparation for an avian flu pandemic and it had nationwide impact when COVID-19 struck last year.

While not perfect by any stretch of the imagination, it became the most discussed approach to allocating ventilators in the face of dire scarcity.

During our deliberations as a taskforce before it was published back in 2015, I vividly recall being obsessed with the question of when guidelines would become operative.

It seemed critical to understand when and how clinical practice and associated health law would make the radical shift to the deontological to the utilitarian.

I wanted to know as precisely as possible the conditions under which a Governor would declare a public health emergency that could trigger such an allocation scheme. And I wanted to know what would happen to existing law under these circumstances.

It seemed to me, as unlikely for the need for triage would be, we were living in this era of naivety, we would know when and how it would be initiated and how medical practice would proceed under what is called crisis standards of care.

I remember raising these issues over the course of several taskforce meetings. First, I was ignored but I persisted and I received a response.

As I recall, I was told we just couldn't go there, the taskforce couldn't release a report getting into what a Governor might be allowed to do or could do during a public health emergency. It would scare people and be bad politics.

I pushed back and said that it was our responsibility to lay this out before crisis struck. After all, what was the purpose of the taskforce but to take on politically hot topics that were too toxic or contentious for normal political challenges? Well, you know the rest of this story.

We never articulated precisely how and when a governor could invoke crisis standards of care. This left us unprepared for the pandemic despite having written a report about it five years earlier.

When the pandemic came, we were still asking these questions but it was easier to avoid

them and to build up capacity than to acknowledge the gravity of the shortages felt in this state.

To assert then or now that there was sufficient personnel and supplies is to engage in historical fiction, and it's a position that is countered by a March 2021 report from the Health and Human Services Offices of the Inspector General that found that hospitals were severely strained by the pandemic and many were operating in survival mode.

Second point, and if I could have the next slide, are structural inequities that exist and the fair allocation of resources during the crisis. This became all the more pressing because of disproportionate morbidity and mortality experienced by communities of color during the pandemic.

This burden was a consequence of long-standing health disparities, the vulnerability of essential workers, many of whom are persons of color, as well as what I'm going to call the built environment.

A remarkable research report published

in JAMA back in April 2020 spoke to this and these are where these slides are from. It compared the morbidity and mortality of COVID-19 in New York's five boroughs.

Not surprisingly, the Bronx had the highest hospitalization and death rates consistent with the sociodemographic characteristics of its population, reflected in a poverty rate of 27.4 percent.

But then there was a surprise. Even though Queens had one of the lowest poverty rates in New York City of 11.5 percent, only Staten Island was slightly better at 11.4 percent, Queens had the second highest worst mortality rate.

The reason for this disparity was not about the population of Queens residents but Queens' built environment. As compared to 534 hospital beds per 100,000 in Manhattan, Queens had only 144,000, the lowest per-capita rate in New York City.

This was a health equity issue that could have been addressed with centralized efforts to transport patients from bed-poor regions of the

city to ones with more resources. This might have been possible if the state had articulated health equity as an ethical priority and then acknowledged that both scarcity existed and that resources were unfairly distributed.

Can I have the next slide, please? My third concern is the limits of bioethics, my profession.

As many of you know, bioethics was a phrase coined in 1973 and was a response to the Nazi atrocities in medicine and the Tuskegee syphilis study, and challenges posed by increasingly sophisticated medical practice.

Bioethics called for including the patient's voice in care decisions and affirmation of their rights and a focus on four principles, autonomy, beneficence, non-maleficence, and justice.

But along the way, one of those principles was prized to the exclusion of others. A European bioethicist once told me with irony that American medicine followed four ethical principles, autonomy and three others he could not recall.

But with the elevation of autonomy the

pursuit of the other three principles, the promotion of good, the avoidance of harm, and the passion for social justice was diminished.

These limitations were laid bare by the pandemic. Bioethics needs to move beyond narrow questions of patient choice, particularly when the disenfranchised are not in a position to exercise that choice.

Can I have the next slide, please? This was the predicate that we confront looking at endemic COVID-19.

Returning to George Packer's prescient article, he observed, quote, that the virus should have united Americans against a common thread. The virus also should have been a great leveller.

You don't have to be in the military or in debt to be a target, you just have to be human.

