Dan Seed: Welcome to Big Ideas, a podcast from Texas State University in San Marcos, Texas. I'm your host Dan Seed, from the University School of Journalism and Mass Communication. We're joined on this episode by Dr. Rodney Rohde, a professor in the College of Health Professions and chair of the Clinical Laboratory Science program. Dr. Rohde is an expert on infectious diseases and he first joined us in early March to discuss what was then the emerging COVID-19 virus. Eight months later, Dr. Rohde, welcome back.

Dr. Rodney Rohd...: Thanks Dan. It's great to join you again. It's always great to talk about this particular pandemic, as well as discuss some of the big idea issues that are going on at Texas State.

Dan Seed: So well, thank you. Thanks for joining us again. And as we were chatting before we started recording here, a lot's changed clearly since March. When we talked in March, there was still so much unknown about this. What have we learned about this virus itself in that time? What's changed, I guess maybe from that initial perception or look, and we can go from there. So what's changed?

Dr. Rodney Rohd...: Sure. So I think what's changed and again, wow. I mean, if you sit back and you look at this really started impacting my life in late January, moved into February and we had our original podcast that time and so much has changed. We've obviously learned a ton. We need to remember that this is a novel coronavirus, and typically these viruses cause the common cold, but like some of the other strains, like the first SARS and MERS, which had a higher fatality rate, this one came rolling out of Wuhan, China. And here we are eight months later, approaching 230,000 dead in the United States, almost nine million cases. That was certainly not the case back when we talked in March, when we were talking about things like case fatality rates and reproductive numbers.

I remember talking about how we might have to use that, some guarded caution, looking at those numbers because we just didn't know a lot about the virus at that time. And yes, so much has changed. Now we know obviously that this virus is spread rapidly through communities and through health care systems, primarily by the respiratory route. We knew that early, but now we know that it's much more effective with respect to some aerosolization that it can be spread over longer distances, perhaps even more than six feet when you look at some of the research.

I think we've also learned that you might remember when we were talking, there was a lot of concerns. Some of the early articles and interviews I was conducting, everyone was really worried about surfaces and contact with different items. And I mean, everything from fast food to laundry, to shopping, I mean, all the things that we went through during those early lockdowns and they will always be important to understand that surfaces can be a risk with respect to viruses and microbes. But I think we see now that the primary transmission route is person to person through that aerosol spread.

Dan Seed: So just to kind of backtrack on what you talked about in terms of the fatality rate and where we were in March, just to reset for our audience. When we met for that podcast recording in March, that was in person. This interview is being conducted remotely. That was during the second week of March and where we stood in terms of numbers around the world and in the United States at that time 121,000+ cases of COVID-19 globally with about 4,400 deaths in the United States. At that point, there were fewer than a thousand cases and about 25 people had died from it. And now as we sit here in this last week of October, this will be released in November. So the numbers of course are going to change.

But as we sit here in the last week of October, there were reported 43.5 million cases globally. 1.16 million people dead. And in the United States, 8.6 million cases and climbing and a staggering 225,084 people dead from the virus, according to the Centers for Disease Control. For our audience to put that number in perspective, the Department of Defense reports 218,035 Americans are listed as death casualties as a result of World War I, the Korean War, the Vietnam War, and the wars in Iraq and Afghanistan combined. So Rodney, from a scientific view, how'd we get here?

Dr. Rodney Rohd...: Well, we got here because early on, remember when this started in February, March, we had that kind of a neutral surge. And you kind of, if you remember back, it seems like a lifetime ago, but that was primarily in New York, in New Orleans and Chicago and places like that. And then it subsided because we had that massive lockdown where we basically just didn't do anything. And then as we entered the summer months, right after Memorial Day, we had eased up a little bit, both in Texas and other places around the country. And we had that summer surge kind of in the Sun Belt. You might remember that kind of dominating, not only local news, but national news. And then now of course, we're here we are again, I think.

