THE BROOKINGS INSTITUTION

WEBINAR

PUBLIC HEALTH SURVEILLANCE, AI BIAS, AND RISKS TO PRIVACY IN THE FIGHT AGAINST COVID-19

Washington, D.C.

Tuesday, April 21, 2020

PARTICIPANTS:

MODERATOR: NICOL TURNER LEE
Fellow, Center for Technology Innovation
The Brookings Institution

ALEX ENGLER
Rubenstein Fellow, Governance Studies
The Brookings Institution

MICHELLE RICHARDSON
Director, Privacy and Data Project
Center for Democracy and Technology

* * * * *

P R O C E E D I N G S

MS. TURNER LEE: Hello, everyone, and good afternoon. We are happy to have you again at another Brookings webinar. And this time we are going to be talking about something that is both relevant and timely as the country prepares to open up.

My name is Dr. Nicol Turner Lee. I'm a fellow in the Center for Technology Innovation, which is located in our Governance Studies program at the Brookings Institution. And I'm happy to be joined today by two colleagues -- both I feel like I've worked with -- one actually works with me, the other one I've just known for years -- who I think are really poised to talk about this big debate on if we were to open up as a country, where and how will we track the rate of infection to avoid another wave of a global pandemic. And I'm happy to be joined today by my colleague at Brookings in the Center for Technology Innovation, the David Rubinstein fellow, Alex Engler -- just raise your hand, Alex, so they know and you greet them -- and Michelle Richardson, who is the director of the Data Privacy Project over at the Center for Democracy and Technology. Michelle, wave your hand.

Before we jump in, I just released a blog in partnership with a colleague at the John Locke Foundation around contact tracing, and particularly digital contact tracing. And I want to open up with a general question. And for those of you who are watching us, I know that you're going to have questions and I just ask that you would submit those via email to events@Brookings.edu. Events@Brookings.edu if you send them via email, or via Twitter @BrookingsGov, or via our hashtag for this event, which would be #AIBias.

All right. So I want to actually go into this conversation. And, Alex, I'm actually going to jump over to you first.

MR. ENGLER: Okay.

MS. TURNER LEE: You're a technologist, you're a data scientist by trade, someone who has looked carefully at this debate, just wrote something about this for Brookings' website. Technology is not new to helping us to sort of mitigate these types of risk, it's not new to solving large social problems, right. It's definitely not something that we've seen that hasn't really layered on layers of efficiency and

effectiveness, right, particularly when you're dealing with mass scale projects.

So I want to start with your thoughts on the use of technology, particularly the use of AI, when we're looking at how we're actually going to mitigate the future risk associated with COVID-19.

So why I don't open up for you and just give us some background before we jump into what are the opportunities of digital contact tracing and for the potential harms.

MR. ENGLER: Sure. And thanks, Nicol. Really glad you're doing this timely important conversations.

So, you know, I think people are broadly familiar with some of the ways that traditional technologies have been helping in the fight against COVID-19, right. We're familiar with sort of the health diagnostics, we're familiar with the communication tools, some of the data collection. Everyone is very familiar with Zoom and Netflix -- obviously very helpful in all of this, whereas maybe AI is a little harder for people to tell where the value is. This is an interesting question, because of the last decade we've seen a fundamental change in how valuable AI can be. It really totally changed and then the applications (inaudible).

And so you might be tempted to look, oh, well, it's helped in all these other ways, obviously it's going to have a big impact in a broad suite of ways on COVID-19. That, at least so far, hasn't turned out to be true. We have examples of AI in the news that are probably snake oil. I point towards using AI and thermal imaging cameras to detect people walking around with fevers. The evidence that that is working or a good idea to implement to keep people out of grocery stores, not very good. I'm going to go ahead and say that's a bad idea.

There's areas where it's helping at the margins. Some of the COVID-19 models that look at the spread of COVID-19 use a little bit of what you'd call machine learning, and there's some value there. You have examples where it hasn't yet done much, but we could feasibly see it do things. There's some new evidence that the testing, the nasal swab testings have not as high accuracy as we would like them to. And so looking at alternative or complementary diagnosis strategy that also uses CT scans. A little early but, you know, if this drags on for long enough, that could potentially be something plausible

that we want to explore.

And then we have some cases where we just have no idea. AI driven drug discovery for pharmaceuticals and even things like estimating what coronavirus looks like. I mean literally the protein structures of protein (inaudible). Those could be useful, we really don't know. And so it's hard to tell overall. Broadly speaking, the impact hasn't been that substantial and we're still sort of looking for an example of AI to break through and do something really meaningful, which certain can happen.

MS. TURNER LEE: Yeah, you know, I actually read an article the other day about the use of AI to identify whether or not people are wearing their facemask. So they were talking about facial recognition technologies that basically scan people in stores and then kind of, you know, create enforcement if you're not wearing your facemask.

I think to your point, we don't know yet, but there's probably going to be a whole lot of applications around this, right.

So, Michelle, one are that we know is going to be used is in the contact tracing part of it. So for those of you that are listening, you know, obviously some of the safeguards that are being suggested and proposed by the doctors and the scientists are essentially an aggressive post plan, you know, that would help us in our recovery relief of this disease. Outside of widespread testing, which many of you already know, we're not even sure if we can actually meet that capacity, given some now -- the shortages of swabs and other materials needed to do that.

Contact tracing has been in the news lately, Michelle, and contact tracing is not new to the public health community, right. They did that with the spread of HIV/AIDS, most recently Ebola. We've seen that. And that, for those of you who don't know, is basically, you know, being able to track the network of connections of a potentially infected person so that you can actually quarantine that person or the network of people quickly to reduce the spread.

Andrew Cuomo, the Governor of New York, said that it's going to take an army of contact tracers. So physical people have historically done this job. But the CDC just released guidelines, Michelle, that said that digital tools could actually be useful in these cases.

So I want to talk a little bit about that, because you're miss privacy lady. You know, all the meeting that we sit in, you talk about data privacy. This is going to require some information to be collected. And so before I go into a particular application that's being proposed by companies like Apple and Google, I'd love to hear from you a little bit about your thoughts on privacy in these contact tracing models and what are the implications in terms of what's going to be collected, how it's going to be used.