But those divisions persist, we can point to a deadly virus but the virus did what it was programmed to do. It found hosts, it replicated, it mutated, and it moved on.

It wasn't viremia that caused all the harm, it was human nature, that is the pathology

that needs to be addressed if we want to talk about the value choices and the trade-offs that we will encounter in an endemic America.

But there are no simple answers as to what is an acceptable mortality rate.

Numbers are not easily translated into values, nor will decisions about vaccine mandates be easy to make, but there are better and worse conversation about these choices which are often cast as communal responsibility and opposition to individual liberty.

Personally, I think that's a false choice and that we're freer to return to a normal life if we work together and more of us got vaccinated.

But my saying so will not convince those who hold opposite views.

Instead, we may need to lay the foundation for better conversations about deliberative democracy, about science, and about medicine. This will be a multi-year task akin to the moonshot that seeks to repair the body politics and our civic discourse.

I may be heading out of my lane here

but let me suggest an approach about what we need to do to talk about COVID-19 as it becomes endemic.

Could I have the next slide?

First, we need to mourn and reflect on our losses. We have to acknowledge as of the other day 590,000 deaths in the United States, and let's not forget the 3.3 million deaths worldwide.

It's been repeated so often it has almost lost the force of its content but we've lost more Americans from the pandemic than all the wars our nation has ever fought. We need to remember our pain to become inspired to do better.

Do we need a national memorial? I think we do. Do we need a day of remembrance? I think we do. Both of those things would be of symbolic importance, would honor the dead, and all those who did their best to save their lives.

Second, we need to affirm our solidarity and acknowledge our shared vulnerability in the face of the pandemic and other collective threats. So, many have felt alone. It's only collective action that will bring this through.

Third, we need to be inclusive in our

responses. We need to imagine Rawls' veil of ignorance and forget our privilege and our vulnerabilities and imagine what a just healthcare response would look like.

It should be fair to people of color, essential workers, as well as those with disabilities. And when we talk about distributive justice, all of these communities, as they seem to be in Michigan, in their dialog they need to be represented.

Could I have the next slide, please? Fourth, we have to prepare our citizenry for these conversations. To that end, we need to promote STEM education and the humanities.

Good facts lead to good ethics and critical thinking is needed for both. To invoke C.P. Snow's two cultures, our response to the pandemic is a quintessential two-culture problem.

All of societies complex problems are at least a two-culture problem, if not more. Whether it's a pandemic or climate change, science alone cannot address the problem of vaccination if there is hesitancy or global warming if it's denied.

Fifth, we need to stress the importance of history and civic education.

To understand the importance of government's role both at the federal and state levels and all branches of government, our citizenry needs to learn our history, both the good and the bad, where government did well and where it went astray.

And I hope you can see how this image on the bottom part of the slide on the left here reflects both the public health clinics built by the WPA and the public health services Tuskegee syphilis study, contemporaneous actions.

Finally, we need to promote equity here and abroad. Initiatives like COVAX are not a charitable enterprise but are protective of our domestic national security as much as it is respectful of others around the globe.

So, let me close on a sobering note and where we began.

As the pandemic become endemic domestically, it will remain a pandemic globally for most of the world, and just because things are

getting better here does not absolve us of global responsibility.

I'll stop here, thank you.

DR. CARROLL: Thank you so much to Dr. Fins for those remarks. last but not least, of course, we turn to Mayor Kate Gallego, who is going to speak with us.

MS. GALLEGO: Wonderful greetings from Phoenix, Arizona, I am honored to join you all today.

And I want to begin by saying thank you to the medical and public health professionals who have made a tough situation a little bit better, and who have given so much over the course of this pandemic.

For me as a local elected official, collaboration with our health professionals has been one of the bright spots of this pandemic and I am grateful to those who changed their priorities or who consulted with us, or who spoke out in the media and made it a little bit easier to navigate this pandemic.

I want to thank Dr. Carlos del Rio with

Emory who early on in the pandemic was a key advisor to me as I made decisions about how Phoenix should move forward. And I want to thank all of you who have done that for your local elected officials.

I know we are not done with this but I think even partway through the pandemic it's important to say thank you and to recognize that we as elected officials cannot do it without health professionals.

Today, I was asked to talk a little bit about how elected officials make decisions and there certainly is no one answer.