And when you look back at those waves, I'll just throw out a few more kind of interesting numbers. That first, and I'm not going to call them waves because this is really three surges during the first wave. Sometimes that gets kind of misrepresented. A true second wave is when the virus has adapted some and maybe changed a little bit and you have a massive problem coming again. But the first wave back in late March was 9.7 deaths per 100,000 people in the US and the second wave in July, it was about 20.5 people per 100,000 and now we're at 23. So this third surge is just now starting if you look at the numbers. You also might call recently in the news, we just hit an all time record of cases per day. We had like 83,000 the other day, more than any time during the summer.

So we are entering I think, a very dangerous time period for the country and the world for that period as we enter the winter months and we start worrying about people getting in doors. Being outdoors is certainly more healthy, but we've also, again, I'm just going to say it, we kind of failed as a country. Early on, we had an opportunity and we still continue to have these opportunities, which we can talk about a little bit of going to a very strong affirm universal mask mandate, actually doing contact tracing, which is hard work in the public health world, but I firmly believe we could still do that. And we continue to have these conversations, why this is happening, but we certainly have not done a good job in the United States. We are the number one country in the world, Dan, that has over 20% of the deaths of the entire world. And our population is not near that of other places around the world.

So I'm frustrated and I'm disappointed kind of at our response in the US. And that is not picking on individuals within a lot of healthcare professions I know. I'm talking about a national strategy for testing, for contact tracing and for kind of social distancing and just following good public health sense.

Dan Seed: Does it surprise you coming from the background that you have, does it surprise you that it has gotten to this point and that the response has been lacking in this country?

Dr. Rodney Rohd...: Yeah. Yeah. I mean, in some ways I'm not totally surprised, but that's on the side of preparation. I think we could have been doing things for the past two to three decades. And many of my colleagues in this area, healthcare and public health have been screaming about this for decades, but you run into the same things that most countries do. You deal with, I've been saying recently and writing about public health funding should be viewed as Department of Defense funding. If you can get ready for wars, you can get ready for this microscopic war. In fact, this may be more deadly as you just iterated about the different wars we've been through.

And so it really is frustrating on that front, but I am surprised that we've been through three kind of surges in this first peak now and we continually can't seem to get our act together on national testing strategy, as well as a consistent national communications effort around public health precautions with modeling and how to kind of handling that. Contact tracing alone is not easy.

And one of the big differences, Dan, right now, I think that a lot of people don't think about that aren't kind of in the public health spectrum, is that when you started, remember, this is very common sense when you start with the virus, all it wants to do is amplify and spread. It's looking for new hosts that aren't immune. That's us right now, but when it started in February and March, it was introduced into little index points around the country, okay. So that bubbled up, that was obviously our best chance to contact trace and get things under control. We didn't do it. Then when that summer surge hit, when we had that opening up of the economy a little bit, and we had that issue again, we had an opportunity, I think, to kind of do that.

So what's happening right now in this third surge, as we enter the end of October and kind of move into November is that now you have to remember really almost every state, every state now has community transmission. In some states it's gotten really dangerous and worrisome, especially in places that weren't being hit early on like Montana and North Dakota, and some of kind of the rural states, if you might, but even back in Texas, we're worried, in El Paso. I mean, we're approaching again, hospitalization rates and ICU beds and things like that that we've been again talking about throughout the past six or eight months. And here we sit again, because we still have not seemed to learn our lesson on masking, distancing and just hand hygiene and an ultimately contact tracing.

You cannot stop these types of viral amplifications without limiting host transmission. And if you just kind of do it willy-nilly without really following through on that, then we're going to continue. We're going to continue to see these surges. And I predict that it's going to get worse before better.

Dan Seed: I want to get you open the door here to talk about Texas, where we are. And I want to get to that because this has become a flash point, I suppose, in the last seven days, week or so, but I want to kind of tie this up here with what it is that we should be doing versus what we have done. And in March, we talked extensively about the importance of scientific communication and public health policy. We can't do anything about the last eight months, right?

Dr. Rodney Rohd...: That's right.

Dan Seed: We can't go back in time and change anything, but from where you sit, what needs to be done in those areas starting right now today, going forward?

