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**Chris Dall** [00:00:05] Hello and welcome to The Osterholm Update- COVID-19, a weekly podcast on the COVID-19 pandemic with Dr. Michael Osterholm. Dr. Osterholm is an internationally recognized medical detective and director of the Center for Infectious Disease Research and Policy, or CIDRAP, at the University of Minnesota. In this podcast, Dr. Osterholm will draw in more than 45 years of experience investigating infectious disease outbreaks to provide straight talk on the COVID-19 pandemic. I'm Chris Dall reporter for CIDRAP News and I'm your host for these conversations.

**Chris Dall** [00:00:41] Welcome to another live episode of The Osterholm Update- COVID-19, a podcast from the Center for Infectious Disease Research and Policy. I'm your host, Chris Dall, and over the next hour I'll be posing your questions about the COVID-19 pandemic to Dr. Osterholm. If you haven't already, you can send your questions to us on Twitter using the hashtag #OsterholmUpdateLive. That's #OsterholmUpdateLive. We'll start this episode of The Osterholm Update, as we usually do with Dr. Osterholm's welcome and dedication and his views on the current state of the pandemic. Then, we'll start taking your questions and we'll try to get to as many as possible. So, Mike, the floor is yours.

**Michael Osterholm** [00:01:15] Oh, thank you very much. And welcome to all of you again tonight on this live podcast. Let me just tell you, as much as I do TV, interviews, etc., there's something very special about this one being live. I feel like almost I can reach through the screen and touch many of you. So thank you very much as I've started every podcast and it's said every time with as much sincerity as the last time, thank you for being with us. We know you have lots of options to get your information. And we also know that you take a lot of time to let us know what you're thinking. I want to just thank you very much. I also just want to say tonight we're initiating a new element to our podcast. This is actually our 30th podcast tonight. We've actually had twenty seven previous podcasts that were regular ones. We've also then had one special one, one previous live one and now this one. And so for the ongoing podcast we'll be each time introducing and remembering someone very special who has died of COVID. And tonight, at the end of this podcast, we will initiate that activity. In terms of dedication, you know, we all recognize right now what's going on in this country with regard to our elections. And I just have to say that I watch on TV, I hear stories from friends and colleagues about the dedication of the poll workers and how much they're doing to make this election possible. And they're doing it in a time of COVID, which clearly means that there is some risk to them being in such settings. And so I dedicate this podcast tonight to the poll workers. Thank you for allowing us as a democracy to have an election and to have it run like it's running because of you. So on behalf of all of us on this podcast, we recognize the major contribution that you're making to our tomorrows. So thank you.

**Chris Dall** [00:03:14] So, Mike, let's take a quick look at the current state of the COVID-19 pandemic. The Midwest now seems to be the hot spot in the United States with cases rising and in Wisconsin, the Dakotas and even here in Minnesota. So is there a particular reason for that? I mean, is the Midwest simply where the virus is finding more fuel to burn right now?