We are a diverse group but I will talk about some of the things we experienced in Arizona and are still continuing to experience as well as how we made our decisions in the City of Phoenix.

For me, the pandemic first hit home in January of 2020, we had a university student who had been in Wuhan and who returned to Phoenix through the airport and was diagnosed with COVID-19.

We began our response by making sure he had healthcare but also setting up a tracking system and that was how contact tracing began for

us in this particular effort.

We also coded his home in the regional 911 system so that there would be a different public health response than just the firefighters going in if there was a 911 call in case of emergency.

And luckily, that was a successful outcome. There were no transmissions that we're aware of from that first case so COVID-19 continued throughout the country and there was more spread in other communities than ours.

Our next big milestone came in March, I was just about to hit my first year as mayor, so COVID-19 hit during Year 1. And we saw the virus spreading throughout the country.

In Arizona, the response really began with mayors and executive orders, so by executive order we put in protections including trying to restrict some of the most risky areas for virus transmission, particularly settings such as bars and nightclubs.

So, to decide whether or not to do my executive order, I consulted with a variety of different health professionals, including Dr. Del

Rio. We also spoke with our healthcare system and my conversations with healthcare CEOs were very impactful for me.

Some of our CEOs talked in great detail about the heartbreaking decisions we could be asking medical professionals to make, the lack of resources available and the idea of choosing who gets a ventilator and who does not.

They spoke with me in detail about the fact that in Phoenix, Arizona, we did not have enough healthcare beds and resources even before the pandemic. Phoenix has been the fastest-growing city in the country and we are in the fastest-growing county in the country.

Because of a variety of different factors including how we allocate graduate medical education in this country, we did not have as many physicians as we needed and we also had a pretty significant shortage of nurses even before COVID-19.

So, that discussion was very important to me but I also spoke with our business community about what it would mean if we took public health seriously and the leader of the Phoenix Chamber

of Commerce was very supportive of moving forward with health restrictions.

Our local universities were also very important and we talked with them about what were the capabilities and the risks in our community. And ultimately, I decided it did make sense to move forward by executive order.

That's an unusual experience for a mayor.

As you heard in my background I do have an MBA and I'm very interested in economic development, growing high-wage jobs and businesses.

So, it wasn't where I thought it would be going, to put restrictions in place, but given the spread of the virus and the lack of healthcare resources I thought it was the responsible decision.

As a new mayor, I got a lot of advice from different people and many people told me not to take this risk, that it would be politically damaging for me.

I won in a special election so I was sworn in in 2019 but then had to run again in 2020, and I did get advice from people who said don't do this, your political career will be over.

But ultimately, I decided there were some things that are worth losing the job for and that it was the right decision to put these protections in place, that I wanted to err on the side of public health.

And I feel very good about that now but it was an interesting process to go through. It's been a tough time in local government and I have great sympathy for people who made the opposite decisions of mine as well.

COVID-19, in many ways, as an elected official made you feel like you were choosing between two bad options. You don't want to deprive anyone of their livelihood but in my case, I was also very concerned about protecting lives in our community.

We continued to work directly with health professionals and I consulted particularly often with our healthcare business leaders and local university, but there were other networks that were important to me.

Bloomberg Philanthropy engaged John Hopkins and a few other public health programs in providing consulting for mayors.

The data for Johns Hopkins was really useful to me and making sure we had good analytics to make decisions, and also, we're making policy decisions based on what was working elsewhere in the country.

We had real challenges locally in Arizona, our Governor who is in charge of the public health response said he was making decisions based on models but would not release them, and that was difficult.

At one point he just paused modeling completely, particularly when the model were saying that COVID-19 was going to get significantly worse.

So, those national networks were important to me.

But we also had global conversations, I belong to a global group of mayors that works on climate change issues. That group pivoted to focus on COVID-19.

Early in the pandemic we got to hear from Chinese mayors about how they responded, but two mayors were particularly impactful for me beyond the Chinese mayors. Korean mayors were talking about how they put in place testing protocols and

that was very useful for me as we thought about what made sense in Arizona.

And then we got to hear from Italian mayors about what challenges they were facing. At the time, Italian morgues were filling up and beyond capacity, and that sense of urgency and just the raw emotion on my Italian counterparts' faces really added to the public health data.

So, we were all looking at transmission values and the spread of the virus and graphs and numbers of people impacted. But hearing from my peers was very impactful as well as closer to home.