Dr. Rodney Rohd...: Absolutely. We can always recalibrate. We can always recalibrate. So I appreciate the question. Let's just hit Texas. So Texas right now, if you look at Worldometer, I'm not sure what site you were using, but over 900,000 cases, about 18,000+ deaths. And by the way, the case fatality rate in all areas, global Texas in the US is right around two to two and a half. So that is at least a rough estimate. I think what we can do in Texas and around the country obviously is we continually have an opportunity to at least enforce or utilize language around a universal mask mandate, strongly encouraging it.

Now, we get pushed back I know from all sorts of different areas around it's not the perfect filtration device for a virus, and that's true. That is true. However, the data shows, the research shows just from a physical distancing standpoint and the use of masks, we have seen way lower numbers and other countries that have adopted this. We've also shown this in experimental design, using things like using cloth mask and surgical mask and showing the effects of things like smoke or mist and things like that, that go through it. And it absolutely stops it from traveling out five, six feet. So the science is there, the data is there. It's going to take some leadership to kind of move that forward.

The other piece that's gotten a little better is testing. We have increased our testing nationally, but we're still struggling with sometimes getting that turned around. And I think a better message on what's the best test, for example, when should you use a screening rapid tests versus a more confirmatory tests, like a molecular test and then kind of getting that hammered out so that hospitals, clinics, public health labs know the algorithms to follow. This is not something that can't be done. This just takes effort and a clear message to do it.

One of the, obviously the good things that's happened in the last six, eight months is we have learned some new strategies on treatment. So now we know we have the use of steroids. Dexamethasone is useful to help contain inflammation in the lungs. We know that we have an antiviral that seems to be doing pretty good work, as well as some brand new monoclonal antibodies that help neutralize the virus. So we have seen a dropping in the death rate, so to speak, but the number of cases is just amplifying like crazy. And so that death rate's still going to be a problem when you have more cases and more immunocompromised people getting it, you'll still see those numbers rise.

Dan Seed: Does it frustrate you, you've dedicated your life to this, this kind of work, studying viruses, public health communication, all that that we've talked about, does it frustrate you that not only has the virus become politicized, but that people just, for whatever reason, don't want to listen to the data and listen to the experts?

Dr. Rodney Rohd...: Dan, if I had a dollar for every time I've tried to counter that action in the last six months, I probably could retire. It's so frustrating for public health officials, physicians, others in healthcare that have not only spent their life, but in the trenches right now, watching people die. And just even if you take the death rate away and you just look at the morbidity surrounding this virus around heart issues and lung issues, and some of the ongoing worries we have about the long-term effects of this. Remember we didn't understand even chicken pox at one time in our history that will cause shingles 40 years later. We really don't know the long-term effects of this infection. And that doesn't mean we have to panic, but yes, you are right. We need to get better about convincing the public. And I'm all ears for ways to figure this out. I've been dealing with this really for years now, where it crosses paths with anti-vaccination, anti-science, really in some ways anti-education, and I'm not sure what's happening in the world, not just in the US but it's certainly something we need to figure out rapidly.

Dan Seed: Yeah. And I would say that the last eight months have showed us that and showed a flaw in exactly what you're talking about there. And our people's willingness to listen to this and the education aspect of it.

Dr. Rodney Rohd...: You know, one of the difficulties I think is just trying to get people understand science is about hypothesis testing. And so, I mean, I'll just throw this out there. You'll tend to get some responses back from different people saying, well, you know, Dr Fauci said this eight months ago, or Dr. Birx said this six months ago, or Dr. Rohde said this five months ago. This is science, folks. This is science. We put out hypothesis, we back up and admit our mistakes when it's wrong. And we move forward. And that's that recalibration I think most of us keep talking about. Instead of just hammering this misinformation, disinformation, it's actually quite dangerous for people to wander around without mask and go to events, go to bars, go to high crowded packed areas.

