THE BROOKINGS INSTITUTION

A SHORT- AND LONG-TERM APPROACH TO COVID-19

A DISCUSSION WITH BIOTECH EXPERT DR. WILLIAM A. HASELTINE FROM THE USC-BROOKINGS SCHAEFFER INITIATIVE FOR HEALTH POLICY

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P R O C E E D I N G S

GENERAL ALLEN: Good afternoon, ladies and gentlemen. I'm John Allen and I'm the president of the Brookings Institution and I'm very pleased to welcome you this afternoon to today's event entitled "A Short- and Long-Term Approach to COVID-19."

We're fortunate to have with us today Brookings trustee and chairman and president of ACCESS Health International, Incorporated, Dr. William Haseltine. Bill has been doing fascinating research in the diagnosis, treatment, and prevention of COVID-19, including exploring the concept of passive immunity. I've been particularly impressed by Bill's work and his leadership as he deploys these important ideas into the broader conversation and, of course, into the broader community.

We're also pleased to have with us today Dr. Paul Ginsburg, who will moderate today's conversation. And Paul is the director of USC-Brookings Schaeffer Initiative for Health Policy and the Leonard D. Schaeffer Chair in Health Policy Studies. He's also a senior fellow in Brookings' Economic Studies Program.

And before I turn the floor over toe Paul and to Bill, I want to extend my sincere hope to each of you that during this difficult time that you are well and that you are safe and all of your loved ones are, as well. Brookings extends to you our sincere hope for the very best for all of you in the future as we continue to cope with this challenge.

So, Paul, over to you, please. And, Bill, thank you for joining us.

DR. GINSBURG: Well, thank you very much, John. It's a pleasure to do this. I want to point out to the audience that you can throughout the program send questions to either events@brookings.edu or on Twitter using #COVID19Response. And towards the end of the program we'll start taking questions from the audience.

Let me begin, Bill, in one of your writings you pointed at how flattening the curve helps alleviate the near-term crunch on the healthcare delivery system by delaying COVID-19 infections, but will not reduce the overall number of cases. What do we need to do to reduce the overall number of cases?

DR. HASELTINE: We need to do what you heard repeatedly on television from Tony Fauci and almost every other health authority. We need to identify those people who are infected. We need to interview them and contact rates and do really rigorous contact tracing. And then we need to do

something they don't really talk about, which is controlled quarantine. That is everybody who's been in contact with those people, regardless of their infectious status, to be isolated and put into controlled quarantine. That is the only way that we know to dramatically reduce the curve.

What we've seen in Italy and what we've seen in Sprain is the rise to plateau where the curve flattens, but we don't see at this point a sharp decrease on the other side. That's what we need to see. And I'm afraid we're not going to see that quickly until we take more aggressive measures than we are doing.

If you follow what I've just said, it's straight out of any epidemiology textbook. This is not new. This is old knowledge that needs to be applied in a rigorous systematic effort today.

DR. GINSBURG: Well, are there any countries that have done a particularly good job at what you're sketching out?

DR. HASELTINE: South Korea has done a good job. Taiwan has done an excellent job. China has done a fair job. There's a lot of controversy over what the Chinese have done, but they've controlled this epidemic better than almost every other country and they've had a big epidemic there.

Singapore was having success, but they've neglected a population, their migrant population. In this epidemic you can't neglect a population. Everybody has to be treated equally, rich, poor, immigrant, non-immigrant, passport holder, non-passport holder -- it doesn't matter from the virus point of view. And so that's another lesson, I think. In addition to these measures, they have to be applied equitably across every socioeconomic group.

DR. GINSBURG: What would be the best strategy for relaxing restrictions on social distancing? If we're going to do it, how do we do it in a smart way?

DR. HASELTINE: Again, we can do it once the case numbers are low and stay low for a long period of time. A long period is probably two -- let's say four weeks. It's about four weeks, three to four weeks if the case numbers are low. And what I mean by "low" is very low, like a city like New York would be 5 or 10 people becoming ill as it is in Wuhan today, you can begin to relax. But even then, as long as the virus is around in another city, in another country, we have to be extremely vigilant so that -- now, I read the current President's guidelines and they're very loose. They're meant, it looks to me, like giving the states a free rein to do what they want. Basically that says you can do what you want.

