Dan Seed:

Welcome to a special edition of Big Ideas from Texas State University in San Marcus, Texas. I'm your host Dan Seed, and today I'm joined by Dr. Rodney Rohde, the chair of the clinical laboratory science program here at the university. And Dr. Rohde is one of the key figures in Texas State's translational health initiative. We have Dr. Rohde on today to discuss the topic that of course is on everyone's mind right now, the coronavirus, also known as COVID-19. Dr. Rohde is an expert on infectious diseases. Dr. Rohde, thanks for joining us.

Dr. Rohde:

Thanks so much for having me on. It's an honor to be here.

Dan Seed:

Well, let's start with the basics here. What is a Corona virus?

Dr. Rohde:

Sure. So Corona viruses are actually a group of RNA viruses. And what most people may or may not know is roughly 25 to 30% of these cause the common cold. So there's four that cause the common cold. There's one that you may have remembered back in the early 2000 called SARS. It's really the first one that gave the world a scare because that one was killing roughly 10% in their case fatality. And then in the mid 2000's we had a strain called MERS, which is middle Eastern respiratory syndrome. That one really got our attention. It pushed that fatality rate up to 30, 35%, but they were somewhat contained in the global space. And then it went quiet. There were cases popping around, but went quiet. And then certainly we noticed what happened in early January this year when this second strain, which the virus is actually called SARS COV-2, so it's like a second variety of SARS. And then COVID-19 is actually the disease it causes.

Dan Seed:

And so what makes this particular strain different from all the others, or is it?

Dr. Rohde:

It's genetically really not a ton different. But I think what's caught people by surprise is the geo political spread that's going on with it. Both in reality. So I say this a lot and I've said it many times this past month, that viruses are going to virus and that's what they do. They can't survive outside of a host. So most viruses need a human being, an animal, even a plant, and they really exist for one purpose and that is to infect, multiply and reproduce in that host, and then jump to the next host. Rarely if ever, has mankind stopped a virus, or really any microbial outbreak, with the exception maybe of smallpox, with massive campaigns of vaccines. Can we slow it down with those efforts and with other prevention efforts? Absolutely.

Dr. Rohde:

So really, it's fairly somewhat like influenza but there are differences of course. Influenza and coronavirus are both RNA viruses, which means they mutate more rapidly. And so we're keeping an eye on that. But so far, really the only thing I think that's caught us off guard is the rapid spread out of the epicenter of China in Wuhan, China. And that's really what's got our attention.

Dan Seed:

So that hopscotching if you will, around the globe, where it started in China, and we've seen these large scale outbreaks in Iran, of course Italy. Now that does strike you as different or odd I suppose, and does make you take special notice, why specifically?

Dr. Rohde:

It does. And that's a, it depends, answer for me because what's happening with this... So what the general audience needs to understand is that we are looking for it. When you test for an agent, you find it. So if I go out and look for another strain of the common cold right now, it will be all around us. So I just want the public to understand that if you're looking for it with a specific test, you will find different types of agents. I look for antibiotic resistance, MRSA, 250 people die every day in this country for that. It's all around us in our environment.

Dr. Rohde:

So looking for it, testing for it, will make those cases come up. And so it's a guarded answer for me because yes, we're seeing it jump all over the country and the world, but if we were looking at every single case for flu, RSV, MRSA, any other acronym you want to throw here from the microbial world, we would detect it in different populations. Is it serious? Absolutely. Are we monitoring it for the elderly, for the immunocompromised, that's a concern. Those individuals and those populations, and then for my own profession, we're worried about healthcare workers being protected. Because if you lose that frontline responder, you do not replace a nurse. You do not replace a medical lab scientist like myself overnight. That takes years of training and other education in the clinical setting.

Dan Seed:

And I do want to get into the the effect that this is having, especially as you mentioned on older populations, people with compromised immune systems, but talking about this and the monitoring that's going on in the world health organization, of course on top of this, and providing those continual updates, and we keep hearing these words come out that I think most of us are unfamiliar with in situations like this, and the world health organization has called this the risk level is quote, "Very high." What does that mean?

Dr. Rohde:

Well, I mean they have different risk levels. So there's different ways to look at this. If you're talking about travel advisories, that may be something different that you're referring to. So level four is the highest. And level four means that when you're coming in or out of those countries like China, like Iran, now like Korea and those places, those have reached those high levels. Italy certainly, they've quarantined the Northern part of the country. Again, that is an estimation of the blanketing of cases in an area and the importance of trying to control the spread of the virus in other naive populations.

Dr. Rohde:

Healthcare wise, when you start talking about at risk or risk categories, it's a variable categorization. And so when we talk about the elderly, we talk about the immunocompromised, and by that, just so the audience understands, that's a a word that can really include people like transplant patients that have just received a kidney. Because they're sometimes on immunosuppressive drugs, knocking down their immune system. It could mean cancer patients on chemotherapy. It could mean newborns in some cases, because they're not really developed as far as an immune, their full maturity for their immune system. So it can be a variety of things.