Unfortunately, in Arizona the first Arizonan to pass due to COVID-19 was a City of Phoenix employee who worked at the airport and was someone who I knew.

And when people asked why we responded proactively, I think that personal interaction mattered as well. When I spoke with elected officials who thought we should not be doing as much on COVID-19, they often were people who did not know anyone personally impacted by it.

And so they say all politics is personal

and that did feel true over the last year. We continued to work locally with our healthcare community on trying to acquire protective equipment.

If you want to see my inbox, the truly stunning number of people who knew a guy who had a factory that could produce masks for us, it was something else. And that was an experience in and of itself.

We also took testing very seriously and even though we are not a public health authority at the local government level in Arizona, we got into the testing business.

So, we had city employees who used to be in parks programs that weren't moving forward or library programs that weren't moving forward because of health protections got into registering people and doing logistics for testing.

Phoenix was the largest city in the country through the first month of the pandemic to not receive federal surge testing and I spent a lot of time focused on getting that needed healthcare information in our community.

At one point I got mentioned by name

at a White House press conference who said that I should stop talking about testing and the challenges.

And that was also a life-changing moment for me because all over the country, when you get mentioned in a White House press conference, people started following me on social media and saying that this was a huge lie, which was something else.

It was to the point that when I got a flu shot and posted it on social media, I had hundreds of people saying that Bill Gates was going to control my mind or different other flu shot conspiracies.

When we put in requirements around masking and others, we would get more than 6000 emails and 2000 calls a day. I have a staff of 10 so that was pretty stunning to see all of that coming in and the emotion around masking.

We made our decision by vote of city council and public meeting and took public testimony and I want to say thank you to all the doctors out there who are willing to testify and share their expertise.

Many of them, unfortunately, got

negative interactions on social media as a result of it and I am profoundly grateful and sorry that is the case of civil discourse.

But we also had people testifying that our mask requirement would deprive Phoenicians of oxygen and was again my effort to control mines.

So, a lot of this was eye-opening experience for me, I am glad we did it but I certainly echo some of the thoughts Dr. Fins just shared about civil discourse in the community and how we might move from here and have better conversations move forward.

I hope that those of you in the public health and medical professions will find partners in local government and continue to work with us because we will need your help and your partnership if we are going to emerge from this stronger.

I'll just close by saying thank you again for all you've done to get us through such a difficult time.

DR. CARROLL: Thank you to Mayor Gallego for those remarks. We are right on time, which is fantastic, so thank you from the moderator to

our speakers for adhering to the clock so carefully.

If everyone wants to bring their camera on, I'm going to start filtering some questions through to people. While I will likely direct them to one of the four of you initially, I encourage anyone who would like to follow up to please do so.

As much as we can, it would be great for this to be a dialog. We're certainly going to want to hear from everybody and nobody should feel that they need to be called on in order to speak.

But I'll start with Dr. Orenstein. Do you see lessons from childhood vaccinations in our history with campaigns to help address concerns about either vaccine hesitancy or low rates of uptake and other concerns.

DR. ORENSTEIN: Yes, I do. I think there are very important things that came out of our childhood immunization program.

For example, you need to have trusted messengers and what we found is that working with particularly primary care providers was key in

overcoming hesitancy.

Second is to make vaccines easily available and remove barriers. So, one of the things that we did in a presidential initiative in the early 1990s was develop a program where vaccines could be free to some of our poorest children, called the Vaccines For Children program.

We also in our childhood program have an extensive surveillance system. I kept on mentioning measles because measles was a major force in the building of our program but we had surveillance, we had outbreak investigations, we defined something that is not the best definitions but preventable in non-preventable cases.

A preventable case is one who should have been vaccinated but was not and a non-preventable was one either that was a vaccine failure or for whom vaccine had not been recommended.

And it helped in moving things and one of the things that we found that was very helpful is accountability. One of the things that we got in that presidential initiative in the early 1990s was something called the National Immunization

Survey, and the first state that came out at the bottom of the list of immunization coverage was actually Michigan.

And the head of the immunization program in Michigan used that and got substantial resources from his state legislature and really built up the immunization program. So, we need to try and have that as well.

I think part of the problem here is for the most part at the moment this is an adult immunization program and for adult immunization, we don't do anywhere near as well as we do in childhood immunization.