But there's a couple of words left out of that. One is "quarantine," and especially "controlled quarantine." Even in Massachusetts, where they're doing sort of a public-private partnership with contact tracing, you don't hear the words "controlled quarantine." Until we hear those three -- surveillance, we know who's got it and that's testing; contact tracing; and controlled quarantine -- we're going to have to be extremely vigilant and whether people can get back to work depends on what the prevalence of the infection is. But whether we can get back to normal when we're talking about large gatherings, sports events, et cetera, is another matter. That has to wait till the virus is basically stamped out.

And if you look at the countries that are now having the most success, they also have extremely rigid control over external immigration and even internal movement within the country. So those are the kind of requirements that we have to start thinking about and thinking about really seriously.

DR. GINSBURG: So I gather you won't be surprised if you start seeing some areas where the curve starts going up again because they've been careless and they're ending -- reducing restrictions?

DR. HASELTINE: No, I think we've already seen that. Singapore's a good case in point, but there are others. You think of this, the way this could play out if it's not done properly is a series of wave that can be either smaller or larger than the original wave, depending how let's say non-rigorous the control measures are.

DR. GINSBURG: Yes. What needs to be done to get to the point where testing for either infection or for immunity is both inexpensive and in abundant supply?

DR. HASELTINE: We need the equivalent of a Manhattan Project by our federal government. No state government has the resources. We need to create the ability to test 50 million people a day so we can test every part of our population. We (audio drop) for some time. It can be done, but I don't see it on the horizon in any country anywhere. It's not an impossibility.

And given the enormous cost that we're paying, 8- to $10 trillion already, that is a minor cost. If it cost 10 billion or 100 billion, it pales in comparison to the cost we are paying. We can do it. It could be done. I don't see it anywhere on the horizon.

DR. GINSBURG: Yeah. When we were getting ready to go on, you had pointed out how

many healthcare workers are getting sick with COVID-19. How can we better protect them?

DR. HASELTINE: Well, I'm hopeful that in the not too far distant future we'll be either able to use hyperimmune gamma globulin on people who have successfully recovered and have antibodies that are neutralizing for the virus or use some -- or monoclonal antibodies, some prophylactic means. If there is a drug, and we fervently hope a drug will come along soon, that has a controlled clinical trial showing efficacy, that can be used both prophylactically and it can be used therapeutically, that's my hope.

I don't think that we can count on our health workers not being infected. The numbers that I was citing is 1 in 5, or 20 percent, of those people in America who are infected are healthcare workers. That's close to 60,000 people now and about 75 percent of those are women. Fortunately, very few have died, but that gives you an idea. Think of 60,000 healthcare workers already infected with this.

You asked another question about immunity. We don't know if recovery means immunity, especially if it means immunity for everybody. There is some reason to believe that it doesn't. So you may be partially recovered, and that's another issue. You may have no symptoms, but the virus might come back and you might be released from the hospital without antibodies and either be re-infected or maybe the virus is lurking.

You know, for years I had one of my best friends was working on a problem called "virus I persistence of RNA viruses." It was sort of an esoteric corner of biology, but it's not so esoteric now. It was an RNA virus that could hang around in some kind of semi-latent state for the life of the animal. Are we facing that? Maybe. We don't know. But we have to study it more.

DR. GINSBURG: Thank you. How could we treat infections most effectively?

DR. HASELTINE: You know, we don't have a good way to treat infection today. None of the drugs that you've heard about are going to be a silver bullet at this point. There will be and should be silver bullets. This is not a problem. It's a hard problem from a biomedical -- from a drug development perspective. You know, I've looked at this virus for years. We know what the targets are. They're well defined. We have drugs that have been on the shelf since 2003 or chemicals that have been on the shelf since 2003. They work against most coronaviruses.

I predict that what we'll eventually need is combinations of drugs, two or more, like we

use for hepatitis C, like we use for HIV, that work either together on the same part of the virus or on different parts because these viruses can change and become resistant. So we will have those combinations.

I hope they come too late. I hope the infection is gone because we're not going to have those for another year or so unless we're very, very lucky. It looks like this drug remdesivir may have some effect. It's hard to say because there have been no really carefully controlled trials. There are trials ongoing. The preliminary results look somewhat promising. It looks like it won't be a silver bullet, but it is somewhat promising. But we have to remember that this is the drug that failed in Ebola.

