MARIA ANDRIELLA O’BRIEN

Hello and welcome to Columbia Public Health Now, a podcast devoted to exploring the global and local implications of public health challenges in our communities. On the web, on our phones, radio, TV—everywhere—we are inundated with information about the spread of the coronavirus, also known as COVID-19. This unfolding epidemic is unprecedented with the speed at which it is moving and as fast as the virus has moved, rumor and speculation have been right on its tail. This Spring, we are devoting a series of episodes to explore how COVID-19 is impacting our world and our health. I am your host Maria Andriella O’Brien and I thank you for joining us.

Today, we welcome Dr. Stephen Morse, infectious disease epidemiologist from Columbia University’s Mailman School of Public Health. He joins us to provide a little context, some education, and perspective on how to address this public health threat.

There have been major, new developments just this week with the World Health Organization declaring it a global pandemic due to the rising cases, fatalities, and number of countries affected. The same day, President Donald Trump announced an unprecedented measure to stem the tide of new infections in the United States by suspending most air travel from Europe. According to the World Health Organization, as of March 11th, close to 125,000 people in 118 countries and territories have tested positive for the infection, and upwards of 4,600 people have died. In the United States, there are nearly 1,000 confirmed cases as of March 11th, with California, Washington state, and New York—the worst hit. In affected areas, events and other large gatherings have been cancelled with an increasing number of businesses asking their employees to start telecommuting. Most infections are believed to be mild, with many people not even realizing that they are sick. Deaths have largely occurred due to respiratory illness among older people and those with underlying medical conditions. There are no approved therapies or vaccines for COVID-19, although both are being developed. Scientists at the Columbia Mailman’s School for Infection and Immunity are currently developing a more robust diagnostic test. It will detect not just people with an active infection, but those who were infected previously.

Today I’m sitting with Dr. Morse in an empty auditorium at Columbia’s Mailman School of Public Health. For anyone who’s ever lived or worked in New York City, you know how rare it is to find an empty and quiet space, but classes across the university are now being held online to minimize exposure to the virus, and so here we are. Dr. Morse, maybe we can take a step back and talk about, how did we get here?
EPISODE 1: SO, HOW DID WE GET HERE?

DR. STEPHEN MORSE

Ahh-- that's an excellent question. Well, we got here because there was an outbreak of an unexplained pneumonia in Wuhan, China in the late November/December time frame of 2019. At that point, nobody quite realized what they had on their hands but very quickly it became evident that it was not any of the usual things--a flu or any of the other things--but something different, something we hadn't seen before. Very quickly, it was identified as a "coronavirus," that's a large family of viruses that infects many different species.

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Have we encountered coronaviruses before?

DR. STEPHEN MORSE

Humans have coronaviruses that have been with us for a long time and cause very mild disease, but that was a long time ago, and we've had them for ages so we take them for granted. However, we got really serious about coronaviruses back in 2003 when in South China there was an outbreak of something we now call SARS (severe acute respiratory syndrome) caused by coronavirus, which spread through Hong Kong by people staying at a hotel. Then, spread largely through healthcare-associated infections and went to places as far flung as Vietnam, Singapore, and Toronto, where of course there was a very famous outbreak in the hospitals. That made us realize for the first time that coronaviruses were something we should take seriously as human health threats.

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So at least we're a little bit of familiar with coronaviruses. How hard was it to identify that something new was taking place?

DR. STEPHEN MORSE

What happened here, as I mentioned, was that in Wuhan, China they suddenly saw near the end of 2019 (hence, the COVID-19) these cases of an unusual pneumonia and it wasn't immediately diagnosed because it's flu season. It's really amazing that you can actually identify
something with our modern technology that’s so different in the middle of flu season. It was rapidly identified as being a coronavirus that seemed similar to, but not exactly the same as SARS, one of those SARS-related coronaviruses. At first, it wasn’t quite clear how it spread, and China unfortunately had an opportunity there to be able to stop it early but didn’t recognize or perhaps didn’t want to recognize that it could spread very readily from person to person. SARS did not. This virus does, very much like the flu or maybe even better, or a little better anyway. The end result is that you had a lot of person-to-person spread, not only in the hospital, but also in the city before it was recognized that there was this person-to-person spread and something was done to stop it. Those are some things that I think were unfortunate losses of time. Had it been stopped there, we probably wouldn’t have needed to talk about what we’re doing here to stop it but that window unfortunately closed too quickly.