Sounds very familiar, right, Michelle?

MS. RICHARDSON: Right, right. And it's fascinating to hear it called health surveillance, right. If you are a privacy person, surveillance has a really negative connotation. It usually means the government out there secretly collecting information on people for criminal purposes or intelligence purposes, right. Someone has done something wrong and the government is coming to get them. But in the public health space, surveillance is very different. You could look at the CDC's recommendations, you can look at a report that came out two weeks ago from Duke, and it is a broad term to encompass all the ways data has to be collected and shared about the disease and who has it and how to fight it. Not all of that is individualized, not all of it is sensitive, and I think we would hear most of it and say, yeah, that's exactly what doctors and professionals who are operating under ethical codes, right, should be doing with our data and how they should be sharing it. And it is complex because this seems to be so localized and be so different depending on the community and everything from how they live and how they travel, where they work, and even things like the accessibility to tests, right, and whether the data actually reflect who's sick and who needs help at all.

So I think what we want to think about as contact tracing in the bigger picture, right, because it's only going to be one piece, is what is the purpose of it, right, what is the follow on for it. It is not done for the sake of contact tracing in and of itself. It is that we want people to take self quarantining more seriously, right, it is that we want people to go ahead and get tests and, if so, can we give them tests. We don't want to panic people, right, unnecessarily by implying to them that may be sick if they're not and there's actually no healthcare available for them if they are sick.

I mean it's supposed to be on link of the chain, right, and part of the holistic response. So

it can be done right. We know that in the past it has been done by hand and is currently still happening in many ways.

MS. TURNER LEE: Right, by hand.

MS. RICHARDSON: And that there are benefits to it. Even if we get the tech going, you still want the people doing the outreach because there's a lot of data to show that that human connection actually helps people become more forthcoming, it's an opportunity to give them useful information about what they should actually do next. And so we should see it as something to complement what we're doing, not something to replace what otherwise needs to happen.

MS. TURNER LEE: Yeah, and I want to go back, just staying with you, Michelle, before we get into the recent announcement by Apple and Google to sort of implement what they think is a privacy by design tool, right, when it comes to the contact tracing. We had been talking for a long time, Michelle, about passing Federal privacy legislation. You know, our European friends have passed General Data Protection Rules, GDPR, known to most people. We've seen conversation about privacy literally happen around the world. California, just here in the United States, has passed their own privacy bills.

Does any of this sort of like say I told you so or we should have had a framework for privacy legislation out there before, you know, we get to this point? I'm just curious. That wasn't a question I had on your paper, but I'm just curious.

MS. RICHARDSON: Well, I would say this, you know, we've had a rough couple of years, right. Corporate behavior has not met people's expectations, it's been surprising to them, and they have become suspicious, right. And we may be in a better situation right now if we had a law that better aligned those things, right. People could trust technology more, they might feel more comfortable sharing their information knowing that it would be locked down and not repurposed for things that would be surprising or offensive to them, right. And companies would also then have more clarity. I think a lot of the proposals we're seeing at the Federal level have clear exceptions for public interest research. So to the extent some of them want to help, you know, public officials can contribute to this, it would be able to

do so with some clear parameters and liability protection, right -- that's what comes with it -- instead of worrying about where the line is.

So I think what we want to see is something like what happened in Europe, where they had a baseline, their officials came out and said -- and this is how we're interpreting it, right. You still have some of the same principles that we've had for many years in Europe, but here's how they're applied to the Covid-19 situation. And we would have benefitted from being able to do that also, but hopefully this will get Congress moving sometime soon to get us a law so next time this happens we don't have this uncertainty.

MS. TURNER LEE: Yeah. So if anybody watching and listening, it is about time that we actually moved forward with Federal privacy legislation. That's just a shameless plug.

Now, Alex, just last week Apple and Google announced a partnership to actually help with the CDC's guidance around the use of digital tools as a supplement, not a replacement, to the physical contact tracers that Michelle spoke about. I'm curious with you, I mean the technology has a couple of phases to it. One is the release of APIs I believe to sort of force some type of interoperability between Google and Apple, the android and the Apple IoS, right, so some sort of harmonization there. But mostly relying upon bluetooth enabled technologies where there would be a transfer of not necessarily your personal information, but these beacons that would help in some location tracking so that you could determine if you were within the vicinity of proximity of somebody that was infected.

So the way I understand it, I could be sitting next to a random stranger, if I voluntarily downloaded that app, like they choose to do -- so this is something you have to opt into -- that beacon would transfer if for some reason I sort of declare or announce that I have actually been infected to the public health authorities, it would spread that information news to others.

So I would love your opinion on how private you actually think that technology will be and if you think it's going to be an effective tool in the long game to sort of help with the millions or hundreds of thousands of contact tracers that we're actually going to need physically.

MR. ENGLER: Sure. Yeah, this is one of the biggest questions facing the sort of policy

response to the pandemic right now. So, you know, it's important to note that this is proximity tracking, so it keeps track of who else you're close to who also has the app enabled. You would have to update your operating system, download an app, consent to some sort of giant endless text box, right, in order to have this happen. But once that did, it would be sharing anonymous signal from your phone with other phones who have the app.

So there is no location data -- useful to note for privacy reasons, right. But it is certainly sharing your contacts with other people in certain circumstances.

So I want to talk briefly about the theory of how this would work and then I'll -- really quickly on the privacy side.

So, you know, this isn't going to get rolled out until mid May and then public health organizations would need to build an app on top of this system that lets people actually use it. And it still is dependent on testing too, because if you interact with someone else who has Covid-19, but neither of you ever gets a test, we'll never know -- you know, there's no way to self report or have the agency report. So none of this replaces testing.