**Michael Osterholm** [00:03:33] Well, there's lots of fuel to burn all over the United States. As you heard over the course of the past several weeks, there's been several studies out that show that about 10 percent of the U.S. population have been infected to date. That's actually even true internationally with the WHO reporting two weeks ago, about 10 percent of the world's population. You know, when people ask me often now what inning are we in? You know, I've had to temper it because people want to move along much more quickly than the virus is allowing us to move along. And I come back to the fact, you know, the end of the third, top of the fourth, because we have a long ways to go yet with only 10 percent of the population having been infected. So when we look at where we're going, we have to understand that like a forest fire, there's lots and lots and lots of forest yet to burn. And we've talked about this before that the one saving grace in all of this would be a vaccine that would allow us to, in essence, protect that human forest. But short of that, we're going to only be able to do that by ourselves, limiting our contact with the virus or getting infected and hopefully developing some kind of an immunity. So in terms where we're at right now, the upper Midwest is, in fact, the house on fire. When you look at the numbers in South Dakota, North Dakota, Montana, Wisconsin, all of those are areas that are now reporting 74, 74, 58 and 50 cases per hundred thousand population per day. That's equivalent to virtually what we saw earlier in July when we were seeing the real hotspots in the south. When you look there are actually nine states that have more than 30 cases per hundred thousand population per day. Forty one states are currently witnessing major increases in cases as we speak. And just compare that on September 12th, we reported the seven day moving average of cases in this country oat thirty four thousand five hundred, thirty four thousand five hundred. That was at the bottom of that trough that we saw associated with Labor Day period. Today, we're at a seven day average of forty five thousand nine hundred and twenty seven, which over the course of the past week, we've had multiple days into the fifty to fifty five thousand cases per day. We are heading right back up, as I've discussed on this podcast for the last six weeks, to a part of the pandemic that's going to be in excess of anything we've seen to date. I think the next six to 12 weeks are going to be very, very difficult. This is important for us to understand so we can begin to prepare for it. I look right now at the health care system issue. I don't know what the number is tonight, but between North and South Dakota, they had less than 40 open beds in the entire state. When you look at eastern Wisconsin, the same thing is true. And Minnesota is not far behind. When we look at the other states, Utah, Idaho, Iowa, Nebraska, Oklahoma and now the Northeast. So what's happening is the confluence of all these different events and risk activities to make this what is happening. First of all, we have the situation of the college students coming back, clearly bringing all of these young adults together in social settings as they are whether it be dormitories or they be in the community nearby the universities. We're seeing tremendous transmission there and it continues. As CDC has recently demonstrated, we've also seen in the that population, although not often severely ill, will often transmit to their older friends, to family. And then you see a second, almost a peak of cases occurring following the college students. And that's happening. Next of all you see pandemic fatigue setting in in a major way. This is just I know the virus is there. I understand the virus is real. I don't want to get infected, but I'm just tired of doing all of this restriction I think I'm supposed to do. So these are the people going to weddings and funerals. They're going to family reunions. They're going to open community events. They're even going to theaters. They are going to bars and restaurants as they can open and in many cases, they're having their own social events. You put this all together. We're seeing tremendous transmission in these areas, tremendous transmission. We'll talk more about that in a moment. And then you add what I call pandemic anger, the term I used several podcasts ago to describe what is almost a third of the U.S. population that does not believe that this pandemic is real. They still believe it's a hoax perpetrated for political purposes and therefore, anything that might suggest a reduction activity for limiting transmission is, in fact, nothing that they will have a part of. And so when you add that all together, that's a very toxic mix. And I can't, you know, I try to just call balls and strikes and tell you what I see. But the next six to twelve weeks are going to be really tough. They're going to be very, very tough. Vaccine will not be there. Do not count on that. It's gonna be our human behavior. And ironically, our human behavior could reduce transmission dramatically if we elected to do that. A couple other things I just want to mention here, I'll come back to this later tonight in regards to several of the discussions, but I keep hearing about this issue of deaths. And I keep hearing about the fact that, you know, this pandemic really is not about most the population, but old people, you know, and if I hear one more time somebody say, well, they're old, they're ready to die, you know, there are a lot of very viable, vital people who are out there today dying of COVID. If we do look at the numbers, I just want to remind everyone that, in fact, there is obviously this skewing of bad outcomes to the older population. If you look right now in terms of the population, 21 percent of the cases of deaths are between 25 and 64, where 79 percent is greater than 65 years. And you can say see right there. But remember that population under 65 still makes up forty one thousand six hundred and twenty eight deaths, including 440 additional deaths in those under age 24. Now, where I find some real interest, because I happen to be a guy who's over 65, I'm under 74, but if I take the sixty five to seventy four, and I don't want people to call me old as much as I call myself old on this podcast, and have heard about that. When you look at this issue right now and you add in those who are under 74 or younger, forty four percent of the deaths are 74 years of age and younger. And now we're talking about an additional forty two thousand. So it's very important we understand as we talk later that this disease is not just about being in a long term care facility or someone very old. Those clearly are important cases. But there also are many, many individuals dying younger who are very vital and alive, and they are suffering also from this. So I would just say at this point, Chris, by the time we get through the next 10 to 12 weeks, I'm convinced most places in the United States will be a house on fire. We're already seeing Texas starting to reignite. We're seeing the upper northeastern part of the country. We've already recognized increasing transmission in New York City, by the way, an area, a state that has done so much to limit its transmission over the course of the past 14 weeks. And I think it's coming back in even places such as Florida, Texas and California.

**Chris Dall** [00:11:09] Looking quickly at the situation in Europe, Europe once again appears to be a house on fire. I'm just wondering though, are the European countries still in a better position to get this under control than the U.S.? Given that they started with a much lower rate of infection, or do you see things really getting out of control there?

**Michael Osterholm** [00:11:28] Well, you know, again, just to go back to a conversation we've had in prior podcasts, if you look at what Europe did, unlike us, around that Memorial Day time period when we basically let up the break and said, you know, we're done, we're finished with this virus, and of course, the virus was no way finished with us, the Europeans largely kept the break down and they did it in a way where, you know, they were surely allowing society to do a lot of things, but they limited crowds. They still required mass to be worn, etc. It was in August where there was a rather rapid acceleration of releasing the public back into the way it was. In other words, just this is what we've been doing, so it's what we're gonna do. And we saw this very rapid acceleration of cases. And now we're at a point where a number of the countries are in excess of the cases they had during the worst days of April. They're still below what we we're at. And there still may be a possibility with reducing transmission through distancing that they can get it better under control and bring it down. But this is not a given. I think that you're seeing already pandemic anger, pandemic fatigue become a much more common issue in Europe. People are feeling like, you know, I don't want to comply with these anymore, although they don't really think through the consequences if they don't. And so I think it's a challenge. I might add countries like the Czech Republic, a country that, by the way, has one of the highest masking activities anywhere in all of Europe right now is the country probably has the highest illness rate in all of Europe. We're seeing major transmission in the Netherlands, France, Spain, England. The Nordic countries are starting to see an increase. And so I think this is a huge challenge. We're seeing big increases again in India. We thought that India was actually slowing down and now it's picking back up again. There's a limited outbreak in China, which I think they'll bring under control, as only they can do. But also, I think another very illustrative example of what we might have ahead of us is Iran. Iran now has had two major outbreaks, much like we saw in Texas, Florida and Arizona. The first one in April where they drove it down. They got it down literally to a very, very low level. Let the brakes up a bit, quite a bit. They had a second one. And that occurred during our summer peak when we had one, and then they drove it back down again. Well, Iran is now experiencing a third one. And so when people also say, well, when cases start to come down and disappear, you know, it's kind of done. We're over with it. No, it's just a temporary respite as long as there's embers in that forest, they'll come back and there'll be a raging forest fire again. And I think that's what we're seeing here. So what can Europe do? I don't know. I think they're really at the edge right now of either losing control of it much as we have or whether they're going to get control. When I look at how their society is beginning to respond, I challenge the notion that they're going to get under control. I think the Asian countries will continue on hold to do very well. I think countries like Vietnam, Taiwan, Singapore are models of how to respond to this. So has South Korea. And so they've done it and done it very well. And they've actually also, as I'll talk about in a moment, brought back a lot of their industry and their economy by doing this very issue.