Dr. Rohde:

So far with this one, obviously the highest risk right now as of today that we're seeing is in the elderly, as evidenced by the nursing home in Seattle, which is a really sad situation. And those really 60 and above are being looked at as being a little extra diligent with travel, with large gatherings. You hear the term social distancing and things like that. So really pretty smart for that population to think about things before they move into those high volume populations. But really right now, college aged, teenagers, even maybe younger preteen... I'm 52, so I think I'm still in the safe category here, but even I'm being more diligent for certain things including high touch surfaces and all those sorts of things we've been talking about.

Dr. Rohde:

So it's a variable. And you just have to know to monitor what's happening. Next week we might be talking about those 50 and up, because we're starting to see a rise in fatalities in that population. Hopefully not.

Dan Seed:

It does seem though that when we're talking about those same kind of populations that you just talked about, when we focus in on flu say, that those are the same groups of people that generally we're more concerned about. Older people, people with the compromised immune system for one reason or the other. But what makes this different? Or does it, from say a conventional flu outbreak or flu season, with regard to the way that it spreads among those individuals?

Dr. Rohde:

Right. So that's a great question. That's a difficult question that we're still trying to answer and monitor. In my own opinion, so in my own professional opinion of doing this for 30 years, almost now, I do think that there's some similarities.

Dr. Rohde:

I mean, certainly the way it's spread through respiratory transmission, and you mentioned the different populations. The one thing to think about those with influenza, so I'm going to step off here and talk a little bit about flu. Flu is also seasonal. We're not sure if coronavirus is yet. We really need to wait a year or two to see if it's going to go down in the summer and up in the winter. We can talk about that in a minute-

Dan Seed:

Sure.

Dr. Rohde:

... if you'd like to? But flu, we know does that, but flu is also well known, as you may know, that you need a vaccine every year because it changes. It's an RNA virus and it actually sometimes shifts or drifts genetically, and depending on what it does, you may have a very new unseen immunological virus like the avian flu outbreak a decade or so ago. That can cause massive problems quickly because it's so new. So similarly coronavirus, it's brand new. The population collectively has not had a chance to react to it. It's called an immune response to a particular agent, and with time, if it goes through the population... Again, I've seen this with West Nile virus. I've seen it with the first SARS. I've seen it with different strains of flu. What we hope is that a year or two from now, this is another agent that we're keeping an eye on. We may have a vaccine for it in a year or two, and that we're talking about a different virus.

Dr. Rohde:

But flu, definitely if you look at the last few years, some years it's kind of normal flu, the vaccine works a little better, the case fatality rate drops a little bit, but because it spreads every year globally, the numbers for deaths are very high. I mean, sometimes in the U.S. we're talking 45,000 cases just in the U.S., so it can get scary when you start looking at that. But it does kill younger people. So if you monitor flu... Even right now in this area in the U.S., there's been about 125 pediatric flu deaths, which is not getting a lot of attention because of coronavirus. So there are some differences.

Dr. Rohde:

Flu is still a killer globally. We talk about it every year. We're trying to keep an eye on it now with respect to what my colleagues do, so that people are updating their vaccines. And in a weird way, with the diligent hand hygiene and all of the attention, which is wonderful, this is great for public health in a sense that people are doing a better job with that, we may see reduced numbers in all respiratory agents this year just because of what we're doing.

Dan Seed:

You mentioned the flu mortality rate among children. I'm a father of two young girls who go to daycare. Of course, me and my wife have talked about this. Our daughter had the sniffles the other day and normally your first thought goes to, "Oh, it's a daycare cold."

Dr. Rohde:

Right. Right.

Dan Seed:

Now of course you get that thought in the back of your head. But what's interesting about this COVID-19 is that the mortality rate or number of deaths, I guess, among children, is really low.

Dr. Rohde:

Yes, sir.

Dan Seed:

So why is that? Do we know yet? Is there an idea as to why they're maybe not presenting with symptoms and then it's not escalating in children?

Dr. Rohde:

Sure. So that gets into some details of some pretty deep science.

Dan Seed:

Sure.

Dr. Rohde:

But I'll try to talk about it generally, and we are still learning, so nobody knows for sure. But viruses and other microbes have things called virulence genes. And what that means is that for some viruses or even bacteria or fungi or whatever you're talking about, some will have more virulence. They'll be more pathogenic, more disease causing. And if they are certain types of things that are more detrimental to your body, to your organ systems, for instance, if they start affecting your kidneys or things like that, really high fevers that you can't control, those are going to have more problems. We're really not sure right now with this particular strain. We are going to need to watch it.

Dr. Rohde:

And you also need to have enough numbers in the pediatric population to study that. If you look at 10 cases and make drastic predictions from that, you're going to look foolish probably later down the line. But my wife's a pre K teacher and we have these conversations at home. I'm the guy they talk to at her school and there's a lot of worry and concern. But what I continually tell them right now, is that doesn't seem to be effecting children, preteens, teenagers, normal healthy people, and to not panic if they see symptoms. But they may want to more thoroughly tell that child to stay home, and to make sure they educate the parents, and just play it safe right now. And you would want to do that with the flu.