And my hope is that the focus on COVID-19 will also have benefits in terms of improving our overall adult immunization program.

DR. CARROLL: So my next question probably could go to Dr. Khaldun first but I would really love to hear from Mayor Gallego as well.

One of the things you even just mentioned but one of the things which has not been incredibly popular in our response so far in the United States has been surveillance.

Some people have advocated for the use of waste water as a way to do high-level surveillance but others have gone so far as to say we should be doing widespread either antigen testing or other types of testing.

What role do you think surveillance should play now and perhaps in the future? And are there discussions in either the state or the city in which you're helping to lead?

DR. KHALDUN: Yes, I can jump in. So, surveillance is currently important and is going to be very important, I think, as we move forward.

I mentioned this at the end of my prepared remarks but as we move forward with COVID-19 and learning to live with it, it's going to be really important that we are identifying signals going back to what we did with flu, where we have these signal surveillance networks set up all across the states.

And we're identifying early on of the symptomatic people who actually is positive for flu. We're doing that same thing or pivoting to

that same thing with COVID-19.

And then similar to what was mentioned with measles even over the past couple of years, quickly identifying if there is a positive case and wrapping all of our public health services, rapid testing and contact tracing, the things that we're used to doing very robustly now.

I think eventually, our case rates and positivity rates will get so low such that we move towards a broad, surveillance, waste-water, antigen testing focusing on vulnerable populations like long-term care settings, perhaps schools.

And then rapidly responding and encircling any positive cases, particularly when it's a potential for a large outbreak. Surveillance will be incredibly important moving forward.

MS. GALLEGO: Thank you. We are using waste-water testing to supplement other testing in our community and it has been helpful.

I am in Phoenix City Hall now and that's a building where we ended up putting in some restrictions a few months ago because we did, through waste-water, learn about some COVID-19 presence.

We also have had good luck with mobile testing, and particularly going to some of our more vulnerable communities and communities with less access to healthcare. We find if we make testing a lot easier people are more likely to do it.

So, it's free testing with no co-pay and no insurance required, and that has helped us better understand the status of COVID-19 in our community.

We are trying to be cognizant that many surveillance networks disproportionately provide data on those who are easiest to survey and that often is not our most vulnerable populations here.

So, we're trying to be really intentional about that. And also, I wanted to add a little bit to what Dr. Orenstein said on vaccinations and what's been working in our community and what hasn't been.

We have huge disparities within the greater Phoenix area so we have areas in the high 80 percent of eligible residents being vaccinated and some in the low 30s.

Income has been a large correlation and some of that is we've spoken to people who say I work seven days a week, I cannot take a day off, I cannot afford to be sick.

We have others who are in mixed immigration households and who are concerned about the documentation or that they might become ineligible for citizenship, and that's been a challenge.

We've also had people who just want to have a chance to get their questions answered. We are lucky at the City of Phoenix to have support from Dr. Heather Ross, who's been working with us and who has done Q&A sessions with our employees from our police officers to the individuals who drive our solid waste trucks. And many people have just heard a rumor or want to see if certain pieces of information apply to them.

Many people were deeply concerned about the speed of the development of the vaccine and so if we were able to talk that mRNA vaccination for a coronavirus was developed over a decade.

That was meaningful to people and we

were preparing for this as the medical community. So, different people have had different concerns and the more we can have individual conversations, the better.

We've also looked at doing incentives for vaccination out here and have tried fun events, lottery tickets, but that has slowed a little bit recently as our legislature has debated a bill to make it a felony to incentivize vaccination.

So, there's impediments from public policy and assistance from public policy but I do aspire not to become a felon, although I very much want everyone in my community to have access vaccination.

DR. CARROLL: I suppose it's at least an interesting way to become a felon but, yes, nobody should.

My next question I'd love to direct to Dr. Fins, we had a question come in. Can you elaborate on the U.S. obligation to provide international aid, whether vaccines or other forms of support?

And further, what moral obligation do

wealthy nations have?

DR. FINS: First of all, I think it is a global pandemic and it's not really charitable, because if you have a breeding ground of pandemic, of COVID-19, in regions that mutations can spawn, they're eventually going to come here.