Now, Ebola and this is different. It may have failed because the disease in Ebola is so explosive. It may have failed because this has to be given intravenously and that's difficult to do under the conditions where Ebola was rampant. But nonetheless, there's some cautious optimism. But this isn't yet the silver bullet.

DR. GINSBURG: Thank you. As far as developing an effective vaccine, what are the right steps that you need to take to get there?

DR. HASELTINE: I think we're on the right path. We need to make sure that we have those clinical trials appropriately powered with the appropriate control group. We know how to develop these vaccines. There's some real pros out there in the field. I have my doubts about some of them, but there's so many candidates that I'm pretty sure that we're going to get a vaccine. The question is will it protect? How many people and for how long? But I think we are going to get a vaccine, whether it's -- you know, the shortest is probably a year from now. It could be as much as 18 months to 2 years, but I'm pretty sure we're going to get a vaccine.

DR. GINSBURG: Yeah. And I guess the big uncertainty is whether once we do get a vaccine, does this protect people for a long time or just for a year or two?

DR. HASELTINE: At this point it would be best to assume it's for a year or two. And the reason for that is that we know for this class of viruses immunity isn't generally long-lasting. That is the class of viruses coronavirus is. There are some viruses it's very long-lasting, but this doesn't appear to be one of those. And in some people who get the infection and seemingly resolve it, they don't make any protective antibodies at all as far as we can tell.

DR. GINSBURG: Good. What are the lessons we should learn from this COVID-19 epidemic to improve prevention and treatment for infectious diseases?

DR. HASELTINE: Well, thanks for asking me that question. That's something that I've been thinking about for a long time. And maybe people will listen this time.

You know, if you've been in my shoes, I'll go back and I read my 1985 testimony to Congress on HIV, I said, look, where this came from there are many more. This is going to hit us again and again and again.

Look at what's happened over the last 10 years. We've had SARS, the Zika, Ebola, ODNA (phonetic), MERS, this one, all the time while HIV has been rolling along and hasn't stopped. These viruses are out there. We can see where many of these are coming from.

We could see the coronaviruses were coming. We had two big warnings. We knew they could be highly transmissible because they're cold viruses. And we knew that they could be lethal because MERS killed 30 percent; it just needed the right combination.

You know, I look at these viruses as part of the natural world of evolution that is carrying out the equivalent of machine learning by random generation of mutations, trying to crack the human code. And there are more of us. We travel around a lot. We live in close quarters. And the virus has crack that code. HIV cracked the code and this virus has cracked the code.

One of the ways you crack the code is go asymptomatic for some period of time, so a period people spread it around. That's a good way to crack our code.

Another way to crack our code is to attack poor people or marginalized groups that don't get attention. HIV did that. It took a long time before people realized it was a real threat for most people.

So these viruses are out there. What can we do? We can do the equivalent on a bigger scale for what we've done for bioterrorism.

After the anthrax attack just following 9/11, we set up a government-run machinery to approach the problem of how to protect ourselves from bioterrorism. All the legal apparatus was there. We made a matrix. What are the potential threats? What are the ways we can protect against those threats? Are there any holes in that net? And if there are, let's plug them.

And that's what we need to do from the natural world. We can see the threats coming.

This isn't going to be the last cold virus that gets it.

You and I are old enough, I can tell by looking at you, that we remember polio. Well, what was polio? Polio was another cold virus, a cold virus that went 1 out of 200 times paralyzed people. Well, there are many other members of viruses -- rhinoviruses, Coxsackieviruses, adenoviruses -- when you look at the possibility that those can have the same kind of devastating effect, a variant, you find it there. Coxsackieviruses causes neurological damage and can cause many other kinds of damage, as well. The rhinoviruses can cause pulmonary damage and neuro damage. These are there. We can protect ourselves by developing drugs.

The weak spot in these viruses is not their outer part from which we protect by vaccines. We know that's hard because they keep changing. We don't know which one is coming at us. It's their inner workings.

I mentioned earlier that one drug stops all the coronaviruses we know. That's because the inner workings are conserved. We can prepare and predict which things are coming at us and make a series of drugs that we have on the shelf ready to go for the next epidemic.