And yes, you can't live in a cave your whole life, but you can be smart about interacting in a way. I haven't shut down my life. I wear a mask, I'm careful. I don't go into packed places. I'm out doing a few things and kind of getting your mental health together, but you can't be ignorant to the fact that this virus does not care who you are or what state you live in.

Dan Seed: And I will say, just being here at the university, I'm sure that you've experienced this when you're here teaching in person. There's not a lot of people here. We have a large campus and seeing people is few and far between, and frankly, the numbers here at the university, the latest numbers, according to the COVID dashboard is since March 1st, there have been 775 total cases reported here at the university. And I feel like it's a prime example of that social distancing. It's a prime example of the mask wearing the very conscious what you're interacting with, whatnot, that that works. So when we look at like a university like ours, and then we look at Texas as a whole, and we see that in the last seven days, according to the CDC, there have been 38,500+ cases in the state of Texas, which is the most in the United States. What is happening here?

Dr. Rodney Rohd...: Again, I just think people aren't paying attention. You just did a microcosm of something I'm very proud about. And I know our chief medical officer, Dr Carranco, and so many others that jumped on board early in February, March to start looking at our roadmap to return. And I really think it's a successful model. Now things can wax and wane depending on behaviors and what's going on as you come in from outside of the university community, but we've done a great job here. We are down in the 1.6% to 2.5% positivity rates during the last three weeks. Our all time high was almost 10, right after Labor Day. I mean, masking, mandated mask indoors and outdoors, being careful with crowds.

We do have some online, obviously some online classes going on, but my students are back face-to-face, but we're spread out in a room that's usually seats 100 and we have 20 students. I mean, you can do these things with the right resources and the right messaging and the right leadership. And again, I really would like to congratulate this university for doing a great job, because I think when you look around the state, Texas state has done as best as can be expected with this issue, but within the state itself, again, I think the messaging and what I would call pandemic fatigue, you've probably seen that in the national news as well in the global news, it does get tiring of this. I'm so ready to jumping on an airplane and do some global travel or just go visit family and friends in the state. It's just getting old. And what I keep messaging with people is it may be just now entering one of the more dangerous phases this winter and moving into early spring.

And I've tried to get people to kind of wrap their minds around stop looking at target dates that you hear from talking heads. I mean, just try to adapt to the situation, to the moment, try not to get caught up in all the social media misinformation that's out there and go to a reputable stores and live your life, but live it safely and follow the instructions of those around you that are trying to help and protect your health. There's a reason, there's a reason that's science is important to understand, and we need to get there as a state and as a country.

Dan Seed: So you mentioned this and in March we talked about the flu and comparing this, or looking at this similarly to the flu or the 1918 influenza outbreak. And now we're getting into the teeth here of flu season. Not only is it flu season coming up, but we've got Thanksgiving in four weeks, Christmas, New Year's, right? All of those things where people gather closely indoors. You've got the flu coming in. I mean, I know that you don't have all the answers clearly. Nobody does. But when we look at these next few weeks, next few months, what do we need to do? I know that we've kind of hammered this, keeping it distance and all this, but is this what makes this incredibly more dangerous? And are we in for something way worse than what we've seen if we can't do that?

Dr. Rodney Rohd...: I hope not. Let me start by saying, get your flu vaccine, please get your flu vaccine. Now, one of the benefits from asking a distancing and limited air travel, and some of the things we've seen in the last few months is it looks and appears. I just did a preparation for a webinar I'm doing next week over this same topic. And right now, flu is at all time lows, almost I hate to say that out loud, but we are doing a great job. Now that's because it hasn't really blown up yet in the country, but there is some definite synergy going on with hand hygiene and masking, all the things you just talked about, but that still means get your flu vaccine, get prepared and continue to kind of follow the same safety precautions that we're going through.

I think that the thing I worry about primarily is that with the pandemic fatigue and thinking about that cold winter time kind of situation, and really looking at the data, again, just looking at the prediction models and seeing what could come without recalibrating and getting on board with contact tracing and all the things we need to see done. Some people are predicting some really high, high cases and death rates by February. I mean, pushing up around 700,000, 800,000 people. And that's just, for some perspective, since you started with this. If you look at the 1918 pandemic, I think the US had about 675,000 deaths over three years. We could push that in the first year. So it's a serious matter.