So, it's in our direct self-interest to make this a global response. Also, we're a country of immigrants, we're a country that is full of -- I have colleagues next door in my office who have family, close family, in India. And during the day they're doctors and at night they're family member doctors. And they're calling to hear how people can get oxygen cannisters to their loved ones in the way.

So, I think we're a country that comes from all over the world so we have affiliations with the rest of the world. That's the source of our strength but it's also a source of our obligation.

Now, I think also, I read that we're approaching 50 percent vaccination in the United States. In South America and in Africa it's 0.03

percent of folks that have been vaccinated.

That's just intolerable, it's bad public policy and it's unethical, it violates every norm about social justice and distributive justice.

So, I think we have an obligation. What the exact number is, I don't know, I would hope to think that it was our capacity to make vaccines that was the limiting factor, not our generosity.

DR. CARROLL: I'm going to push you a little further there. There was a time when it seems like that might have been the case but it feels, at least if you listen to the news, that there is vaccine available.

How do we make that pivot point to when we should start just moving vaccine that Americans aren't willing to take out of the country?

DR. FINS: I think we have a surplus so I don't think it's going to be at the expense of Americans but I think even if you look at it at a geopolitical level, do you want other countries using vaccines for their own political gain?

Why not make it an instrument of American

diplomacy? The USAID fed people for decades and that did more for America's standing in the world than armaments.

So, I think we have to look at this globally and I think there's a role for health diplomacy and using our talents in the service of the world.

DR. CARROLL: I'm going to throw this one to Dr. Orenstein but I would absolutely love to hear from any of our panelists. What do you think an effective masking policy might look like when the disease is endemic?

DR. ORENSTEIN: I think it will vary, I'm not an expert in the non-vaccine issues but to me, CC has put out what I think is reasonable guidance that if you have high vaccination coverage, you can reduce your masking.

I think hopefully that can be an incentive for people to get vaccinated.

The vaccines we have are highly effective, they're effective not only against disease and complications and severe disease, but they appear also to decrease transmission, which

is another good thing from vaccination.

And so my hope would be as the disease goes down and infection goes down and coverage goes up, we'll begin more and more unmasking even for unvaccinated individuals or people who can't be vaccinated, such as those with medical contraindications.

DR. CARROLL: Anyone else have thoughts?
I'll move on to another question.

In October of 2019, or November maybe of 2019 but it was late 2019, I was lucky enough to sit with Dr. Benjamin on a panel at the APHA meeting and we were talking about, the topic was, is public health worth it almost?

Does it get enough bang for the buck?

And I remember we actually talked about how one of the things was we needed to start having moonshots for public health that then-not-President-Biden but Vice President Biden had pushed for it and we were willing to spend huge amounts of money on healthcare that sometimes is cost-effective.

But we sometimes demand a much higher bar for public health. And not long after, we all

learned that public health was not only necessary but was just completely underfunded.

So, I'm going to throw this question first to Mayor Gallego but I definitely would love to hear from Dr. Khaldun and anyone else.

But can you comment on the challenges related to an inadequate public health workforce, the inability to do great contact tracing and how we should go about strengthening that in the future?

How do we get better public health?

MS. GALLEGO: That's a conversation we have been having very regularly in my community.

Arizona I believe was third from the bottom in per-capita public health workforce when this began and we did see the impacts.

We got overwhelmed with an inability to do contact tracing early on and our local health authority moved to doing it by text message as opposed to an individual calling you.

And we had some rough conversations about whether people are willing to be as direct and honest with different methods or as thoughtful about really

everyone you did have contact with.

One of the silver linings of COVID-19 is we have a huge generation of young people who have experienced how important public health is and our local universities are saying they have ever-increasing demand for class coursework and degrees in this area.

So, I hope there will be a real call to arms with this generation. I am of the generation who was in school when 9/11 happened in 2001 and so many people in my generation got interested in local government and how local government helped respond to things like the attacks.

So, to me, that was a pivotal moment in my own development and I suspect COVID-19 will be for so many young people.

We've been trying to make some of our additions permanent because we know this is not the last time we are going to have a crisis and I think there have been lessons to those of us in government.

But even communities that were prepared because of Ebola are responding better and getting

better outcomes than those that had not experienced something like Ebola.

So, it seems like the evidence is stronger than ever that these investments make sense, that they save lives, and that they also improve the economy because making sure we take care of public health is fundamental to economic recovery.