If had the anti-SARS drug on our shelf last year, very few people, a handful, 5 or 10 people in the world would have needed to die of this epidemic.

DR. GINSBURG: Wow. Does global warming make us more vulnerable to these viral epidemics?

DR. HASELTINE: I don't think you can put this one down to global warming, but as the world warms, we are going to have many, many more tropical diseases. And I'll just name a few.

Some you know, yellow fever and malaria; most people aren't so familiar with dengue, thanks goodness, and chikungunya, thank goodness, but there are many of those. And they are slowly moving up north, moving up the latitudes as the climate warms and it's a good environment for them.

So the answer is in addition to all the others, we'll get more tropical diseases. But we don't need tropical diseases. There are so many of us and we commute or we go around the world so fast, this is a great new ecological niche for these viruses. And we see them coming at ever-increasing frequencies now and I expect that's going to continue.

DR. GINSBURG: Yeah. I've got a bunch of questions that have come in, so let me turn

to them. This one is from Kirk Williamson of the National Governors Association. What do governors need to know about the current treatment and vaccine development pipeline domestically?

DR. HASELTINE: Right now it's now what they need to know. They need to do contact tracing. They need to do quarantine. That's what they need because there's nothing right now that's going to stop it that medicine can give them.

As soon as there is something, they'll know about it and they'll be able to use it. Let's hope we can ramp it up and use it as soon as possible, but right now it's not the key piece of knowledge they need.

DR. GINSBURG: Yeah. Thank you. I've got one from Jeff Beard, Education Innovation Associates. The efforts to find a COVID-19 vaccine seems scattershot and disorganized. How could the United States best coordinate such an effort?

DR. HASELTINE: It may seem scattershot, but there are coordinating efforts. There are a couple of them. There's GAVI and there's some other coordinating efforts. The Gates Foundation has helped put those together. And I would actually favor at least 15 to 20 different attempts. And there are enough people exposed that we have plenty of subjects for these vaccines.

So I think it's got to be organized on a global scale, not only a national scale. And it's not something for us to do only. It's something for us to do in collaboration with the international organizations.

So we're going to see, I think, some pretty impressive clinical trials they're actually right now in the process of forming.

DR. GINSBURG: That's encouraging. A question from Linda Lou Kelley from USAID. Is COVID-19 likely well-established enough to become an annual infection, like cold and flu?

DR. HASELTINE: I think it probably is. We have had the same four or five family of cold coronaviruses along with us since they were first identified in the '50s. The ones that were identified in '50s are still with us. So it's likely that this is going to be, too.

If we have the drugs to knock these out, we can knock -- actually, think of it this way. If we get a good drug against the coronaviruses, we'll finally always get what my mom said we needed, a drug against the common cold. She used to tell me, Bill, you invent a cure for the common cold and you'll

be famous and rich. (Laughter)

The drug against the coronavirus will be a drug against most of -- one-third of all cold viruses. I don't know why pharmaceutical companies didn't pay attention to that when they thought this ain't going to be useful. But one-third of the common cold seems like a lot. We get on average three colds a year.

DR. GINSBURG: Yes. Well, it's nice there'll be some side benefit --

DR. HASELTINE: Right.

DR. GINSBURG: -- from dealing with this. Got one from Jacob Loffka (phonetic) from USC. How can we safely restart international travel?

DR. HASELTINE: I think people are going to be leery about travel and even domestic travel for a couple of reasons. When you're on a plane, you're in a confined space with a lot of other people. And the airlines are going to have to jump through a lot of hoops to convince us that we're in a safe, clean place.

You know, when I sit on an airplane, and you do, too, I actually clean the space around me with wipes. But that space is dirty. Try wiping the bottom of the floor of an airplane bathroom sometime and it turns out black. You know, I spilled some water and tried to clean it up. The paper turns out black. People are going to have to do a lot more work, the airlines, to convince us that the air is filtered properly, the seats are clean, everything you touch is clean. And it's not now. So that's the first thing. That's even on a domestic flight.

We're going to have to be convinced. You know, it's going to take a lot of convincing for people like me, like my children, and like everybody who's now housebound that it's safe to go out and safe to be in crowds. And we have to be convinced that there's something safe at the other end. A vaccine would do it and a good prophylactic drug might do it. But short of that, it's going to take a lot of convincing, I think, for -- people who have to travel will travel. But we know, if you look around, a lot of the travel you don't have to do. So it's going to take a long time to come back absent a vaccine or a prophylactic drug.