**Chris Dall** [00:15:00] So, Mike, I also want to ask you about the webinar you hosted last week with FDA Commissioner Dr. Steven Hahn on the COVID-19 vaccine approval process. What's your take away from that discussion?

**Michael Osterholm** [00:15:12] Well, let me first of all, say to all the listeners who are listening live tonight or may listen in the future episode. Please hear me out. And the reason I say that is because I got a lot of reactions from people when I, last week, actually made some positive comments about the FDA. And they basically were dismissive, saying, you know, the FDA is corrupt. It's not capable of really leading us. Look what they've done already. You know, I'm one again, balls and strikes. And I can just tell you that they have made mistakes at the FDA. But I think the way they're handling the vaccine issue right now is highly commendable. And I believe that they are prepared to do exactly what we need to have done for oversight, for safety and for effectiveness. And, you know, it's like the old line on wine. No, no wine before its time. They will do the same with the vaccine. So I would urge all of you to if you have questions about this, I did an hourlong webinar with Dr. Hahn and Dr. Peggy Hamburg, a former commissioner of the FDA. And it was a very honest, very forthright discussion. You know, I didn't pull any punches on the questions. Dr. Hahn answered them with real clarity, with commitment. And I can just tell you, a number of my colleagues who are also and have been critics of the FDA have really come around and said, you know, I think they're getting it together. So I'm actually optimistic that from a regulatory standpoint, we'll do the right things. Whether the administration decides to issue an Emergency Use Authorization or whether or not they invoke the Defense Production Act to make vaccines before they're ready, I don't know that none of us will know that. I still worry about an October surprise. What I can say, honestly, I do not worry at this point about the scientific integrity and the ability of the FDA to make it very clear, publicly, transparently what's going on and how it will be done and what their decision process is.

**Chris Dall** [00:17:23] And a reminder to everyone that you can find that webinar on the CIDRAP homepage that's CIDRAP.umn.edu. So just reminder that this is a live episode of The Osterholm Update podcast. And if you want to send us a question, you can tweet us using the hashtag #OsterholmUpdateLive. I'm going to try and get to as many questions as possible. So now to our first question, and this one is from Anita. But it's a question we've been getting from a lot of people. The question is, is there any evidence that blood type makes a person more or less susceptible to cut contracting COVID and the severity of symptoms?

**Michael Osterholm** [00:17:56] Well, this is an issue that is one that has been a great discussion around over the course of the past several months, and in fact, there was just a very nice perspective's piece in the Journal of American Medical Association about this. There actually have been four studies that have looked at this issue in terms of the potential for either being at increased risk or less risk. The first one was a study involving nineteen hundred and eighty patients with COVID-19 and severe diseases defined by respiratory failure at seven hospitals in Italy and Spain. And what they basically came away with after looking at the data there, that, in fact, that they did suggest a potential involvement with ABO blood group system with severity. It was a suggestion, wasn't hard data. A second effort was a letter actually from Sweden in which a critical care cohort of sixty four patients were compared to a blood type distribution of the population as a whole. And they found an association of Type A with risk of acquiring critical care, about a two fold increase risk or increased risk of death, which was about three point one six. And then if you look at another study that was published out of Mass General Hospital here in Boston and looking at twelve hundred eighty nine people who tested positive for SARS-CoV throughout their experience there, they found no significant connection between blood type and COVID related hospitalizations, intubation or death. However, in a multivariate analysis where they take everything all at once and look at it, they did find that people who were RH positive were more likely to test positive than people who were RH negative. Again, remember, the ABO is antigens that are on the red blood cells. We make antibody against those. And again, it's almost like a class unto its own. The fourth one was a study that has not yet been peer reviewed. So I want to be cautious on that. But they found increased infection prevalence among non-O types. And at this point, the data are really not clear from that one. So the bottom line conclusion is right now, firstly, you can't change your blood type. So at least that's a risk factor you're going to have to just live with, sorry. But there are real limitations to all of these studies and the basic science on them was extremely weak. So for now at least, I think blood type cannot be used to identify which people will become sick with COVID-19 or how likely they are to develop severe disease. But it's an area that will continue to be studied.

**Chris Dall** [00:20:33] All right, so our next question, Mike, and this actually gets into a couple of questions about the flu. So the first question from someone named Quirky Man, as he says, as someone who's been staying indoors for months now, would you recommend I still get a flu shot even if it means venturing out for the first time to the local pharmacy? And then Lucas wants to know if you've gotten your flu shot yet.