And people can play with statistics and numbers and you see this all over the place where they start talking about, well, in reality, that's like two deaths per a thousand people or something like that. And we can handle that. Well, I don't know. Can we? I mean, if that's my mother who just was diagnosed with cancer and is now back on the to road recovery, I worry about her. I worry about my father. I worry about my health care professionals that are young and somewhat healthy, but they're in the trenches every day.

I mean, there's some data recently that across 13 states from March to may 6% of the people hospitalized with COVID-19 were healthcare workers. A third of them were nurses. 67% of them had direct patient contact. 70% were female, probably looking at the nursing population and more than half were black or people of color. I mean, that's frightening to me. If you're not in that category, then maybe you don't feel it is worrying. But I know so many of these people in the healthcare professions in public health, it terrifies me actually to think about the numbers. And the decimation. We talked about this, I know the last time. If you start wiping out physicians, the nurses and intensivist, I mean, these are specialists. They spend 10, 15, 20 years to become these experts. And they're not on every corner in the US. And when you lose this type of professional expertise, you don't replace it next year. It'll 10 years before we get these numbers back to decent numbers, and they're already at all time lows.

So there's so much, so much that this affects beyond just, it's not going to happen to me, that people need to get serious about it if for no other reason than these things I'm talking about. Healthcare for the entire country is at risk here.

Dan Seed: Yeah. And like you said, not only people with specialties that get sick or unfortunately pass away, but just that defense line, right, of doctors who triaged patients and are taking care of them and are being moved from their specialties to ICU to do this kind of work. And if that happened, we're in big trouble.

Dr. Rodney Rohd...: We're in big trouble. And I'd be remiss not to mention my own profession, the medical laboratory, that's been inundated with testing more so than ever in our career. And we're actually losing people to burnout and fatigue and people are kind of stepping out of they're either retiring earlier or they're just jumping ship. They're so tired of working 10 days in a row of 12, 14-hour days that they're just burnt out. Again, that's another issue, that's probably another conversation, but all the healthcare professions are experiencing this, just like teachers are, just like anyone else who's dealing with this, but in those kinds of frontline jobs where it matters for other people, that these people are healthy, it's a concern.

So again, I hope Texas, and I know Texas, state's doing a great job, but I hope Texas and the country, regardless of what happens next week on election day, we have to look at this as a people problem. It's not a political problem. It's a public health national emergency, and we don't have to panic, but we have to act, we have to get some things together. And if that means nothing more than you doing the right thing in your community, then let's do it. Let's get on board and let's become our own kind of leading effort to get this under control in the next three to four months.

Dan Seed: Just a quick segue, because you brought it up with the laboratory folks. And clearly those, the students that you work with. I know in March your students will go into online, rotations get shut down and changed and all that. And then people graduate and all of a sudden they're on the front lines. What have you seen from your students as they've come back this fall in terms of maybe their enthusiasm or concern or what are they showing you as they get ready, this crop gets ready to matriculate into the real at some point?

Dr. Rodney Rohd...: Yeah. Overall we're very proud of all of our students here in the Health Professions College, including mine in the medical lab science area. I think most of them entered this profession, even though it's not quite the same after you have the knowledge of knowing that they would be in danger at times. I mean, at any given time, our students can be faced with specimens or patients that are TB positive, HIV positive, Hep C positive, I mean, whatever. And so you kind of have to go into it knowing you're going to use universal precautions and you're going to be as safe as you can. But as I've told my students, even after 30-something years of working in this area, there's something about knowing what's coming in versus not knowing.

And so I use the analogy when I was working in the Department of Health and I was testing animals for rabies. I mean, I did hundreds of these a day and we saw high positivity rates. And I was vaccinated so I was somewhat protected, but there was always that danger. But when I would get a human specimen, it's just something that kind of makes your brain go, Whoa, a human diet of this disease. And I think that's what COVID is doing. When I talked to my colleagues that are about 15 or 20 years older than me, they talk about the HIV scare. I was in high school when that was happening and I kind of remember that, but for them, people quit the field because they were terrified of the virus.