DR. GINSBURG: Yeah. And, of course, we're innovating so much on how to use visual videoconferencing in order to substitute for travel, something that had gone very slowly before this.

DR. HASELTINE: Right.

DR. GINSBURG: Got one from David Kusic (phonetic). What types of antiviral drugs are most promising? Are results from previous work on antivirals for SARS, MERS being utilized?

DR. HASELTINE: In answer to the second question the answer is definitely yes. I have a bunch of former colleagues, students, grand-students -- that is students of my students -- that are experts on the coronavirus family. And I can tell you every one of those is back at work full tilt. And they're now doing the things they were successful at. I'll give you just a few examples.

One of my former professors in my department that I hired and actually raised up from a graduate and postdoc to be a professor at Harvard, he developed the antibodies that knocked out MERS and knocked out SARS. Well, he's now developing those kinds of antibodies for this. He's working on hyperimmune gamma globulin for prophylactic care in the near term.

Another one developed a very effective antigen to make vaccines that was capable of protecting animals from MERS and from SARS. He's now very active in developing.

The people who developed the drugs that inhibit various parts of the virus are now bringing those back. The people who developed the animal models have frozen the egg, this fertilized egg, for those. And now they're all down, and laboratories are producing mice that can be infected. So across the board that reservoir of knowledge is leaping forward and is a very, very good platform for us.

In terms of the drugs that I favor, they target the polymerase, the proteases, and the helicases. All these coronaviruses have them and they're vital. The current polymerase drug, remdesivir, is very broad spectrum and isn't a tight fit for this virus. That's why it may be somewhat effective, but, as I say, not the silver bullet.

DR. GINSBURG: Thanks. Charles Farkas from Bain & Company asks how do you see us returning to work?

DR. HASELTINE: Slowly, carefully, and very thoughtfully. Who has to really be there? What kind of work has to be done?

I think the real question is for people who really have to work cheek-by-jowl. If you're in a manufacturing plant, can you restructure that manufacturing plant? If you're in a pork processing place, take a look at how those people stand right next to each other cutting meat. Is that what they have to do?

Is there ways to restructure that? I think we're going to have to do a lot of restructuring.

At first we'll be able to bring very small groups together, then slightly bigger groups. But I don't know if we're going to get back to feeling comfortable putting a lot of people right next to each other until we have a vaccine. So I think it's going to be a slow, careful process.

And it's one that's going to come with some liability. I don't think we've worked out the liability issues for the employer that creates an unhealthy work situation. It's nothing that you or I or anybody would want to do.

DR. GINSBURG: Thanks. Ken McLeod from the League of American Bicyclists is asking some cities are closing parks and shared-use paths to prevent crowding. Others are closing streets to provide more open spaces for people. What do you think about either approach? And how would you recommend cities provide space for safe outdoor recreational activities?

DR. HASELTINE: That's a long-term problem and it's something that I think all cities have to think about. And I happen to live next to Central Park, so they thought about that over a hundred years ago and it's a relief valve for many people who live in Manhattan.

I think there's a deeper question, which is to what extent are we to see remigration out of cities? Over the last 20 years we've seen an influx and a revival of our central cities. I think people are beginning to ask themselves the question did I do the right thing?

I know some people fled cities after 9/11; very few, but some. I think this is going to be a different kind of event that's going to question is it really smart if you can work at a distance, if you don't have to be in a city.

And then the real question is we all know what the advantages of city life are. And how do you keep that same advantage when you're more dispersed? And can you? I think those are the fundamental questions that we're going to be grappling with in the decade to come.

DR. GINSBURG: Well, thanks. Got one from Dimitri Corpakis, a retired EU official. Can we really live with this virus or do we have to consider the end of society and economy as we know them?

DR. HASELTINE: We don't have to consider that. That's too grim a picture. We'll knock it. Science will save us. I think that is the mantra that people should remember.

It can't save us like in a Buck Rogers film, tomorrow, but science will save us. We are

going to have vaccines. We are going to have drugs. And we are going to get back to life as normal.