**Michael Osterholm** [00:20:55] Yeah, well, if you're bubbled like that, and you're going to stay bubbled like that, first let me just say, I hope your mental health is in good shape. We all need to reach out to people. We need to be in connection. And you may be and you know, you don't have to be right there with somebody to be socially close. We've talked about that many times. So you can be physically distant but socially close. So the first thing I would say is the most important thing right now, I think is your mental health. And if you're doing that, fine. I may want to have a conversation with you, to understand how you're doing it. OK. The second thing is, if you do venture to a local pharmacy or your doctor's office, I think that that choice does pose some additional risk for you. And you have to understand that. I guess the first thing without knowing more about your ability and mobility to move around, there are an increasing number of places we're actually looking to drive by clinics for immunizations right now in terms of health plans and in some cases even private sector pharmacies. So that's another option to look at. Where just like getting a test for COVID doesn't mean you have to get out of your car. This may be the same. Now, that's a little dicey because then they make you pull over to make sure that you don't pass out 10 minutes after getting the shot driving home. But that's at least one possibility. The final piece, though, I would say is, is that with respiratory protection early in the morning, if you were to go into a pharmacy or to a doctor's office and get in and out, I think you're in quite good shape. Do you need your flu shot if you're not going to go out this winter and you really are certain about that then I would say you're one of those legitimate discussion points to say, no, I probably won't get my flu shot this year. And I think that's a very fair question. People are asking me when do I get my flu shot? You know, it's kind of like the baseball innings. You know, I follow the flu incidents very closely. I can tell you where it's at when it's coming. And right now, flu is at a very, very low level in this country. And so we've not seen evidence of uptick with that. As I've said before, I usually get my flu shot most often in mid-November, if I can, just so that I have longer protection lasting into the spring because of the concern about potential waning immunity. And so right now, I think if you all shot for somewhere in early November to mid November, I think that's fair. And if it changes, we'll let you know on this podcast each week. Does it look like flu is starting to pick up? And right now it's not.

**Chris Dall** [00:23:26] All right, Mike. Now we have another question on, and this is something I think we both knew we'd get questions on, this is from Steve, who is asking about the Great Barrington debacle. And then what he's referring to is the Great Barrington Declaration. And the concept behind this is that we can get close to herd immunity without a vaccine by letting the young and healthy live their lives normally and protecting the vulnerable. And we can do this while avoiding lockdowns. So what is your reaction, Mike, to this Great Barrington Declaration?

**Michael Osterholm** [00:23:59] Well, first of all, I think it's good that we're always questioning ourselves what we're doing, how we're doing it. So I would never challenge that. But I think what has been made of this Great Barrington Declaration is a lot about nothing except the fact it's another distraction and it's a way for people to misunderstand what the risks are for them. What this basically says is that, you know, government overreach and all these lockdowns have resulted in this grave injury to our economy, to individuals alone in terms of the economic impacts, to mental health, we've seen less health care, etc cetera, and they could not be more fundamentally wrong. It wasn't about government lockdown that did that. That surely had an initial issue and it still does, whether it's restaurants and bars and so forth. But as the economic engine of this country, it's all about participation and people have been afraid to go out into public. So when health care systems shut down, they're seeing patients. That was initially because of what they thought was going to be this need for additional health care. It wasn't government making them do that as such. And then when they realized they could come back, they have. We've caught up a great deal on our immunizations. Mental health is still a challenge, but mental health is a challenge not because of government lockdown it's because they don't have jobs right now that basically are not about government having said you can't work there. Bars and restaurants are really it, OK. It's about the fact that the public's not back out. And so department stores, any number of places that would hire you, you're still on layoff. And so I think it's really important to understand what really is causing the current situation. And as I've said before on this podcast, in an op ed piece that Neel Kashkari, the president of Minneapolis Federal Reserve Bank and I did in The New York Times back in August, said that where you have these houses on fire, you've got to basically limit human to human contact. If you don't, you'll overrun your health care systems. And I guarantee you, you won't get a lot of your health care done because they'll be too busy dealing with COVID patients, not because government says you can't go. You won't be going into public places because of the fact that government tells you not to, it's because people be afraid to go there. And so what we've said is, is that we need to limit this transmission by having this distancing. And that government should pay for that. Right now, the savings rate in this country has gone from eight percent to 22 percent, unheard of numbers where if we were just to borrow the money from ourselves, to pay people not to have to go to work in areas where it's high risk, small businesses not to be put at risk, so if you're a bar or restaurant, and you can't make it, we're there to help you. And I think that that's the challenge right now. So what this Great Barrington Declaration says, is all these injuries are occurring, because of lockdowns. And as such, therefore, we have to end them all. Well, I'm telling you right now, if there was no government at all. None. You think people when the house is on fire, when you're down to no hospital beds in your state, when people are afraid to go out in many cases that we're going to see the economy booming? If you look in the European experience and the Asian experience, Europe's GDP improved dramatically over ours between April and August. Ours never improved much at all. And not because we're in lockdown, because people just still didn't feel comfortable going public. In Europe they did. And GDP increased. Now of course they're into this current situation. Look at Asia. GDP in Asia has gone up dramatically since last spring because they've been controlling the virus. People have their jobs back. People are back out into the public settings. And so I think this kind of rhetoric about this, I mean, is really unfortunate. And it's put forward by people who just don't have a clue really about what's happening in terms of virus transmission. I will tell you right now in Minnesota, if we get to the point where we don't have open hospital beds in any given hospital, where we're hearing sirens more every day than we hear anything else, our economy will tank. And government has not had to do a thing about that to make it happen. That's what we have to be mindful of. So we've got to drive down these infection levels by distancing. That's what does it. And when you think that you can have family reunions and funerals and weddings and wedding dances and you can go to bars and restaurants and theaters and all these kinds of things, just know that's what's going to keep driving this. And we are headed right here in Minnesota, as well as all the other states around the country to some real challenges over the upcoming months. And I'll be anxious to hear what those people say about 'don't do lockdowns', which, again, they don't quite know what they're talking about what they mean. When we are all houses on fire and then see what the public is going to ask of us.

