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INTERVIEWER: And among the avalanche of bills passed into law this past legislative session and billions of taxpayer dollars that will be spent in the next two years, is money to prepare for what could become the next big public health challenge. You've heard of Chronic Wasting Disease? Minnesota scientists are watching the brain wasting disease kill deer and elk, and are studying its potential to jump to humans.

The U of M Center for Infectious Disease Research and Policy has received state money to start prepping for the possibility of CWD spreading to cows, pigs, and possibly humans. Dr. Mike Osterholm heads the University of Minnesota's Center for Disease Research and Policy. He's a world renowned epidemiologist, and he is on the line. Welcome back.

DR MIKE Thank you, Cathy. Good to be with you.

OSTERHOLM:

INTERVIEWER: CWD is something that's been on the radar for a while in Minnesota and Wisconsin, as you know. There are efforts to contain it. Hunters are urged to test their deer's brain and lymph nodes for it. But any risk to humans has been downplayed. What's the urgency right now?

DR MIKE
OSTERHOLM: Well, first of all, most people really don't quite understand what this particular prion-like disease is. Now a prion is just merely a piece of misfolded protein that then can cause other proteins to misfold. And that, in turn, leads to this kind of chronic neurologic challenge. There's a model disease called Creutzfeldt-Jakob Disease that is, in fact, a prion-related disease that affects about one per million population, and that's genetically related.

But this is really much more like what we experienced in the United Kingdom back in the 1980s and '90s when cattle became infected that then people who ate that 10 years later started showing up with this neurologic disease. Think of it as a very aggressive Alzheimer's-like picture in much younger age.

So what's happened here with the prions in cervids, which is the deer family, and this was first documented back in 1967 in Colorado where then a deer in a captive location at one of the universities actually first developed this. And then we've seen it spread now to more than 30 states, four provinces in Canada, and 19 Minnesota counties where it is a real challenge, because, as we've seen over time, this prion continues to change and become what we call more humanized.

Our Center raised this issue four years ago the first time at the legislature to say with what we're seeing happen here, this could clearly lead to transmission to humans from consuming infected deer. And since that time four years ago, we've only seen this prion become more and more like one that we fully expect could transmit to humans.

INTERVIEWER: And if I understand this correctly, this prion, if it gets in the soil, you really can't kill it. Is that right?

DR MIKE
OSTERHOLM: These things are incredibly hardy. It takes a great deal to basically change this, meaning, since it's just a misfolded piece of protein, you can't even call it killing it. What you're trying to do basically is disable it from doing what it does. And this is not something that standard disinfecting procedures can handle.

In fact, when we have accidental surgeries done on people with neurologic disease caused by prions, oftentimes you have to landfill the equipment afterwards, because there's no way to adequately disinfect it. And so this is what we're concerned about also with this is that this is not something easily you can easily kill.

And when we see it in the wild if an animal, for example, dies, carcass is disposed wherever in the wild, the prions actually can incorporate into the soil of where that carcass is, and then turn around and grow up into the crop, like a pasture crop or whatever that there. And the prion is now in the plant, which then just furthers the spread of it. So this is a real challenge for us right now.

INTERVIEWER: And you receive money from the state legislature this past session to start the planning process in case something does happen and it jumps to humans and agricultural animals?

DR MIKE OSTERHOLM: Yeah. You know, right now, none of us want to believe this could happen. But as much as you hope it isn't going to happen, hope is not a strategy. And four years ago when we first raised this alarm, people thought, oh, here they go. They're being scary, et cetera, et cetera. But what we've seen with research and, in fact, in a major meeting just held in Denver in the past week, the data only further supports that the likelihood of this happening is real.

And so, we do not have adequate testing right now for deer. We don't have adequate testing for humans. We don't have protocols in place where if we should see a human case, what does that mean? What will people need to consider in the medical community for looking at this? There's a single lab right now in the entire country that tests for human CWD-type illness at Case Western Reserve University, which would be terribly overwhelmed if we started to see a problem with this.

So what our effort is through CIDRAP is to bring together world experts. And we do have right now a 49 member International Advisory group that advises us on our work and with CWD. And what we would do is lay out a scenario. What if this happens? What if this happens? What if this happens? What should be the next steps? What should be the messages? What should be the planning? What should be the execution?

And we worry, for example, that this might spread to cattle or to swine. And if that were to happen, it would have a dramatic impact on our agricultural industry here in Minnesota as well as much of North America. So this is what we're trying to plan for. We're again, hoping that it will never happen. But as I just said, hope is not a strategy.

INTERVIEWER: You know, I'm wondering, Michael Osterholm, the DNR gets a ton of license money from deer hunters. The Deer Hunters Association's a pretty powerful group. Are you assuming a little bit of upstream on this with some of these sports groups?