And the math makes it a little tricky. You know, Pew says 81 percent of people in the U.S. own smart phones. So you're starting at a baseline of 81 percent, of those how many update their operating system and then download the app. You know, and if they have real privacy concerns, as Michelle said, they may be disincentivized to engage in this, right, if they don't trust what's going to happen with their data. Of those, how many people voluntarily report that they got sick or enable their public health organization to do it. And that brings you down to a number, and then the number of interactions that will be caught by this is the square root of that, because you need everybody -- you know, pairs of people. So both people have to do it.

So, you know, the United Kingdom -- Oxford University did a study in the UK that said if 80 percent of smart phone users, about 56 percent of the population, did this it would be enough to stop the outbreak in its tracks. That's kind of an incredible number. It's probably optimistic, but it -- you know, and lower numbers would still significantly reduce the spread. So there may be real reasons to think

about it, right, that the -- even an incomplete percentage of people signing up could have a significant effect on contract tracing.

I will mention that Singapore tried this and the direct --

MS. TURNER LEE: I was going to say, yeah.

MR. ENGLER: -- program -- this is his quote -- well, this is the quote I found without obscenities in it -- we use TraceTogether to supplement contact tracing not replace it. And he has a very strong stance against the idea of fully replacing the human side of it.

So it can complement and I think we should think about how to best do that. But there's no way it's a replacement and it, you know, probably takes some Federal or centralized coordination to really well. You know, pushing a common set of guidelines -- everyone needs to update their operating system, download the app, sign in, and then report symptoms and also your testing results.

So in that circumstance, we could see it be somewhat valuable and worth doing.

MS. TURNER LEE: You said something, though, that -- I want to keep on you for just a second. You said this word of "everyone". Now, across the sea, you know, there are countries that have required people to actually engage in what Michelle has short of referred to as this public health surveillance, right, for the purposes of minimizing the risk of exposure to disease and reducing the outbreak. But in the United States there's a fine line with "everyone", right, being able to do this.

So I wanted to actually talk to you a little bit, just staying on this whole idea of the technology. One of the concerns that I read about in the technology is the ability of despite not using location data, but the ability to de-anonymize some of the data that's available to people. So I'm really curious -- and then, Michelle, you can jump in -- I mean those are some typical privacy concerns. I think that it's handled in terms of the use of any digital tool on the opt-in and the consent side of it if it's a voluntary measure. But what about, you know, let's just start with this whole idea that you can extrapolate or infer certain things about particular people based on where they live, particularly if my beacons only show up in my dense community or housing community or my place where I basically do all of my stuff, which pretty much looks like me, what does that say in terms of sort of taking that and re-aggregating it to

come up with inferences about the types of people that are being exposed.

MR. ENGLER: So I'll mention a couple of things. You're right that everyone is a sort of useless goal, right. And one thing that's noteworthy is that even if a group of people, like within one city, right, you could have one state not engage in this process at all and another city get their population to engage at a fairly high level, and it would still be very useful in that city. So you don't actually need everyone to do it, there is a localized effect if a lot of people in one area have it.

There's also definitely privacy concerns. And I'm sure Michelle will know more than I, but I think actually the privacy conditions that I've seen are mostly about small amounts of data combined with subject matter, like combined with personal experience. So if you go have lunch with someone and that's the only person you've seen outside in two weeks and then you get a notice from the app that says, you know, you've been interacting with someone who has now tested positive for Covid-19, that's probably a privacy harm, right. And that's I think more about combining information from the app with your subjective experience.

Now, you could argue that that may happen in normal old contact tracing anyway. I'm curious what Michelle has to say about that.

MS. TURNER LEE: Yeah, Michelle, what do you think about that?

MS. RICHARDSON: Michelle, you are muted.

MS. TURNER LEE: Michelle, you are on mute. Hit the button. Okay, there you go.

MR. ENGLER: I think there are a few harms we want to mitigate here, right. And we've seen some of those already overseas when people have been identified as being sick, right, they are being harassed. That it is actually quite easy to re-associate people. You only need to know a few data points to figure out a real person's identity, right, especially when you're talking about things like location. And while we say this is not location per se, right, I think Alex is right, that you only need a few other data points to put in there before it becomes location, right. If everyone in a family gets dinged at the same time, they'll say wait a minute, who's the only person that all four of us, you know, were in contact with. And so it's going to be easier to re-associate some of this than people realize.

There are also questions though about how voluntary it will remain. What happens when you go to work and your boss says I want to see you app, I want to make sure that you're on it and that way we can track this, or going back into school. There can be consequences for failing to participate in this if it becomes sort of a baseline that is expected of people.

And, you know, there are always questions of selective enforcement, right. I mean that's always the thing about these sorts of data sets that aren't 100 percent accurate, and people are going to have incredible discretion about how to use the data and who's going to have, you know, consequences for appearing to be sick or being notified. And it is very hard to make sure that it is used fairly.

I think one of the other problems though too with this is we don't even know that it's accurate for what it's supposed to represent, right. And I think that's fair to talk about when we're thinking about privacy, security, and other data protection more broadly. Part of the question is, is does it actually work and therefore worth the tradeoff. And so the question isn't just do all of us put it on our phones, the question is is it a good proxy for whether I'm likely to get sick.

So how do we account for things like asymptomatic transmission, or the fact that probably a bunch of us have already had it, right, or that you're going to be getting false positives, you might give people a false sense of security, that they're safe when they're not. And there are people who, even if they get, you know, notified, what if they are in an essential sector and they have to go to work to feed their kids. What are they supposed to do with that information, right. So I think we want to think more holistically about what are we supposed to do with this information once we give it to people, right. You know, how do we actually use it to serve people who need help.

I'm very lucky, I'm working from home, right. There are a lot of people who don't have that privilege. How do we make sure those sorts of people are able to use the information they're getting service for, right. So I think that's where we keep thinking about we want to make sure we're thinking holistically about this, about what happens afterwards, what's the consequence for getting this information, and is it actionable. And that's how we make sure these sorts of things are just a link in the chain to making sure people are served well.

MS. TURNER LEE: Yeah, no, and I think those are very valid points from both of you because I think we're going to see more digital health tools sort of deployed.

And, Alex, did you want to jump pin or?