**Chris Dall** [00:29:01] Yeah just a quick follow up on that, Mike. Did that idea, you let the young and healthy live their lives and protect the vulnerable? I mean, A) there's never a plan on how to do that, that's mentioned. But is that even possible?

**Michael Osterholm** [00:29:16] It's not possible. And that's another part of it. Thank you for mentioning that is is that we all interact. I mean, look at the college students right now. And I talked about how it spills over into older adults. We're seeing this happen all the time. You know, this infection has been cruel in terms of racial inequality. And when you actually look at the socioeconomic status and you look at housing issues and you look at job issues, you know, you have someone who is racially disadvantaged, black, brown or indigenous populations. You know, they're living three family generations in one apartment building with two bedrooms. And the mother, a single mom, is going to work by public transit. And she's an essential worker making a little more than minimum wage. Tell me, how in the hell do you protect that family if you come home with the virus? How do you isolate? What do you do? And so, again, there's a lot of things here that we just can't do that people just say, well, let it go. Well, you know what? If she comes home with that virus, grandpa and grandma or mom and dad are at great risk of a serious outcome. That's just wrong. That's wrong. And so I think that we have to protect these people and it doesn't mean forever. That's the other thing I find very frustrating is if we were asking this for the rest of all of time, then you could say, OK, wait a minute, we've got to figure out how to live with this. And I'm still saying we have to live with it. But when we were talking about let's try to get to a vaccine, give us six months, give us eight months, give us these, OK? I mean, who are we? I mean, you know, I look back and I've mentioned this on a previous podcast, where I watched The Greatest Generation locked up in their homes so that they don't end up going out and catching this and dying from it. These are the same men and women who back in the 1940s gave two and three years of their life to protect this country. And they didn't ask anything for anything at all. And today we're just asking people, can you help us hold down the transmission of this virus? And it's an inconvenience. That's hard for me. So I think that in follow up to your question here, it's not practical. We're not going to be able to just bubble off. Tell me how you're going to bubble health care workers from basically getting infected and bringing it home or taking it in, say, for example, long term care? You know, the workers there are bringing it in. So I think this is part of the reality we have to deal with. This virus is the enemy. It's not us. We are not enemies of each other. It's the virus. But if we don't understand it, we will make each other an enemy of each other. And that's when we will absolutely fail against this virus.

**Chris Dall** [00:31:51] We have another question in here, and this is a local question from Anika. And this, Mike, this might take you back to your health department days. She writes, as cases continue to increase in Minnesota, case investigators are overwhelmed and stressed. Do you have any suggestions or recommendations?

**Michael Osterholm** [00:32:07] You know, at some point we have to figure out when we can do certain things, and when we can't. And when we can't then what do we do next? You know, I've used this term with some frequency on this podcast, to the chagrin of some. But, you know, it's not a good time to be planting petunias in a Category five hurricane. It's just not. Wait until you kind of have better weather. And I think that what we have to come to understand is when you're a house on fire, there isn't much you can do by way of testing and tracing and follow up. It's very, very difficult. You know, I worry a great deal about the mental health of all of us, myself included. But I worry specifically about public health right now because, one, they are working enormous hours every week. And they are the brunt of so much criticism, so much negative, you know, it's public health's fault for this, it's public health's fault for that. And these people are so committed just trying to help. They're just trying to help. They're trying to help you. And so I worry that, you know, that's a real toxic mix of, you know, somebody who's fatigued, who's being called on the carpet for doing what is the best they can possibly do to protect the public's health. And so I think this is a very real issue. And we've had this discussion among public health professionals. How do we look out for the mental health of these people? You know, if this was a one month or two months or four months deployment, but we got many months ahead of us yet, we're not going to be done for quite a while yet. And it's going to get a lot tougher. So, you know, my hat goes off to the public health people I know. I respect them so much. I appreciate them so much. And I just tell them, you know, that they may not get their credit now, but someday there'll be people who know that our kids and grandkids have a better world because of what they did.

**Chris Dall** [00:34:03] Reminder to everyone that this is a live episode of The Osterholm Update podcast. If you want to send us a question, you can tweet us using the hashtag #OsterholmUpdateLive and we are happy to have all of you joining us tonight. So now we have a question from Grace, and this is a question about participating in indoor sports. Again, it's a little Minnesota related here. She writes, we're having a debate in my household over the riskiness of participating in indoor sports, in particular hockey. And though many ice rinks are doing temperature checks and minimizing congregating in locker rooms and other common spaces, I wonder how much those mitigation steps really matter.