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What is the projection for how long this will last and maybe on a related note, how likely is it that warm weather will bring an end to this or curtail its spread?

DR. STEPHEN MORSE

I don’t know how long it will last. I think it’s a hopeful and optimistic view that warm weather might bring an end to the pandemic, or to the outbreak. I think it’s optimistic and I’m not particularly optimistic that it’s going to happen. And there are a couple of reasons to think that. First, other coronaviruses are able to survive under much harsher conditions. For example, Middle East Respiratory Virus—a related virus on a different branch of the corona tree but still, very similar to SARS—does fine in the hot climate of the Middle East. We’ve had coronavirus outbreaks with SARS actually that occurred in Canada in the late Spring, within a hospital setting admittedly, so it was indoors but in the late Spring and early Summer there was a second hospital outbreak elsewhere in Canada that went on for that period. Also, a number of flu pandemics, flu is somewhat more delicate than the coronaviruses, but still it manages to get around. Several of our flu pandemics have come during the late Spring/Summer. The 2009 flu pandemic, began in April and went through the Summer. The 1957 pandemic, I can remember in the United States actually peaked in July, for reasons having to do more with human travel and human behavior. So, I’m not particularly optimistic that it’s going to end—although that would be nice—I think that it’s going to end with the end of the “flu season” so called. And in warmer climates the flu often is at a lower level all year round, so the flu season is only true in temperate areas anyway. But even so, I think that we’re likely to be in for something more like a
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marathon than a sprint here, I’m sorry to say, once it actually breaks out of that cage we’re trying to put it in.

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Can you explain to me maybe the difference between a public health response to this crisis versus the medical response?

DR. STEPHEN MORSE
That’s an excellent question because I always took it for granted that we understood that. So, the medical response is dealing with the individual patients, dealing with people who are sick or may be sick and need to be dealt with individually, they need to be taken care of or tested as individuals because they feel sick. So, the ones in the hospital, the ones who go into the emergency departments and the ones who get treatment—like some medication—that’s a medical response. The public health response involves dealing with large numbers of people, essentially a population. It involves things like identifying cases, and trying to find their contacts so that you can identify who has it in the population at large and where they might have gotten it, try to identify how you can break those chains of transmission. Some of that involves a lot of what we call “shoe leather epidemiology,” just going around and finding out more about who has it. Some of it involves ways to prevent it on a population level. Some of the measures we talked about (trying to contain it) are more public health measures, although those aren’t the traditional public health measures. We don’t tend to go for travel restrictions. This may be an unusual case because it’s a little bit of an experiment. But certainly trying to find the people who are sick, and people who are well but spreading it, trying to figure out how they spread it, trying to figure out the social conditions that might be involved in making the infection worse or the infection more likely to spread, and ameliorating those—making them better—those are all public health responses. They’re working on groups of people, on populations—not on one person at a time as the medical response is.

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What’s the biggest challenge for public health now?

DR. STEPHEN MORSE
I think there are a lot of challenges for public health now. We’re getting some attention— I’m not sure it’s the kind of attention we hoped to have— but I think it’s interesting at least that more people are becoming aware of the fact that there’s a lot of work being done in public health. I think there are two challenges— maybe more than two. One of them is that public health has always been in the past, often reactive; we can sometimes be proactive. Things like smoking cessation has saved many lives, although it took quite a while to learn how important that was. Immunization has saved many lives and I see that as a challenge— many people, because immunization has become a victim of its own success, many people now wonder why do we need to immunize people— and we’ll find out as we did with measles, a highly transmissible disease, as soon as we stop immunizing. Sometimes, unfortunately, it’s a hard lesson to learn. The challenge is not becoming a victim of your own success, because then what happens is that resources for public health— another big challenge— often dry up. I think the resources are often just not sufficient to do what we would like to do, but also to do what needs to be done to protect the people. So, one of the challenges is having the resources and having it sustain attention. This issue will at some point become a historical event and will we be better prepared for the next one? Having resources, being proactive, being informed, and helping to inform the policy makers, so that they make the right decisions— not just the ones that seem most obvious or that perhaps seem the most reassuring but may not be the most effective. We need to be guided by science. So, there are many challenges ahead but I think we also have many tools and good people to carry them out.

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Columbia Public Health Now is a production of the Columbia Mailman School of Public Health in New York City. Visit: mailman.columbia.edu/podcast for more information on our show. Share your comments on social media with #PublicHealthNow. I am your host, Maria Andriella O’Brien and thank you for listening.