DR MIKE OSTERHOLM: No, they see it, too. They understand. There's real concern here. And hunting is an absolutely critical part of wildlife management in this country. If you look at wildlife conservation, it is largely funded on the backs of deer licenses being sold by DNRs around the country.

This would be a terrible challenge if we saw a drop in hunting for deer. That would have potentially more impact of more transmission occurring among deer who are close together. So this is one of the areas that we're working on is working closely with the deer hunters. They, too, don't want to put their families in harm's way if, in fact, the venison that they might be serving them is contaminated with these prions.

And so we're trying to figure out what can we do right now to maximize, for example, testing of the carcass in the field? Once you shot that animal, could you know within minutes to hours if they're infected or not? Because if you know that they're not, then you're home free. But if you don't know and it may take you weeks to get a test back, that's really of little use in terms of how that carcass is going to be processed.

So these are the kinds of things we're trying to work on and plan together. Our DNR here in Minnesota has really been on top of this. They've been one of the best in the country in dealing with this issue. And right now, we're collaborating very closely with them just within Minnesota, but our project is really a national one in scope.

INTERVIEWER: Say, I'd be remiss if I didn't ask you a COVID question or two.

DR MIKE OK.

OSTERHOLM:

INTERVIEWER: The COVID emergency is over, as you know, and folks look like they're acting as if all is normal. What advice do you have as people forget COVID is still circulating?

DR MIKE Well, I think we all have to appreciate the fact that we're, I think, on the backside of the pandemic right now. We
OSTERHOLM: are in a much, much, much better place than we were just a year ago. I think the challenge is, is this the end? And if we look at past influenza pandemics, we've had periods where even two to three years into the pandemic it may be quiet, and then all of a sudden, one more wave of cases happened.

And several of the viral geneticists who are well-recognized for their work with COVID have actually come forward and said that there is a real chance we could see another one more big wave hit. So, you know, I will continue to sleep with one eye open worried about this virus, but I think we have to acknowledge right now that we are really in a much, much better place. We just don't know if we can stay there for the duration.

INTERVIEWER: With the pandemic, then, slowing down, there's research money dwindling. Do you worry that drug companies without incentives will take their foot off the gas in developing better vaccines, improved antibody treatments, and other therapeutics?

DR MIKE Well, you know, I don't even just worry, Cathy. I'm absolutely shocked at what I'm seeing happen. And what I
OSTERHOLM: mean by that is that we are seeing companies who have some very good antiviral drugs in the research and development pipeline who are actually just shelving them right now because they see no financial incentive for future work on this.

We were able to preserve the \$5 billion in the White House debt ceiling settlement last week to keep that into what's called a Next Gen program of vaccines of the future. But that is just a down payment. We need much more support for that. I mean, we need to think of how we need to get better vaccines for COVID and for influenza, much like we think about building an aircraft carrier. It's often 14 years from first concept to the time that ship is floating in the water.

These new vaccines are not going to happen overnight. And so we have got to understand the long-term preparedness counts on the next years of really researching to get us better vaccines. And as the old Eulerian frame commercial of 40 years ago said, you can pay me now, or you'll pay me later. And I think we have to understand what an investment this would be versus what we just saw was trillions and trillions of dollars and millions of lives lost with COVID. We don't want to redo that all over again, and that's going to be dependent on how well we do in getting new vaccines and drugs.

INTERVIEWER: And do you think lawmakers are listening, or is this just too political?

DR MIKE I think right now it's very political and people just want to move on. And I understand that. I get that. But we will
OSTERHOLM: be very mindful that when the next pandemic hits-- and this is not a matter of if it will. We will see more pandemics and the potential for both influenza and coronaviruses to really be challenging is there.

I mean, I remind people that if you look at the two coronaviruses that we have had happen since 2003, SARS and MERS, both killed between 15 and 35% of the people that got infected. The only fortunate thing was these viruses were not very infectious. Now you got SARS-cov-2, or COVID, coming along, which was highly infectious. But fortunately, only-- and I say only with great pain-- killed one half percent of the people that got infected.

Cathy, there is nothing that would prohibit the high transmissibility and the high lethality of these different sets of viruses to combined. And the next pandemic could be one where instead of a half a percent of people dying, it could be 35%. That's the kind of thing we have to understand from a situational awareness standpoint, we need to be prepared for. And I worry that people just want to move on.

INTERVIEWER: All right. Always good talking to you. Thank you so much.

DR MIKE Thank you. Bye, bye. Thanks.

OSTERHOLM:

INTERVIEWER: We've been talking to Michael Osterholm. He heads the University of Minnesota's Center for Disease Research and Policy.