**Michael Osterholm** [00:34:41] Well, this is gonna take me back 30 years and 40 years into my career. So let me start out, first of all, and say we have had a number of outbreaks in junior high and high school sports here, right here in Minnesota. We've had outbreaks in basketball. We've had multiple cases on little league baseball where we think that, in fact, the likely source was the actual event playing the closeness, whether being a dugout or whatever. And we even had outbreaks in football players in weight training programs where it's inside, it's not out on the field. It's in the locker room. That's where transmission is occurring. And so, you know, the indoor issues play even with outdoor sports in the summer. I have no doubt they're going to get much worse in the wintertime. And you asked specifically about hockey, which takes me back. Back in the 1980s, when I was State Epidemiologist in Minnesota, we had a series of outbreaks that we affectionately labeled Zamboniosis. And what it was was related to the Zamboni icing machine, which back then were larger run on propane. And what happened is if you tune those a little too much, too rich, or not quite rich enough, you either get carbon monoxide or nitrogen dioxide produced off of the machines. Well, it turns out that ice rinks have a very unique ventilation challenge because you want to keep that ice cold and you have the boards and the glass around it. And what you basically do is create a refrigerator out there, which the air, cold air, is much denser than warm air. And so it sinks and stays there. And so when the Zamboni machine would go around and ice between periods, it would put out all this carbon monoxide or nitrogen dioxide. And then the players out there would inhale it in and would develop severe lung disease. We published on this in the Journal of American Medical Association. And now today that doesn't happen often because most of the Zamboni's or icing machines have gone to electric motors. And so that's not been the problem. But the ice temperature issue is the same. So I think we're going to see some real outbreaks in the upcoming months where players are going to be bringing the virus in to the ice rink. They're going to be skating a lot and they're going to hold that virus in as if I was in a small room with all those players. And moving around in by itself is not going to dissipate the virus away because the cold hangs down tight around the ice skating rink. And as you know, you don't have ventilation at the foot boards in the arena. I mean, in terms of the ice rink. And there's even a spill over that occurs just a little bit, goes over the top of the glass. And for example, in one of the outbreaks we had, we had all the band members who were in the first two rows, right alongside the boards, also got infected, affected by the nitrogen dioxide. So I think that hockey is going to be a challenge and it's a unique one. I can't think of anything else in sports where there's something about ventilation that would cause the virus to sink, stay in there and not move or dissipate. And I think this is going to be a real challenge.

**Chris Dall** [00:37:52] So Mike, now we have a question about reinfections. And this is something that's made news recently. I think there was a study that came out yesterday about reinfection. So Richard asks if people are being infected a second time after only four months, will the vaccines only provide immunity for a few months as well?

**Michael Osterholm** [00:38:12] Well, this is a real challenge. I've been talking about this for some weeks on this podcast about durable immunity. What is it? Can we achieve it? We've known all along that coronaviruses are not like flu viruses. They're not like a lot of viral agents where once infected, you actually do develop immunity. And this really came from the SARS and MERS work that we've done for over the past 15 years. And so the challenge was how long will immunity last? I have no belief that immunity is going to be long term. This isn't going to be like measles. This isn't going to be like, you know, many of the kinds of diseases where once infected, you may have close to lifetime immunity. And so I think there'll be a spectrum, whether it's a bell shape curve. I don't know. There'll be some who will become susceptible, I think, in a short period of time, whether it's natural disease or vaccine. And our big challenge is going to be learning how long. And I think likely we're going to be seeing potential booster doses required for this vaccine in the foreseeable future. Now, the challenge we have is will people actually have more serious illness with repeat infections? And unfortunately, we now have several of the 28 patients I'm aware of where we have confirmed viral isolates from the first episode and the second so that they could be compared in terms of their genetics in which we can show that these were different viruses. So four months apart. Yep, that was two different infections. What we thought about at first was, well, hopefully there'll be some immunity, it won't be protective, but it'll be enough to maybe minimize the seriousness of the disease. And we've now had several cases who had a milder first illness and died with their second infection. And so, you know, I think we're still really learning a lot about this. This is that part of humility I talk about. You know, we've got a lot to learn about this virus, so it doesn't bode well. I mean, this is not a good thing for vaccine or natural disease. Well, how bad it is or how good it is, I think we still have to wait. And if we can get three years out of the vaccine, you know, hopefully by that time we'll have enough information, enough capability to keep re-vaccinating people. If that works and that's what we need to do. But the reinfection issue is not new. And, as you know if you've been listening to this podcast, we've been talking about it for a long time, predicting it was going to happen. I have to honestly say I didn't think what happened is quick. Many of these infections that we've seen second episodes with actually occurred as less than two to four months after their first infection, which is a surprise to some of us. I thought it would be longer, but it's real. Reinfection is real. And we got a lot of work to do on this.

**Chris Dall** [00:40:59] Mike, you addressed holiday gatherings recently on the podcast. But we continue to get a lot of questions on this issue. We're getting a lot of questions tonight. And here we have one from Megan who writes for people like me who have to travel to see family, is there a responsible way to do this for the holidays? I already know my whole family cannot be together because of travel, but should the rest was canceled for this year or are there precautions we can take in order to spend several days together?