MR. ENGLER: Yeah. I want to --

MS. TURNER LEE: Go ahead, go ahead. I mean we're not in the same room, but I can actually see everybody's body language. So jump in and then I'll go into the next question.

MR. ENGLER: So I want to expound on what Michelle said. I think she said one thing that I want to -- really, really valuable and I want to endorse, and then one thing I want to push back on a little bit.

So I think I slightly disagree with contact tracing and with technology based contact tracing is the ability to tell people who are asymptomatic that they may be COVID-19 carriers. You're totally right that people who are essential workers are still put in a bind by this, you're totally right about people who need to go make -- who still need to go to work and like engage in society to survive. It doesn't fix that. But for people who don't have any reason to think they're sick, contact tracing can be a fast way to say, hey, you need to be more careful because you potentially -- potentially, right -- also could be wrong -- be exposed.

So given that the asymptomatic part of this is such a big problem, we might have this, you know, four, five, six day asymptotic incubation period. So a long time, right. And you're getting more infectious in that period of time. This is partially valuable because it helps with that.

Now, the point I want to mention that Michelle also brought up, that I think has been phenomenal, that this is definitely not an equitable solution. If you even look at just who owns a smart phone, right. So lower income people are less likely to own a smart phone. The low income people who do own smart phones are more likely to have android phones, and there's reason to believe that because android phones are so different and Google doesn't have control over the hardware, that this Bluetooth contact tracing will be less effective on android phones as it will in iPhones where Apple has control over the hardware technology and the software, so sort of a closer grip on the whole process.

So for a few reasons, I think that disparate effectiveness is definitely something we should be concerned about.

MS. TURNER LEE: And you all know that I write in the digital divide. And, you know, just yesterday there was a conversation about people's operating systems, Alex, to your point, weren't going to be updated enough to actually enable the technology, particularly if you had an older phone or a potentially after life lease, you know, which we know because of the prohibitive cost of broadband and device access, it goes back to people of color and lower income people and often times rural people.

Which actually brings me to this question. So I do want to unpack this whole thing about equity real quick and then go back into this conversation around, you know, then what do we do, because we're -- you know, our hands are tied essentially as we try to get out of this. I mean the unfortunate thing when it comes to equity is Rashawn Ray, our colleague here at Brookings, just wrote about the fact that people of color are disproportionately affected by the virus more so than others due to their living conditions. You know, they tend to live in denser communities, so it's not a surprise that majority black cities like Chicago and Detroit and other places were highly disproportionately impacting people of color. When it came to that they tend to have preexisting medical conditions, they tend to also live in places where they don't have adequate and sufficient healthcare.

So they may have a smart phone, but what happens -- and I want to talk about the flip side of it, because I think the companies have pretty much put out their privacy architecture in the public domain, but what about the public health authorities that have this information? What do they do with it? Because the assumption is that the information will flow to the public health authority. In my mind, I'm thinking about things like geofencing that create these virtual barriers around parts of the City of Chicago that allow -- that basically when you find out that you have more cases of infection, people can't come out of those communities. You know, almost like a plantation, they're kind of stuck, right. Will we see some of that or is that a harm with the public health side of it, that we have to have the same type of transparency around data privacy and data risk. Because I haven't seen that conversation happen. Like what do we do with them outside of being an assistant to them and sort of getting information to them?

And how do we avoid consumer harm, Michelle, from the public health authorities that would have that data and could do what they please, you know, post COVID?

MS. RICHARDSON: Right. I would like to disassociate myself from the Coronavirus plantations please. (Laughter) And this is sort of --

MS. TURNER LEE: Michelle, you know, I was going to say that I can say that. (Laughing)

MS. RICHARDSON: Well, and this is where it can get (inaudible) quickly, right.

MS. TURNER LEE: That's right.

MS. RICHARDSON: And one of these ideas may have sort of a cache to where you're like, yeah, that makes sense, we want to keep sick people away from the rest of us, right. And so this is how the data itself may be neutral, but how we choose to use it is going to determine whether we're actually treating people fairly and actually being successful in this.

So you could imagine, for example, having that sort of location data. And you could probably get it a lot of different ways of where cases are popping up, right. It doesn't even have to be tracing, it could be people who are Googling symptoms, it could be people who are calling their doctors asking for tests, it could be spikes in fevers, it could be people buying more cough medicine, right. There's a lot of different things that you could rely in aggregate form that could forewarn a spike in people, right, but doesn't necessarily infringe on any one person's privacy, right. And the goal then should be to get services to those communities and not act in a punitive way. And I think that is some of the lessons that the CDC, the World Health Organization have shown from past epidemics and pandemics, that the more you get people afraid of interacting with their government, the more they're going to hide that they're sick and they're not going to do the things that they need to take care of themselves.

So as long as we keep moving towards service, getting people treatment, get them tests, help them with their education, their work, getting food, things like that that people are struggling with now, that is going to serve them and the community better than trying to be punitive and lock people in places.

MS. TURNER LEE: Yes. And, Alex, what's your thoughts on the potential for the public health authorities to use these in ways that it wasn't designed for?

MR. ENGLER: Yeah, I'm going to take a slightly different take, which I think that the public health -- like my take on this is that we should actually be asking for more data, especially more public -- maybe circumstantially public data. There was a letter recently -- this isn't just me, there was a letter recently from Elizabeth Warren and Corey Booker and Kamala Harris and others to the Congressional Black Caucus that calls for this as well, to get more data, especially with racial breakdowns, from the CDC. The CDC is reporting national level race data on Covid-19 deaths, but nothing else. And if you -- our colleague, Andre Perry, has a really great piece that's very hard to read about the fatality disparities of African Americans. He talks about Chicago and Washington, DC and New Orleans, and they're staggering.

And I think one of the -- it's actually hard to ignore this when we know about them. I think frankly it was -- it seemed like it was very easy to ignore it when it wasn't getting reported on and the data wasn't available. So there are a few efforts to make that data more available. The White House and the Centers for Medicare and Medicaid services are saying they're going to release this data at a more granular level. And I actually think we should be pushing the CDC to release more specific data, more public -- this is where I get into sort of publicly -- by this I mean maybe a researcher only data environment or potentially under differential privacy methods. And if they need help with that, the Census Bureau has a great expertise in this. There are external companies that could help. You know, if the privacy is the problem, they should engage with other stakeholders and partners, because this is -- at the level we're talking about, it's a solvable problem and we would know more about the disparate effects of Covid-19.