Dan Seed:

Sure.

Dr. Rohde:

Right?

Dan Seed:

Of course.

Dr. Rohde:

RSV or pinkeye for that matter. And please stay home. And we know humans... I had two children that are grown up now, and sometimes it's difficult to do that cause you're like, "Is that an allergy? Or is that... And as a medical lab professional, I'll tell you, and this is my go to statement, that we can't always do, but you really don't ever know what you have unless you test for it. If it's possible to test for. So that's a tough thing. I'll hear my parents, I'll hear my cousins, I'll hear my friends say, when they're sniffling and sneezing all in my room, that, "It's just allergies." And I'm-

Dan Seed:

Right.

Dr. Rohde:

... backing up, right? Just because I can't help it because I know they have no way of knowing. So as a parent of two small children or teenagers or anyone else, certainly you want to be educating them, talking to them about it, especially children. I've been talking to my wife's pre K teachers because they're scared. And so even the idea of just talking to children about what is a germ and what's the typical thing. Usually they're not killing people, right? So to be careful maybe to the exposure for social media, for small children and in young teenagers, and just keep an eye on that, because that's having an effect too on young people.

Dan Seed:

And I do want to get into, because I know that's one of your interests is the effect of media and social media on populations, in regard to situations like this. But sticking with that idea where you talked about people coming in and they say, "Oh, I've just got allergies or are cold." The symptoms that we're seeing with this mimic what we would see in allergies and-

Dr. Rohde:

They do.

Dan Seed:

... a cold. So at this point, what should we be looking for? What's the point where the average person... In central Texas we're getting into allergy season.

Dr. Rohde:

Yes, sir.

Dan Seed:

And I think I have allergies right now, but we're getting into that season and we're still in flu season. We're still in cold season. So at what point do I go, "I need to go in"?

Dr. Rohde:

That's a great question. That's a great question. So speaking of media, I'm going to always go to CDC or WHO or other healthcare entities that are reputable, like the Mayo clinic or Johns Hopkins, those types of places. The first thing I would recommend again, is what we worry about most in incidents like this is, so much exposure to the news and what's happening is that you don't want to overwhelm ERs and clinics and hospitals. So there's something called surge capacity that we worry about. We just can't handle 5,000 people showing up at CTMC in San Marcus. That would be a nightmare. And so what we try to do is tell people to use common sense, to stay at home, self isolate when they start seeing fever, and really thinking about that with respect to how they might monitor those symptoms.

Dr. Rohde:

So certainly if you get really high fevers, shortness of breath, with this particular virus, because that could mean pneumonia is developing, which is fluid build up in the lungs. That's a time to do something about it. And during those instances, what you want to do is probably right now what's being said is, try to call ahead. Because again, we're trying to avoid those particular surge at those places. So right now that's what we're doing. Certainly if you have an emergency with respect to a child or anyone, having weird symptoms or they're passing out for instance, or something where they're really having some problems of fainting or high fevers, then yes, you might want to call 911 and do those things. But really, I just don't think that's going to happen with coronavirus. It's very much like a cold virus. It's very much presenting like that.

Dr. Rohde:

And if I might just mention, this morning I looked at the numbers, globally, right now, according to Johns Hopkins website, we have about 121,000 plus cases globally, about 4,400 deaths globally. In the U.S., 25 deaths. The news is reporting a thousand or more cases. CDC is showing about 647, because they're showing confirmed tested numbers. And so if you think about that, and this is not to downplay this, but 4,400 and 121,000, if you look at those numbers, if you do the quick math, that's about a 3.6% case fatality rate. That's about 118,000, 117,000 people recovering. So sometimes it's important to flip that story a little bit.

Dr. Rohde:

Is it serious? How are we concerned about the elderly? Absolutely. But people are living through this every day just like they are the flu, just like they are other infections. The body is an amazing thing. The immune system's an amazing thing. We don't wish major illness on anybody, but it's kind of the game. Again, with viruses, you're going to deal with this, it's going to continue to go. I keep telling people, expect cases to rise in the U.S. They're going to climb. It's going to happen in Texas. It's going to happen everywhere. We're looking for it and it's coming. And it's probably already out there, because we just don't have enough test right now, which may be another story.

Speaker 3:

The interview with Dr. Rohde on the novel coronavirus will continue in episode four of Big Ideas TXST. Available soon. Big Ideas TXST is a presentation of Texas State University and the division of University Advancement. Subscribe to experience more innovative, thought-provoking content. If you like what you hear, consider leaving us a starred review, five if possible. The views expressed during this program are those of the individual participants and do not necessarily represent those of the university. Big Ideas is hosted by Daniel Seed, produced by Jamie [Bloshkie 00:19:39], with technical assistance provided by Manuel Garcia, strategic consultant is Kelly Raz. Special thanks goes out to Dan Schumacher.