**Michael Osterholm** [00:41:24] You know, I understand the importance of family. You know, if there's one thing in my life right now that, you know, is is my focus, it's my family. And I understand the holidays also have lots of emotional issues with them. Some good, some bad, some where family, you know, feel the need to get together. You know, I just come back to this issue of a COVID year. You know, at all costs, protect the ones you love and don't feel pressured into doing so. To do otherwise, I mean. You know, I've had more people contact me about weddings recently saying that, you know, I'm feeling pressured, I'm in the wedding, whatever I need to go. But it's indoors. It's hundreds of people. I mean, I've had this with people really close to me just in the recent weeks. And some of these places are in hot spots. And, you know, you feel this social pressure to do that. But don't. Don't. Feel and have the strength. So think about who you wouldn't want to hurt. And what I mean by that is if you take the virus home to mom and dad or grandpa and grandma, you have a real problem. We have an outbreak that was just written up in the MMWR, the Morbidity Mortality Weekly Report from CDC where we had a family gathering where a 13 year old girl transmitted the disease to 11 family members who was part of a big family vacation situation. She was exposed, had been tested and tested negative, thought to be the case. You know, she transmitted to all these people. And so you don't want to do that because the one you transmit to could be the one you love and they die. And I had a very poignant conversation with someone this past week, someone who was from outside Minnesota, but heard the podcast when I talked about this issue of a COVID holiday season and do it without guilt, do it with honor. And she said, you know, I have lived this for over 20 years and I've not felt anything quite like it again till now. And she was challenged by this whole family issue and she shared with me, and I have to say, I hope I can do this without breaking up, it was a pretty hard conversation, that 20 years ago she was at a party with her boyfriend who got quite intoxicated and decided to drive to another party and she knew he was intoxicated and she wanted to take the keys from him and felt he couldn't drive. But the pressure was there because he was the man. You know, and so she went against her best wishes. She got in the car with him and three other people got in the backseat. He had an accident on the way to the other party. And two of the people in the backseat got killed. And she's lived with that ever since. You know, I can tell you right now, if you go home and you don't have 14 days of having been isolated, so you wouldn't bring the virus in and you infect just one family member and it happens to be your dad or your mom, aunt or an uncle or a grandpa or a grandma. And they die, you will never forget that. So I am not saying this to scare, I'm saying this to feel empowered, feel empowered. Even if your family pressures you just because they do it doesn't mean you have to. And this is love. This is love at its very highest level. When you can stand up to that and know I am protecting the ones I love the most I can. And you elect not to, in your COVID year, this is your COVID year, it's not going to be like last year. Hopefully it's not going to be like next year. And, you know, just feel empowered to do the right thing. Protect the ones you love. So for you, I would say, you know, if this is a challenge. Don't go. Don't go to this family. Do whatever you can to be creative. However you can connect with your family. Do it in a way that doesn't transmit the virus and let everyone know you're doing it out of love. For those who have family members who don't believe this pandemic is real. I understand it. You know, you're never going to be appreciated or believed. And by you going, just because they go doesn't mean that things are safer. They're not OK. So just because they do it doesn't mean you have to be there. And I promise you, in the end, it will be one of the kindest acts of love you've ever performed to protect those you love at this holiday season.

**Chris Dall** [00:45:51] So, Mike, maybe this now is a good time to introduce a little bit of a lighter note, and I want to talk about last week's podcast dedication. So listeners really loved the story of Mama Kitty, your niece's cat who disappeared in the Santa Clara fire and was feared dead and then was found alive several weeks later, miraculously. I understand you've also been hearing from some dog lovers out there.

**Michael Osterholm** [00:46:12] Well, first of all, we have to come back and give an update report on Mama Kitty. She's doing well. Burns are healing. She is back with my great-niece, who loves her dearly. And it's just a miracle. I mean, we keep thinking about how did she survive for six weeks in a burnt out shell of an environment with no water, no food that we know of. And how did she survive the fire? No one can still figure that out. And so that's our miracle. That's our hope. Everybody, Mama Kitty, that's the term, OK? But in terms of dogs, I've always been a dog lover all my life. I've had several dogs. The most recent one, Max, an Australian shepherd for 12 years, was one of the greatest gifts of my life. I swear to God, he was smarter than I was. If you can't tell there, Max, right there, up there on the wall. Max, unfortunately, died several years ago in my arms. After having spent a wonderful day at a property that I had restored back to native prairie and savannah and trout stream. Max was one of those dogs, just one story, know this is a podcast for COVID, but one night when I was fly fishing on this property, it was a large property that I had restored and prairie grasses are six to eight feet tall. And it turned out that this is an area with very little nightlight. It's really a dark area and it happened to be a cloudy, overcast night with no moon. And I had a flashlight with me and fishing was amazing. They were hitting on the hoppers grasshoppers that night you know, catch and release, catching them till it got dark. Well, I was actually catching them based on just hearing them hit, you know, hit the water. And I went to get my flashlight out to take us back home in this total darkness. And guess what? My flashlight was dead. I could not see 10 feet in front of me. It was that dark. So I said to Max, he was with me. I looked at him. I said, Max, take me home. And by God, he would wait for me about every 10 steps. Let me catch up by sound. He literally took me right to the front door. That's how smart that dog was. And I just have to close by saying for all of you who are the dog lovers here who complained last week, that didn't complain but noted that dogs are also remarkable. I do want to let you know that I have this incredibly beautiful and wonderful view of heaven. And it's where when I die, I will suddenly wake up in this beautiful field of flowers. And those dogs that I've loved in this lifetime will be running at me full speed. That will be heaven. So, dog lovers, we haven't forgotten you and Mama Kitty. Yes.

