What Happens Next – Sunday March 14, 2021
Future of War, COVID Variants, Farm to Table (NOT), Citizenship, and Dummies
Dr. Paul Offit

Larry Bernstein:
We're going to move on to our second speaker now, and that is Dr. Paul Offit. He is director of the Vaccine Education Center and attending physician of the Infectious Disease Department at the Children's Hospital of Philadelphia. He's also a Professor of Pediatrics at the University of Pennsylvania Medical School.

Dr. Paul Offit:
So recently, it's become clear that the spread of SARS-CoV-2 virus, the virus that causes COVID-19 is lessening. There's clearly been a decline in the daily number of cases. There's been a decline in hospitalizations and a decline in deaths. So, the question is why? I think there are primarily two reasons. The first and arguably most important is the weather. This virus, SARS-CoV-2 is at its heart, a winter respiratory virus. If you look carefully, actually at the daily deaths that have been recorded since the onset of this outbreak, when the virus first came into this country and started to kill people at the beginning of March, it took off. And you had at its peak about 2,500 deaths a day. But that as we moved into April, May, June, the number of deaths dramatically declined, even though we didn't have a vaccine and we still had a population that was largely susceptible.

There were many days between May and November, where there were just hundreds of deaths. Well, not just, but there were hundreds of deaths a day. Then what happened is once you hit November, there was a dramatic increase in cases up to peaks of more than 4,000 deaths a day. This is, like many winter respiratory viruses, it is definitely influenced by weather at least in temperate climates. It's interestingly, not so much true in tropical climates where for example, influenza is a winter disease in the United States, it is a year-round disease in Brazil. Same thing with an intestinal virus called rotavirus, it's a winter disease in the United States. But year round in Brazil, I think people get confused watching what's happening in Brazil, that heat and humidity don't matter.

They do matter. And they certainly matter in temperate climates. I think that's the main reason that you're seeing this virus come down, but it's not going to go away unless we get adequate population immunity over the summer, which is to say about 80% of the population being immune. It'll be back next winter, at least to some extent. The question that we have to answer for ourselves is to what extent and that'll depend on the degree to which we can gain population immunity. The other thing I think that that works against this virus in addition to weather is the immunity that's been induced by natural infection. We currently say the 30 million people have been infected with this virus, but in fact, that's just people who have been

tested and found to be infected. If you really want to know how many people have been infected, you need to do antibody surveillance studies to see who has antibodies to this virus and who doesn't. When you do those studies, you find that that 30 million number is probably off by a factor of around three.

The CDC estimates that between 85 and a 100 million people, who've actually already been exposed to and infected with this virus and are likely to be immune. The other thing that you have going working against the viruses, at least as of yesterday, about 100 million doses of COVID had been administered. About 60 million people had received at least one dose about 33 million people have received two doses. So, a little more than 10% of the population are now fully immune. If you combine the immunity that's induced by natural infection with the immunity that's been induced by immunization, about 35% of the US population is probably currently protected against this virus, which may be enough to actually start to contribute to the decrease.

So, what stands in the way of at least slowing the impact of this virus? I think there are two things. One is the variants. And let me just talk about that to define terms because it's often misunderstood I think by the way this is carried in the media. The virus that swept across China was not the virus that left China. The virus that left China was the first variant. It was called the D614G variant. That's the virus that swept across Europe. That's the virus that swept across the United States and South America. When we made vaccines, whether it was the Pfizer vaccine or the modern MRNA vaccines, or the Johnson and Johnson vaccine or the UK AstraZeneca vaccine or the Novavax vaccine, all of those vaccines were designed to prevent the D614G variant. But this is a bat coronavirus that has just made its debut in November of 2019 in the human population. And what it will do is it will adapt to growth in people. As it adapts to growth in people, by definition, it will become more contagious.