MS. TURNER LEE: I think it's interesting too because the tech companies have essentially said, hey, we'll turn this off, right, when the utility is done. And I think that's a valiant way to sort of say in our role in this in terms of digital contact tracing -- and this is not just happening with Apple and Google, but a whole variety of companies have sort of jumped into the space as we spoke about.

You know, the key is they can turn it off, but I do like what you're saying for the public health authorities, are they thinking of the long game, right, in terms of this and can they actually collect the information they're receiving from contact tracing along with the aggregated information that's coming on different communities and help us understand how we use this information to avoid a similar circumstance.

I mean, Alex, that goes to like the power of AI, right. AI has really been designed for us to sort of make these types of predictions so we don't find ourselves having the same conversations.

Looking forward, coming out of this, I mean we haven't really talked a lot about, you know, direct AI applications in Covid-19 efforts, whether mitigation or post, but do you think there is a place for that in terms of what you're talking about on the research side or on the vaccination side or other sides?

MR. ENGLER: Nicol is being nice enough to plug the next thing that I'm releasing at Brookings. That's what we're doing here, that's this whole thing. And so I just wrote a piece that's hopefully coming out this week on a call for a new set of models to predict risk for COVID-19 spread. These would be partially AI, but they're frankly closer to classic epidemiological models with some machine learning. This isn't like a new thing that just appeared, this is building on 100 years of epidemiological subject matter analysis.

Because there are so many emerging data sources, and there's really a lot. Facebook and Google have this long running survey on their sites asking people to tell them if they have symptoms. We have literal surveys where people are calling and asking about whether they're able to get tests and other interventions. We have an expanding amount of demographic information that we know is relevant, income and also, you know, preexisting health conditions. We have these new mobility data sets. We have more and more, you know, testing and case level data and death rate, and then excess death rate, which is probably really what the death rates are. All this combined is really, really hard to interpret for the many, many local and state and Federal policy makers who have to make really important decisions, right. Thousands of policy makers across the U.S. have to choose when to reopen schools, when to ease business restrictions, when to let people gather, where to allocate tests, which there won't be enough of,

where to allocate contact tracers, which there won't be enough of, when we have a vaccine, who to give vaccines to first, which we won't have enough of. And so when you look across the pure number of decisions that we need to make, there is enough data to argue for models that -- they're not trying to long distance predict the future, but tell us in the near-term who needs the most help. And I actually think you could use better, you know, demographic data and socioeconomic data and data about who are essential workers to actually improve the argument for helping people most at risk, the subpopulation to really worry about.

Now, it's not guaranteed to happen, but there is an argument that we could do that and I think it would be very valuable.

MS. TURNER LEE: Michelle, you want to chime in?

MS. RICHARDSON: Yeah, yeah. And that type of demographic data has long been collected and used for equity purposes, right, for literally decades in all sorts of different sectors, including health. So it would absolutely be appropriate to collect that to make sure that the services are getting where it needs to be done. And I think we would want to make sure that AI doesn't become a cure all, right, or be sort of like a cannon killing a fly. I know there was an article in the paper that cited a small company -- I don't remember what it was called -- a vendor who said well, just give me access to people's medical records and that way I can predict where, you know, we should be sending the equipment like the PPE and where the hospital beds are. That data is already available, right. We have public health officials screaming it from the rooftops, send me more stuff. We know where it needs to go. We do not need to throw open everyone's medical records, right, for AI processing to get that information.

So we do want to direct it towards where it is actually going to provide unique value. We know that is going to require some play in the system, right, but especially if it's done with -- and I think this is something I should have mentioned earlier -- when you say public health officials, not just companies, right, they do have a different relationship with the population, they do have different ethical guidelines as doctors and people who are under, you know, review boards. They have different goals in mind, right, and so in some ways it's scary to have the government involved, but in others they do have a

caretaking responsibility that they're trying to fulfill that you might not get from any guy who's sitting on an API, right, and pulling down people's data and you're not really sure what they're doing with it.

But, you know, we would also just flag a few things that have been discovered over the last few years where AI has not always served people equally. You know, these are things like processing of language to diagnose neurological diseases, right, and that even things like changes in dialect could make it very ineffective for certain groups. Skin cancer, right, if the test was only run on light skinned people it's not going to actually detect the lesions on other people. And one where there was a commercial algorithm to figure out who should be contacted for more particular care, right, to say remember to take your medicine, remember to sign up for this program. And what they used the data from is who's basically using the most medical services now, so it linked back into people who actually weren't as sick, but just had the money to access resources. We want to make sure that we use AI systems that don't go down those roads.

MS. TURNER LEE: You know, you brought up a really interesting point as you bring in the medical providers. I didn't have this on your questions, but I do want to ask it about encryption. I mean health privacy is definitely its own set of -- a subcategory of the online privacy debate. You know, we have HIPAA and we have requirements. There have been a lot of waivers provided to some of these restrictions to, you know, put out thins like telehealth, et cetera.

So, Michelle, I have a question for you in terms of encryption, and Alex, is this a good time for us to release (inaudible) encryption as we have more of this health data flow over our smart phones or over our tablets or over our computers with our doctors? Because, you know, when I think of contact tracing in the context of what the media has talked about, they talk about it as one touch, but as I listen to both of you, this is a long-term process, right, that we're going to go through. And contact tracing will probably involve some other factors to make sure that we get to healthier communities.

So just a comment, encryption, should we be looking at full encryption on these interactions between people and their medical providers?

Want to go first, Michelle?

MS. RICHARDSON: Yeah, I think that is definitely a best practice to make sure that these communications are protected from outsiders, right, and bad guys trying to get information and either exploit it or corrupt it. So I think this is an example of where you have high stakes data use and sharing that needs to be protected. And this is a good example of where such a wraparound protection like encryption is going to benefit all of us.