So again, you can see some effects around losing majors or losing workers, and that's always a concern, but I'm really proud of our students and our recent alumni. We had quite a few that graduated in August and there everyone of them has a job and they're working already.

Dan Seed: Fantastic.

Dr. Rodney Rohd...: But I am hearing these stories of fatigue and being thrown into things because there's just so much work to do. That's an ongoing concern.

Dan Seed: So as we move forward here and we get into November, December, January, February, and then hard to believe it'll be back to a year, right, in February, March, really, when this thing first came to the United States. What are you keen interested in? When you look at the data, when you look at the information, when you look at the virus itself, what are you interested in as we look forward to where this thing is going? What's the scientific community kind of looking at at this point, since we do have more answers about this than we did last March? What are you interested in looking at? What are you planning on doing?

Dr. Rodney Rohd...: Well, there's several things. I think a lot of us are interested. I'm certainly interested in the vaccine efforts. One thing that has occurred, and I will agree with most people on this is that we have done so much in so little time that it's almost mind-boggling. So if this pandemic has done anything for us, it's kind of taught us some lessons with respect to maybe loosening some of the red tape, not the safety, not the safety of the efficacy of testing and doing clinical trials and doing it the right way, but knocking down some of that stuff that used to take five, six, seven years to get some of these things done. I think we've shown that with effort and resources and still following the science, that we might be able to do some of these things in one to two years. And that's a significant improvement over seven to 10 years on some of these. So that's encouraging. So I'm watching those trials closely like everyone else.

The other piece of that, that we may have talked about a little bit in the past is distribution of those vaccines and how we're going to get that done. I've even started looking in personally, at some opportunities through Texas States, thinking about our centers and even some of these big ideas, can we become a hub of vaccine distribution? There are some grants and things like that out there that I'm interested in starting to look at through Translational Health and some of the other big ideas. So those are those types of things that's going to be really important once we have vaccines, can we get them distributed? And it might be a triage of getting them to the most at risk. And then following up with the more healthy people later.

So that's a piece is a medical lab and public health person I'm going to be always interested in the testing aspect. Are we going to get that tightened up and recalibrated with respect to getting a quicker turnaround? There is no reason in the United States why we should be waiting seven to 10 days for a test. Maybe early, but eight months into this thing we should be knowing that within 24 hours, 48 hours at the most. Without that you can't contact trace effectively. If it's seven [crosstalk] it's just ridiculous to even think about it. So we've got to get that figured out.

And then as a virologist public health person, and this might seem kind of strange, but not to my friends that are in the same area, just interested in the virus, will it mutate, will it evolve? Will we see a second wave due to a change in the virus makeup? And will that create more problems? I hope not, but these are RNA viruses like the influenza virus and they are notorious and diabolical in some ways of mutating. And that's not to scare people, but it is to eyes wide open and be prepared for maybe shifting your vaccine efforts or things like that as we move forward.

Dan Seed: Let me ask you this, then we'll wrap up. With that being your focus as a virologist and us, as we've talked about myself, included being ignorant, let's be honest trials and diseases and how all this works. What do you look for? At what point do you go it mutated or it didn't? Is there some sort of predictor or something that we all as the public should look for to go, Oh, things have changed?

Dr. Rodney Rohd...: Right. You know, if this was 50 years ago, I would say the only thing you would look for is, all of a sudden that massive death rates, if something changed, more people are dying, more cases are occurring. That was kind of the old school way. And those are still important. But now with the explosion of genomic technology, RNA, DNA technology, the ability to sequence a specimen within hours of someone being sick and that's what's happening right now. That's why the Centers for Disease Control, that's why the World Health Organization, that's why the Mayo Clinic, that's why all of these places, the Cleveland Clinic, all these places that do this type of work, public health labs around the country, they are doing this all the time. That's the whole point of a public health surveillance system.