DR. ORENSTEIN: Can I answer that? I'm sorry.

DR. CARROLL: We'll go to Dr. Khaldun first and then absolutely to Dr. Orenstein.

DR. KHALDUN: There's so much to say here.

I think one thing that a lot of folks didn't realize that public health systems did not -- it wasn't push two buttons and then all of the sudden you know exactly where someone with COVID-19 was, where the outbreak originated, who all their contacts were.

From a state health official perspective, it was interesting that in the very beginning people thought we were hiding information and why won't you just tell us?

I know you've got three buttons, if you just push them, it will tell me. But what they didn't realize is there are health departments even still today I think, definitely for COVID-19, using fax machines.

Fax machines to get information about an infectious disease. Some health departments didn't even have an epidemiologist, not even one for sharing a medical directory across half the state.

That's just the reality of what public health has been in this country. And I do hope certainly that with the funding we're getting from the federal level we'll be able to build that capacity for our data systems.

We've learned a lot about data sharing, interoperability, that's really important, that our data systems actually speak to each other.

But I also think some of the silver lining is folks who are not necessarily going into public health, so businesses, hospitals, others, actually understand how they have a role to play in public health.

Which is really a public health official's dream, because I always say the work of public health is not just about the work of the Public Health Department, it's about everyone contributing to the health of the community.

So, I think that's a silver lining within this pandemic.

DR. CARROLL: Dr. Orenstein?

DR. ORENSTEIN: Since I'm a vaccinologist, my favorite line is vaccines don't save lives, vaccinations save lives. A vaccine dose that remains in the vial is zero percent effective no matter what the clinical trial showed.

And it's often harder to sell the infrastructure that is needed to deliver, to provide information but we need to do that and hopefully, we get a lesson learned from this.

There's a lot of investment in vaccine development but I did not see anywhere near that investment in vaccine delivery and distribution and the like.

And I think hopefully that can be a lesson for the future, that we need to have that delivery

system to get vaccines out of the vials into the bodies of people who need to receive them.

DR. CARROLL: Following straight up from that, I'll ask directly to you first but then, of course, anyone else, please jump in.

What do you think about the vaccine lotteries we are seeing? Is that a good way to spend money and are there better ways for us to try to use resources to increase vaccinations?

DR. ORENSTEIN: That's a good question and difficult one to answer. In a sense, what we also need to invest in is what I call implementation, science, or implementation research to determine what works better than other things?

And we've done that in a number of ways, there are a number of things we undertook in the vaccination program based on that research. And we need to invest in it, not just basic laboratory kinds of science.

I think that it may be reasonable, I don't know, I think to me the biggest issue is to continue to monitor coverage, to continue to assess what people feel are causing the problem.

My Director of Communications when I was Director of the U.S. Immunization Program used to say we need the right message delivered by the right messenger through the right communications channel.

And we need to do it because I'm just not sure since the people who gain from the lottery are a very limited number of people, whether that's going to really address the hesitancy problem that we have to overcome. I hope it does.

DR. FINS: I would just add that there are a lot of tropes out there about the Tuskegee syphilis study and there's vaccine hesitancy because of that.

It's mostly a question of access and people being given the opportunity to get it in their communities and get ready access to the vaccine.

And I think we can fall into stereotypes of historically inaccurate rationales for vaccination hesitancy and we're missing the target.

And I think we need to be more transparent

and give people in the community -- I think one thing that would be really helpful is to get just primary care doctors who are trusted providers and build upon those relationships as well.

DR. CARROLL: I'm struck by how most of the things that we're trying all are based on that assumption that people don't want the vaccine and there don't seem to be as many resources dedicated to the fact that there are likely many people who do want the vaccine but because of other barriers can't get there.

I would ask either Mayor Gallego or Dr. Khaldun to comment on that. How might we invest to get the vaccines where they need to be?

MS. GALLEGO: We have been seeing great uptake when we do employer-based events, so when we go to people's office and make it super easy or go out in the field for people who work in the field.

We've had some success with faith-based community events, so I think two weekends ago we were at a Catholic church where they do mass in Spanish and from the pulpit the endorsement of the

vaccination was really meaningful.

And people were there, so that was something. As I've spoken to people who are getting vaccinated, I think we should not underestimate the power of family. Several people have told me their kids kept nagging them until they did it.