MS. TURNER LEE: Alex?

MR. ENGLER: I think I have a different -- I mean I think encryption is important and valuable here. I think when I think about the privacy threat with contact tracing over the long-term, I just have a slightly different concern, which is we have this promise from Google and Apple to remove this bluetooth, you know, contact tracing data collection system after the pandemic is over, but you can imagine a circumstance when the pandemic really starts to drag on and we're a couple of years in and there's a network of health applications that are using this data for Covid-19, but they've also mission creeped into various other things and suddenly there is a financial market for the data or an incentive to use the data. And then, you know, you have this proliferation of apps, which of course the reason for the apps is to get people to collect and then share the data.

That's how I kind of think about this becoming a bigger problem when the data gets out. Not necessarily a lack of the security, thought I think that's worth being concerned about, but I worry more about the systemic leakage. This just becomes another market for data and then three years, four years from now Google and Apple shrug and say, hey, people are willing to give away their contact tracing data, who are we to say that they can't. And I think being that type of slow eroding of standards around data privacy and norms over time. That's what sort of makes me more concerned about this than, you know, people literally stealing it.

MS. TURNER LEE: Yeah, I mean that's been one of the concerns, right, the fact that you could see this ad market sort of, you know, using some of this data or what the extrapolate as a result of this contact tracing to create these other markets. And the fact that, you know, you can also have false positive and false negatives.

I mean I think at the end -- and, again, for those of you that want to ask a question, please email them to Events@Brookings.edu, or via Twitter @BrookingsGov or #AIBias, so that we can take your questions in the remaining 15 minutes that we'll have in a few moments.

You know, I do want to ask because I think, you know, we have a problem, both of our friends, and the problem is without contact tracing -- and I believe what Dr. Fauci and Dr. Birx are saying when I listen to them in their daily briefing -- that we have to have an intervention of physical contact tracers to help with this. We're not going to figure this out by ourselves. It was successful during the HIV/AIDS crisis where contact tracing was able to reduce the amount of infections simply because you could identify who that person was exposed to, but you also educated people along the way about good practices when it came to their relationships and their relations.

Ebola was the same thing. It did not hit America hard, but there was a lot of contact tracing with mobile technologies that was sort of used. I looked at a study the other day in the Sudan where they said that essentially where there was mobile use it helped.

I guess the question I have for both of you before we run into questions, how do we make this all exist in a perfect world, right? How do we get the best of what technology has to offer today, because we have tools, you know, and penetration of smart phones unlike we've ever had before, but we do have these privacy data concerns and potentially security concerns as well.

So I'm just curious, if you were given the golden wand and you were able to sort of extrapolate your opinion, you know, what would be your thoughts on making this work in an equitable equally distributed manner, you know, and a transparent and private secure manner? You know, what would you say and what would be your advice to the people that are watching?

Start with you, Alex.

MR. ENGLER: Yeah, so if I really had to choose -- and it's funny, I think this is a really tough question -- but if I really, you know, was in charge, I think I would support a cohesive effort around digital contact tracing. Now, we need the need in person contact tracing. I don't even think I should weigh in. I feel like there are a billion epidemiologists who can weigh in better than I can.

But on the digital side, the evidence suggests that it's a relatively low cost, right, that you have to build the software and build an app. I think we should be engaging with the Federal Government's resources to do that, the U.S. Digital Service, perhaps 18F. You could also look at a volunteer organization that's formed in response to COVID-19 that's called the U.S. Digital Response. Building an app that people can coalesce behind, proliferate broad, systemic, consistent guidance, right. Everyone needs to update their operating system, download the app, report symptoms, get a test, report the test results. And, again, I said everyone, but encourage people --

MS. TURNER LEE: You keep saying that -- "everyone" -- oh, my goodness gracious.

MR. ENGLER: Well, I mean it's unfortunate, right, because it works (inaudible) people participate, but we're not talking about requiring, we are talking about asking people who feel comfortable doing so to participate. And from a public health perspective, I do think that would be very valuable if we could get people to do it. The alternative is just not very good, contact tracing in person doesn't work at all if you don't know the person, right. If I walked by someone at a coffee shop and I can't identify them, a public health authority can't get in touch with that person, right. So they complement each other in meaningful ways.

So if I absolutely, you know, just choose right now, I would say we should do it. Now, the issue with this is can this Federal Government execute in a responsible and comprehensive way. Maybe, maybe not. And maybe we should be considering whether a collaboration of state governments could do it.

So I'm honestly uneasy, but I think that would be my choice.

MS. TURNER LEE: Michelle, what about you?

MS. RICHARDSON: Can I actually go a different direction and say we have so many people in on the contact tracing now that, you know, the tech community is looking to get involved. They should start turning to what comes next, how we make sure children are still educated, how people are able to get food, how small businesses are surviving. So we have so many things that are going to be with us now for years after this, right. And I think we want all of that American innovation and tech power,

there are a lot of other problems too, right. So don't say, man, I want to be like the guy who builds the, you know, 98th proximity tracker from Bluetooth, be the guy who says I want to figure out a way to help get people back to work, right, or fill some of these jobs that are not working right now. There are so many problems right now that are stemming from the Coronavirus that there's plenty of work to go around.

MS. TURNER LEE: There's plenty of work to us too. Okay, I'm going to give one more last shameless plug. I do have a book coming out on the digital divide because I think this is so interesting. That for all of us on this call and some of you who are listening, we have been talking about digital divide issues for a really long time. We've talked about digital access and we've seen just a growing marketplace for digital services. And we do have to start asking ourselves these are areas where we can contribute a little bit, but we really need to look at the lot, and the lot means that, you know, there will be people who will be left behind simply because the new normal is not going to look like it did before.

I mean look, look at what we're doing right now, right. I keep telling people, this is -- my boss is looking -- these actually work in terms of events.

All right, I want to go to some questions because we've got a lot on this screen. I'm going to try to ask as many questions as possible. If we don't get to all of your questions I would ask that you Tweet them to #AIBias or you send it to @BrookingsGov at the end of your questions on Twitter so we can try to answer them and keep the dialogue going.