DR. GINSBURG: Yes. Bill Jamaican (phonetic) has a question. Is it possible to mix antibodies from several different COVID-19 survivors to create a stronger immune response in uninfected people? He goes on, are antibodies stronger from asymptomatic infected people? Are antibodies different in each recovered survivor?

DR. HASELTINE: He's asked a lot of questions there, but let me just say one of the tried-and-true methods for developing preventive measures and curative measures is called hyperimmune gamma globulin. We have over 300 sites around the country that collect plasma. What they do with that plasma is they can measure it for neutralizing activity against this particular virus, use those that are best, pool it, make a potent cocktail of combined antibodies called hyperimmune IGG as a way to treat and to protect our healthcare workers. I don't think we're going to have enough of it to prevent -- to treat everybody.

But let me give you an even older, maybe one of the oldest antiviral techniques, which is to immunize a horse and use horse serum. It's still used today for some diseases. And that can perhaps create an even larger supply. It's using a technique from the 1880s, but it still works.

DR. GINSBURG: Thanks. This is from Twitter. It's without a name. What do you think the responsibilities of Pharma are in developing a treatment and vaccine? Are you concerned about drug patents?

DR. HASELTINE: Pharma has enormous capabilities that I'm encouraged to see them harness it. They did not use those capabilities to take the very promising drugs that were developed into clinical trials because there wasn't, in their calculation, an economic return.

Let me give you a personal experience. I developed the first drug under BioShield. It was an antibody to protect and to treat anthrax infections. And it worked extremely well. We developed it really rapidly, within -- or a drug, from the idea to approval and purchase by the government was two years and six months. I was a small -- not a small, but a biotech company, not a Big Pharma company.

Over the years they've purchased about $500 million worth of that product. For a small company that's a nice purchase. The market didn't see it at all. Zero credit by any stockholder.

If we had been making bullets, maybe they would have seen that as a valuable contract,

but the analysts just couldn't understand it. So the pharmaceutical companies with their demand for huge sales, 50 billion sales a year, they need each drug 5-, $10 billion in sales, hard for them to see that this was important. Now they see this is important for everybody, and they are working like crazy.

What will the patent situation be? I think it's going to be very, very tough for anybody to charge an exorbitant price for a vaccine or a drug. My hope if that these drugs are available at manufacturer cost plus transportation, and maybe a little bit more, maybe cost plus 10 percent, but very, very little. And I think that's the way it's going to play out.

I hope it doesn't play out like some of these other drugs that cost $45 in Egypt and $80,000 in the United States.

DR. GINSBURG: Good. How about a question from Aaron Goldzimer? Is this not as bad as we thought? Why is the stock market up so much? Why does this not seem to be skyrocketing all over the world? Why are deaths not as high as projected? What's the outlook for opening the economy?

DR. HASELTINE: Well, you know, it depends when you project. If you projected this in January, you were projecting almost no deaths. So what we've got now is way, way different from that. So it depends on your projection.

Why isn't it skyrocketing around the world? It is, we just don't hear about it. We were talking earlier what's happening in Guayaquil? What's happening in Russia? This virus has gotten around and we're just not paying attention to it.

What was the other part of that question?

DR. GINSBURG: Let me see, what's the outlook for opening the economy? I think you talked about that before.

DR. HASELTINE: Yeah, I talked about that. But, okay, we can go on.

DR. GINSBURG: Okay. Peter's question is so long that we can't -- oh, it's from Beth Wang. Peter Marks, FDA's Biologic Center director, said there are ways to conduct randomized trials in the real world. As one example he said in a situation where the virus is still circulating and you have vaccine and late-phased trials that have strong efficacy signals, you can look at the groups of people who have gotten the vaccine and compare results to those who have not gotten it as it's likely it won't be administered to everyone at the same time anyway.

He acknowledged that it's not a perfect design, but said no design option should be ruled out. Do you agree with the use of real-world evidence and nontraditional trials in this case?

DR. HASELTINE: You know, I don't think the moniker "real world" is the right name. You're talking about a carefully controlled trial versus a trial which doesn't have a case control. WE will never be as sure that something works if we don't have a case control trial. It's just a fact.

Any of us who lived through the AIDS epidemic and were bombarded by people you're deliberately leaving these people untreated to die is what they called our controlled trials until they learned a hard way is the only way to get good data and the fastest way to get good data.