They were interested in doing it but didn't feel the urgency, and then their kids said you've got to start doing it.

And for others, if there's some sort of deadline, that maybe inspires people who originally were waiting until the lines went down or for a variety of other reasons, but need something to give them that final push.

And again, we also are trying to reach people creatively. I think if you read the news, get a newspaper or watch television you probably have access to information about vaccinations.

But we do have people in our community who don't have Internet at home and who really rely on word of mouth, so we're trying to be creative about getting that information to people in our community as well.

DR. KHALDUN: And I would just add one thing we've tried to do is we vary in intentional.

That's kind of how public health, good public health, works.

I've run two local health departments, bringing services into communities and where people are is just so important. We're even doing homebound, I know other states are as well.

But I think, too, one of the challenges with our roll-out was the real push for speed, especially in the very beginning. This push for speed, this push for these mass vaccination efforts, literally, as a state health official you were measured publicly across the entire country, on the national news, every night, on how fast you are in the rank. But to do this intentional neighborhood-based work, you're not going to get 2000 necessarily shots in an arm when you're going into neighborhoods.

And so I know quite frankly, the mission was probably a little bit slower because we were, from the very beginning, very intentional about some of our neighborhood-based strategies and that's

a decision that we made just to promote health equity.

And I think that's one of the challenges with our roll-out, not to mention, to the earlier point about primary care offices, there was a push, at least 14-dose vials, don't you dare waste a drop.

I'm still right now meeting with physician organizations saying -- that's three months ago.

If you have someone in your office, please sign up for this COVID-19 vaccination program, if you have someone in your office who is ready and wants a shot right now, have it there so you can give it to them.

I don't want any vaccine wastage, don't get me wrong, I wish we had single-dose vials, but literally, doctors were turning people away saying I'm not going to be able to use all 10 doses so, therefore, you can't get a shot today.

And that's really not excusable.

DR. CARROLL: Dr. Fins, just because of time this might be our last question. But there

was one that came in from more than one attendee and I wanted to direct it towards you.

So, a number of people watching have appreciated your suggestion of a national monument or day of remembrance. Why do you think measures like this are so important to healing and national solidarity?

DR. FINS: I think it becomes a symbolic moment for all of us to come together. The red states and blue states, it could be a purple monument that we could all speak to and grieve over.

I think that's really important and I think the power of symbolism to motivate us to do what we -- we strive for our better angels, as it were. It may seem a little hokey, it may seem romantic but we need to be motivated, we need to be motivated to be our better selves.

And I think we need to honor the doctors and nurses and other clinicians who work so hard, the first responders, but we also have to honor the memory of those we've lost.

And so look at the power of the Vietnam War Memorial, that was a very divisive war, the

country was fractured and people have come together in front of that beautiful monument and it just had a healing presence. After all, we're healers and a monument like that could be healing for us.

DR. CARROLL: Probably good to end on an uplifting note in that way, given that this is certainly not the end of the pandemic and if anything, perhaps the beginning of the end of the pandemic.

But I think much of what you've spoken to tonight, all four of you, has been confronting the fact that there's not just a lot of work to be done but that we're going to have to find ways to live in this new world with COVID-19, that it's not something we're getting rid of very soon, if perhaps ever, but there are probably better ways for us to find ways to live with COVID-19 and to figure out what the world will look like in the near future, in a better and safer world.

That'll conclude today's webinar. Our next webinar will take place Wednesday June 20th.

DR. POLAN: The 23rd.

DR. CARROLL: I apologize, I just got cut off. So, I'm just sorry I got cut off, I'm not exactly sure what's gone wrong here so I apologize.

But our next webinar will be Wednesday June 23rd at 5:00 p.m. Eastern Time and it will be on the subject of the international response to COVID-19.

Everyone who is registered for today's webinar will receive an invitation to the next webinar.

This webinar has been recorded, the recording, a transcript, and the slide presentations will be available on COVID-19conversations.org.

I want to thank again all of our panelists, all four of them, as well to the National Academy of medicine, and to the American Public Health Association for co-sponsoring this webinar series.

And thanks most of all to all of you and our listeners and those who have watched for joining us today, best wishes to all of you for health and safety and take care.

(Whereupon, the above-entitled matter
went off the record at 6:27 p.m.)