So this is from Deanna (phonetic), who asks, how effective do we really think bluetooth systems might be for tracking when (a) not everyone has a smart phone or device or they might be bias towards underserved populations?

So how effective do we think bluetooth systems might be for tracking?

MR. ENGLER: I can just do a little bit. We don't know the -- you know, this is one of those complex systems problems, and so people have tried to model it, the models are deeply flawed, but okay. And I think they suggest that it -- well, I can give you a few statistics about the U.S. So there was a

survey about how many people would be willing to sign up and about 75 percent of people polled in the U.S. -- maybe a little higher, like 80 percent -- said they would definitely or probably sign up for an app. You know, in the abstract who knows what that looks like. That's of smart phone users.

If that number is true, that's enough for it to be a meaningful impact. It does not fix everything on its own, but it's enough that it systemically helps us ease restrictions faster, right. A quicker return to normalcy. How well does it really work for each -- you know, the broad effect is easier than the individual effect. The individual effect might be that a lot of individual people get false positives and they end up staying home and, you know, when they're not actually -- when they weren't actually sick or -- so there are certainly harms, as Michelle has mentioned.

So I think the big picture, probably encouraging, the small micro level, maybe less great.

MS. TURNER LEE: Okay. Michelle, I do have a question in regards -- I think you might be able to answer it, if you don't feel comfortable, let me know.

So somebody from Kentucky asked do we really believe that Apple and Google will disable the contact tracing after the need and how is this different from the Facebook trust us model of data privacy?

MS. RICHARDSON: Yeah, so I think -- so there are certainly risks, but benefits to having these big choke points in the data system, right. And frankly it will be easier to track what Google and Apple are doing than it will be track maybe hundreds of different app developers and you don't know the real people are behind them, right. And so we're actually going to have to count on them in a lot of ways to make sure that the APIs are designed in ways to minimize access to information that's not necessary, that they're shut down at the appropriate time, right, and that these companies are going to have affirmative obligations to make sure that the people who are building these apps are doing what they say they're doing. This is a new expectation over the last few years and it's how you avoid, you know, sort of the Cambridge Analytica of the Coronavirus era, right. It's that we need to make sure people are actually following through and doing what they say they are doing with our data.

I say the one benefit of this happening after so much public attention on these really high

profile events is I think you see big companies being more serious about it, right. They know they're under the microscope and they know that there are people now, whether it's the media or technologist -- you know, reverse engineering everything they do. So I think they know they are under ea lot of scrutiny and that will help keep them all in line.

MS. TURNER LEE: That's actually a good point.

This comes from Lydia. Many disabled folks, especially disabled people of color, are terrified of increased surveillance because their communities are hyper-surveilled or criminalized. We don't trust corporations or states. How can we assure that we aren't missing from public in public health?

Which is interesting, right, because in many respects you have to voluntarily opt-in, but it also means you have to be visible, right, to the public health providers as well as the tech companies. So just curious -- and a couple of questions actually had this, what do we with the people who aren't on any of this technology? Will they just rely upon physical contact tracing, or what do you think?

MR. ENGLER: I can say, you know, historically the role of AI and technology around people with disabilities has not been good. They are not frequently accounted for in the development of systems, and that has led to them being disadvantaged by those systems. So I've talked about AI bias. In some ways you should assume by default that these biases exist unless they are very consciously approached and sort of -- there's a big effort in mitigating those biases.

People with disabilities are completely right to be concerned about that. Now, that's specific to AI. In this context, I maybe don't have a great answer on the surveillance side. I don't know if Michelle has a better take than I do.

MS. RICHARDSON: Well, I think there's a couple of things here. One is that you want sort of these purpose limitations, which I feel like I've been talking about forever. But here's a perfect example where to the extent that people are collecting and using information, it always has to be to offer services, right, not ever seep into law enforcement uses or immigration enforcement or determining benefits and all these things that the government could do with the data, right. You really want to make sure it is served.

But this is where I think the whole point of processing all of this data is we're supposed to be able to make better insights about having to track individuals, right. So if there is a community, we already know where they are, that they're going to have special challenges because they're disabled or they have preexisting health conditions, you send the resources there, right. We don't say, we need every single one of you to download this app so we can track you constantly, we just use our common sense here of how we get services to the people that we know are already going to have problems, whether it's getting the actual healthcare they need, practicing social distancing, working from home, schooling. This is all foreseeable. That's the funny thing, right, is a lot of the things that have come up in the last few weeks, they are long standing problems in our society. They've been documented a million different times, right. So it's all foreseeable and it should be something that is addressable and we should get to work on now. And it doesn't require individual surveillance.

MS. TURNER LEE: Right. And I think it also brings up a point that I'd like to just throw in here, which is this whole idea of you look at disability -- I see a question came through about the immigrant community -- in those communities that have been exposed to hyper-surveillance, we also don't want them hyper tracked. And so if you can think of ways to universally deploy the technology where you can actually pay attention to the infection rates, and I think what Alex said earlier, overlaying on a different side what they trends are in terms of demographics, you sort of collect data from everybody, which I think we've heard from the medical experts is particularly pertinent to this because COVID has no color, right, it has no ability, it has no gender, it's affecting everybody there.

Let me keep going because we keep talking about this. I want to go back to a question on Europe. Emily asks around the world, but especially in Europe, how legitimate are claims that large swaths of data are anonymized?

So are we just hearing this, Alex or Michelle, or is it really being anonymized to the point of not being able to be de-identified?

MR. ENGLER: Specifically with COVID-19, it's not -- you now, I honestly don't know the answer to that question is the short answer. Their data collection has not been so far dramatically

different. I guess -- you know, actually that's not totally true because in the UK they have a contact tracing application and we've seen other places internationally where contact tracing has had sort of, you know, adversarial attacks that have been successful.

So I can talk about that a little bit, which is that if you create a system in which tons of people are using these contact tracers, there are opportunities for people to find ways to reveal private information from them, right. So you might think that a Bluetooth system only works at five or ten or twenty feet or so -- well, you can build an antennae that makes it work at a substantially larger distance. You can use several people's devices to come in contact with one other person's device to target them to see if you hear information and potentially learn something about them.