And that's happened with the UK variants, the South African variants, the Brazilian variants, the California variant, most recently now the New York variant. And so, the critical question is do these vaccines that were generated to prevent the D614G variant, do they also protect against disease caused by these other variants? And we do have some information on that. I think with confidence, we can say that the vaccine clearly protects against the UK variant, the so-called D117 variant because we have data from at least Pfizer's MRNA vaccine that that's true and the Johnson & Johnson vaccine. We have data from that trial, both in South Africa with the South African variant is predominant more than 90% of the circulating strains are the South African or the so-called Brazilian variant, which is the P1 variant.

We have information now, clear information that you can protect against severe disease caused by the current vaccines, the J&J vaccine protects against severe disease caused by both the South African and the Brazilian variant. That's also true for the Novavax vaccine, which hasn't been licensed yet in the United States or anywhere, that's the purified protein vaccine also was

effective at preventing severe disease against either the South African or the Brazilian strains. The other thing that stands in the way of getting to population immunity of around 80%. And you can see that this is not a made-up number. Israel now has exceeded 70% population immunity, and they are clearly seeing a decline in the spread of this virus, which is the first clear evidence of herd immunity. I think 80% is, is doable. I think it's reasonable. The question is whether we get there.

And I think the thing that stands in the way of that to me, more than the variants is anti-vaccine activity. What is euphemistically referred to in the press as vaccine hesitancy, I think would more reasonably be referred to as vaccine denialism. There are a significant number of people who don't want to get this vaccine, and we don't really see that yet. We don't see it yet because we don't have enough vaccine for the people who want it. But I think once we hit the summer, you're going to have a much better idea of what percentage of this population doesn't want to be vaccinated. And I fear it's going to be significantly more than 20%. I get that feeling from a few things. One is that I think any of us who work in a hospital, I'm an attending physician at Children's Hospital in Philadelphia - CHOP.

There is no doubt, I can promise you this. There are people in our hospitals who don't want to get vaccinated. These are people who work in the medical system. It's also true at the hospital at the University of Pennsylvania. It's true, really of any hospital has had to deal with it. And these people are medical professionals. There've been studies now that have been done, looking at other factors, 14% of those who are black, or African-American say that they would choose not to get the vaccine. And then a surprising 46%, according to the recent CNN poll of people who identify themselves as Republicans also say that they'd choose not to get the vaccine. I think we're going to be up against that. And then what do we do? If fantasies could come true, what I would like to see happen is I would like to see us do what Israel does, which is to have basically a vaccine passport, that once you've gotten vaccinated, you get a passport.

And that if you're going to be able to go to a restaurant or a department store, you have to show your vaccine passport. It works well in Israel. I don't think it would work well here only because we're a country that's founded on the basis of individual rights and freedoms, which means that we are compelled to claim freedoms that really aren't ours to claim like the freedom to catch and transmit a potentially fatal infection. But it will be interesting to see how this plays out. I think that's how you're going to see this virus playing out over the summer months into the fall.

Larry Bernstein:
Thanks, Paul. My first question relates to your comments about the variants that you're not surprised that the variants are more contagious than the original disease. But what about their severity? Would you expect them to be more severe or less severe over time, the variants

themselves? What is common with most viruses?

Dr. Paul Offit:
So, viruses need the host to live. They need the hosts cells to live. They can only reproduce themselves using the cellular machinery that is within each of our cells. It is to the advantage of the virus to spread more easily, to be more contagious. That's to the advantage of the virus. It's not to the advantage of the virus to be more virulent. If you die from the infection, then the virus can't go on to infect the next person. I think that the data on the UK variant are pretty good that it's somewhat more virulent, it's clearly more contagious. The data from all the other variants did not clearly show that they're more virulent. It really doesn't matter so much in terms of how we handle it. We still would make vaccines the way we're making it. These still spread by small droplets that emanate from the respiratory tract. So, you still want to mask and physically distance. It doesn't really change what we're doing, but I think the UK variant, the data are that it's clearly is more virulent, although that is never to the advantage of the virus.