We've been doing it with flu forever so that we monitor that brand new H5N1 or whatever strain's popping out in the next year so we can get that vaccine ready. We're better equipped. We're better equipped with respect to technology and expertise. And so I think we have the tools in the tool kit in place to kind of watch that way more effectively than we did back in 1918, for sure. And even back in the 50s and 60s when we had a massive flu pandemic. So I feel comfortable about monitoring the situation. It'll be on the side of the public, following the public health precautions that will continue to be my concern in the next few months, because right now we don't have a vaccine and regardless of what you hear out there, we don't really have a great treatment or cure. You hear that word kind of bantered around social media and the public. There is no cure. People are living, people are surviving. That's great. We still need to be concerned about the long-term effects and we really need to prevent as many infections as we can because obviously that lowers the mortality rate.

Dan Seed: And so lastly, you talked about this, you brought it up setting dates or times as a fool's errand that because it changes and to do that leads to disappointment and then issues in the national discussion on this whole thing. But is it safe to say that at this point, normal, what we were before March doesn't happen at least until we get a vaccine?

Dr. Rodney Rohd...: Yeah. And I'm not even sure it'll be with a vaccine. Again, I don't say that to scare people or have them super worried about the future. But one of the things I've been talking about with people is trying to a way for people to think about this. As I think this pandemic, the pandemic of 2019, 2020, whatever it eventually gets named needs to be looked at much like 9/11 changed our life. 9/11 changed how we traveled forever. That's never changing. We're never going to get to walk through an airport line and lounge around and do what we want. It's serious business now. I think moving forward, this pandemic will change the way the world looks at personal space, as well as kind of infection prevention when you travel, especially in crowded areas. And that's not a nice tight phrase of air travel change, but it is going to change how we look at I think interactions.

Dan Seed: Sure.

Dr. Rodney Rohd...: And I think that's a good thing. I think the world far too long has not really been educated well on those microscopic invaders. We don't see them. And that's part of the problem. It's not an army, it's not a country, it's not an enemy we can see. They've killed more than all the wars together when you back it up and look at malaria and other things like the plague and so forth. So I think it's given us some fresh eyes as a society to prepare.

I'll continue to ask that we think about public health funding to support, not just the immediate, but the long-term planning for this, including educational programs to build new medical lab professionals, new nurses, new doctors. That takes commitment. You know, Dan, you can't do that in two or three years. That takes money and time. And it's not popular to think about, but we do it for the DOD, for defense. And really, I think the public health link should just move under the DOD if that's what it takes. I'm just personally speaking about this because it's something that we've been fighting for decades. It's not really a political issue. It's a public health issue.

Dan Seed: Yeah. And it's unfortunate that clearly it takes something of this scale to even get that conversation kind of moving to where you guys have wanted it to for the last 20 or 30 years.

Dr. Rodney Rohd...: And as some of the experts I've been listening to on the news, when I do tune into some of the experts I follow, and I hope this isn't the case, but it kind of makes me worry when they talk about, will it take the death of a loved one to get serious about this? And that unfortunately may be coming after this winter if millions of people end up dealing with this. So I hope not. I hope not. I hope we can get it together and move forward.

Dan Seed: Me too. I certainly hope that people listen to what you've said today. Informative as always, direct as always and enlightening as always. Dr. Rodney Rohde, thank you so much for joining us. We could do a week's worth of podcast with you on this topic, getting down into the science and all sorts of areas, but we really appreciate you catching up with us to talk about COVID-19 and where we've come from, what we need to do and where we're going with this.

Dr. Rodney Rohd...: Thanks so much, Dan. It is always a pleasure. And again, congratulations on the Big Idea Podcast. I think this is an amazing and really important piece of Texas State's future. Don't forget, viruses are going to vast.

Dan Seed: Thank you very much, Rodney. And well, everybody out there, thank you for listening to another episode of Big Ideas, and please remember, stay safe and stay healthy. And we'll be with you again next time.

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