So there are ways that these systems can be kind of hacked to reveal private information and we have seen that in a few places internationally. I think some of the researchers in the United Kingdom have been pointing out those issues as they've developed their contact tracing.

The broadly European data, I don't know if I want to speak in such a wide swath about the state of their anonymization.

MS. RICHARDSON: And I think they are still in the process of finalizing their protocols and I don't think it's done yet, but, you know, sounds like they are talking about some recognized best practices and privacy engineering risk assessment type work. But again, I think like Alex, I'm always afraid to declare something safe, right, because it's always shocking, right, that people take time and energy to do certain things that are not constructive and -- who knows. But it looks though that they are probably going to get to it in Europe before they get to it here in the United States, so hopefully we'll be able to learn something from their experience.

MS. TURNER LEE: Well, this goes to a question that I want to ask from Frederick. If a country, such as the U.S., doesn't implement contact tracing as in South Korea and Singapore, would that not discourage those other countries from coming to the U.S. and others, you know, that may be looking at us and saying, hey, they don't do contact tracing, so I'm not really believing that they're trying to -- I mean, you know, we did open the beaches and stuff, right. But -- I'm sorry, that was aside. But I'm just

asking, like will that be a discouragement globally if the United States doesn't look at contact tracing as a key priority and will it be compared to what other countries are doing in terms of the contact tracing?

MR. ENGLER: I mean I think broadly the U.S. response has been bad enough and the extent of the pandemic here wide enough that we will get compared, and are being compared, unfavorably to many other countries. And that's going to affect -- yeah, I imagine that will affect tourism, I think higher education institutions are in for a tough couple of years as there -- you know, a lot of income comes from foreign students who may not be as compelled to come if they're attending remotely or on zoom.

So I don't know if its specific to contact tracing, but certainly the prevalence of Covid-19 and the lethargic response, both at the Federal level, and as we've seen recently, in a couple of states we're seeing restrictions being eased. Georgia I think we just found out yesterday. And, yeah, that would -- that I imagine will have an effect on other people and travelling to the U.S. for sure.

MS. RICHARDSON: Right. And I think, you know, that ship has already sailed in a lot of ways, right. I think there were countries who advised their folks to come home if they were in the United States because they could not expect to get modern healthcare if they stayed here and were to get sick, right. And we're definitely on the world stage and they're following every Tweet and every action our government takes. So I don't think anybody would say, wow, if they just had the contact tracing I might, you know, vacation in the U.S. this year.

But, you know, this is probably going to happen in some form and, you know, I keep going back to we are already doing contact tracing, right. We will probably supplement it further with more technology, but it's already happening and it's part of a bigger systemic problem that we need to address.

MS. TURNER LEE: Yeah, I mean we had -- I did have one more question that I would like to ask you all, because we've got to wrap up. Do you think this will affect people differently? Will we see a more likelihood among students to actually download or utilize digital tools as part of government surveillance of the virus? Will we see older people, you know, migrate towards this? Will this become

something that they want to do? I'm just curious what you all think in terms of where people might fall in terms of the application of these tools.

MR. ENGLER: I can guess a little. I don't know, Michelle, do you have a good answer?

MS. RICHARDSON: No, no, go ahead.

MR. ENGLER: We know that elderly people who are at the most risk also have the lowest smart phone ownership, along with very, very young people, right, like -- so it's like over 70 and under 10 have the lowest smart phone ownership, which means that this doesn't help them very much at all. And so you could be concerned about a solution driven that contact tracing and technology that then said, oh, well, everyone in nursing homes is going to be fine. That would not be a good combination of policies.

So, you know, among people who do have smart phones, I haven't seen anything, so I'd just be totally guessing, right. I mean I think we have seen people in -- some younger people -- anecdotally we've seen stories of younger people continuing to drink and go out to bars later than everyone else, but then we've also had anecdotal evidence of older people continuing to go out as well. So I don't know if we know that much. And Twitter and some of the internet has played a kind of blame game where it takes selective pictures and photos and say it's this generation's fault, and I haven't found those arguments very compelling.

MS. TURNER LEE: Mm-hmm. Michelle?

MS. RICHARDSON: I think we need more information. And it probably will depend what the tools are and who operates them, right. We've already seen some backlash to government programs, but we've also seen backlash to corporate run tools. Some of it will be voluntary, some of it won't be. And I think it's hard to tell now, but it will probably be very different depending on who's the target and who the actor is.

MS. TURNER LEE: I mean you all sent so many wonderful questions, I wish I could actually get to them all because it seems like as we go deeper into this conversation I think we generally agree that contact tracing is going to be something that's needed, whether it's in the physical form or

supplemented by digital. I think the conversation also sort of suggested that we need to think about the privacy implications, of data security implications, and just the long-term maintenance of that information and how it gets used and applied to different populations.

I mean going forward, I think as a Nation we all showed that social distancing could be attempted. I keep going back to Allison's question about one day getting in my inbox that I have to download something or I have to make sure my location data is available. I think that's where we get into this fine line of going back to what Michelle said, where we're really bringing in surveillance that has never been seen before in this country in ways that have been positive.

So with that, I want to thank you both for actually joining me for this webinar. It was a very interesting dialogue. For those of you that joined us via the web or whatever way you came on, thank you also for joining us. The video will be up shortly on the Brookings website. And this series and conversations is part of our AI initiative here at Brookings, particularly one that I lead which is around AI bias. So look for more events around this and, again, look to the papers that we referenced that will be available on the Brookings website.

With that, enjoy the rest of your afternoon.

MS. RICHARDSON: Thank you.

MR. ENGLER: Thank you, Nicol.

MS. TURNER LEE: Thank you guys. Thank you.

* * * * *

CERTIFICATE OF NOTARY PUBLIC

I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

Carleton J. Anderson, III

(Signature and Seal on File)

Notary Public in and for the Commonwealth of Virginia

Commission No. 351998

Expires: November 30, 2020