So I'm very leery about people who believe that they can interpret data in a way -- you know, what do you need to have something widely accepted to use? Just look at all the skepticism about vaccines anyway. There's a deep skepticism in the world fueled by who knows what that vaccines work. If you don't have really hard evidence and you're absolutely convinced yourself, how are you going to convince the skeptics?

So I am very skeptical. I know a lot of people out there think they can do it. There are a lot of people think they can calculate what's going to work or not work without a controlled clinical trial. I can say from having lived through that experience with AIDS where we were under enormous pressure to abandon the traditional clinical trial method, and later the community came to realize how valuable that was and became our ally, that I'm skeptical of that.

A clinical trial is real world. That's why I don't like the moniker. Maybe take some other name for it, but I'm skeptical.

DR. GINSBURG: Thank you. Question from Nana Ude (phonetic). It says that Africa's path seems to be taking a different turn. While there are increasing incidents of infections, most may be largely unrecorded, we are not witnessing rising cases of hospitalizations and ICU admissions. What approach should African leaders adopt in making tough choices on fighting the pandemic and easing the mandatory lockdowns that are creating harsh socioeconomic consequences?

DR. HASELTINE: I think there it's a question of how reliable is their information on who's infected and who's not. You know, if you're in a country which isn't -- has a well organized healthcare system, you can miss many, many diseases. I'll give you a case in point.

Paris, 1983, a group of doctors came out from the Congo and said, Kinshasa, there is no AIDS here. And the guys in Luxembourg said that's really funny because we see a lot of terminal AIDS cases arrive at our door from the Congo.

In January of that year, an international group went down and they found 50 new cases in one week in one hospital. So it's a question of what you see and where you are. And it may be that there's a lot going on we don't see.

It's possible that's not the case. It's possible there's something else going on. But until we have reliable measurements and they have -- if you think we have trouble in New York City testing people, what kind of trouble they're going to have in Kinshasa or Abidjan or wherever you might -- or Lagos. They're going to have a lot of problems.

DR. GINSBURG: I've got a question from Alana Boad. In a factory of our workers the employer has shut down the industrial fans that would keep the air circulated and the building cool, stating that it would mitigate the spread of COVID-19. Do you think this is actually a best practice or do the costs outweigh the benefits?

DR. HASELTINE: Not a -- yeah, I wouldn't want to comment on that specific except it doesn't sound good to me.

Paul, can I ask you question. I was under the impression this was a shorter interview. How long is it going to go?

DR. GINSBURG: Oh, we just have three minutes to go.

DR. HASELTINE: Okay, no problem. Okay, good.

DR. GINSBURG: Okay, good. I just have one more question actually from Brian Edlen. I'd like to ask about the dramatic racial disparities in coronavirus mortality.

DR. HASELTINE: They're very dramatic and that's a real tragedy. Part of it is health inequities in general and the underlying health condition of the people who are infected. Part of it may be the proximity in which people -- but I fear that a lot of it is medical treatment. They don't have access to high-quality medical treatment. And that is part of social inequity and inequity in medical care in the U.S.

Let me just give you some very dramatic numbers that highlight this. And it may not only be medical care. I don't want to lay it all at that door. If you look at Chicago and you go west from the

lake, you go 15, 20 blocks and you drop 20 years in life expectancy. Block by block. And they can get on a subway and get to medical care. So social conditions have an enormous effect on life expectancy and medical outcome.

So there are many, many things. There's underlying conditions. There's comorbidities. There is also the problems of information. A lot of different kinds of problems.

And everywhere you have social inequity you're going to see differences in mortality. Look at Singapore with their migrant population. They are discriminated against. They are crowded. They've got a lot of other issues. And that is where their problem is now. If you were take a look and do a profile of who in Singapore versus their economic income get the disease, it would be radically skewed at this point, as it is in many of our cities.

DR. GINSBURG: Yeah. Bill, this has been a fascinating period of time to spend with you and I want to thank you for your wisdom and sharing it with us and this audience. As seen by the real good quality and numerous questions we had, a lot of people have been engaged in this. So, again, thank you very much.

DR. HASELTINE: You're welcome. Thank you very much. And thanks Brookings, also.

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