**Chris Dall** [00:48:48] I'm feeling a Max and Mama Kitty are going to become very familiar to our listeners, Mike. Back to some questions here. Now we have a question from Eric who asks, is anyone studying the people who don't get COVID-19? And by that I mean people who are at these super spreader events or live with an infected person and don't get infected themselves. Is it simply a matter of a very strong immune system? Or could there be some habit or lifestyle difference or genetic anomaly?

**Michael Osterholm** [00:49:15] Yeah. Great question. Thank you for that one. It's one that we don't really completely understand. But let me just be clear right now. There's a big difference between becoming infected and having severe disease. So there are clearly risk factors for severe disease, no doubt about that. Whether just to get infected or not, and what the infectious dose is, and we're going to be commenting on that very soon, we're still working on it, there's no evidence that someone is more uniquely vulnerable to infection than someone else. At this point. Though, that may change as we look at the lungs and how deep the aerosols get, etc.. But what we really think is happening there is just you didn't get exposed. I mean, a good example is at the White House event. You know, we do believe that that was indoor air with one of those summer receptions for which there were people there next to each other who just didn't get infected. And I think that at that point, it really was about how much the infectious dose was that they got and not a function of whether or not, you know, they had some unique protective asset, such as antibody. The other thing I just want to say is that in that regard, as we look at these cases and try to understand what's going on, you also have to understand that the individual who is doing the transmitting often has highly variable levels of virus, so that if you studied 10 people in households and none of them got infected when they were exposed to 10 of their contacts, doesn't mean that they were uniquely protected as much as those 10 people may not have been putting a lot of virus out. So where we do have a better ability to look at this is in the super spread events because we know a lot of virus got put out. And in there, I just don't think we have enough data to suggest that there's some unique risk factor. I think it's the draw of good luck or bad luck based on what the infectious dose was that you inhaled.

**Chris Dall** [00:51:10] So here's another question that we get a lot of, this is from Brett who asks, do you think eating indoors in restaurants is OK and what percent capacity? I know New York City just opened at twenty five percent and Texas is now at seventy five percent. Is it OK to go inside restaurants with friends who don't live with you? And Brett also wants to know, Mike, if you eat inside of restaurants.

**Michael Osterholm** [00:51:32] I have not been inside a restaurant and I've not been on a plane since early March. So that gives you some sense of what I perceive to be risk factors. In this issue on restaurants, I think is so difficult, because it's not just capacity, it's what is the ventilation system like? You know, when you're in a restaurant, you're eating, you know, face cloth coverings are gonna be off or whatever. They're protecting you. You may have hot spots in terms of dead zones in a ventilation system where, you know, the virus isn't being removed with equal speed and efficiency throughout the entire restaurant. And so, you know, I think this is a real challenge. And just because you have, you know, X number, twenty five percent or 50 percent, that doesn't tell you necessarily at all what the real risk is. Think back to that choir in Seattle. A big room, a big room, a church. One person infects 62 people. When they were all standing apart. But they were singing. Well, you know, singing is different than being loud with your voice, but not a lot different. And if you're in a bar and restaurant, you're often loud with your voice. And so I think that's the challenge we have, and we're, I have to say, we're still seeing lots of transmission in bars and restaurants, even in their scaled down amount of people. So when they're only at 50 percent capacity or less, we're still seeing lots of transmission. So I think these are areas that are just to avoid. Having said what I said earlier about the issue of finance, I would be very happy as a taxpayer in terms of dealing with this pandemic, is to take most of these operations down and pay them for it. Don't make them suffer through it, pay them for it, because that would be a major public service.

**Chris Dall** [00:53:19] So, Mike, you mentioned this at the top, a few weeks ago, we started asking Osterholm Update listeners to send us stories about people they lost to COVID-19. And we're calling these celebrations of life. So, Mike, you have one that you'd like to start out to share with our viewers.

**Michael Osterholm** [00:53:35] Yeah, well, this one is very special to me as the inaugural one. It's someone I knew and knew well and cared a great deal about. James Jim Johnson, of Waukon, Iowa, my hometown died of COVID-19 on September 30th. He died at the local hospital in Waukon. Laurie, a CIDRAP podcast listener, who now lives in Florida, was born and raised and Waukon too and she and I share together Jim with you as our first special recognition of those who have died from COVID for these weekly podcast. Jim was born upstairs in the Waukon Greenhouse, a special place throughout his life. He graduated from Waukon high school, then went to Byron College in Dayton, Tennessee. The first month he was there with his blue eyes and motorcycle, Jim was able to woo Helen. She was the love of his life. And they were married four years later. He went on to have a distinguished career in the U.S. Air Force. He ultimately obtained the rank of lieutenant colonel with over nine thousand hours of air time and twenty three years of service. In 1961, he and Helen moved back to my hometown Waukon, and they helped run the Waukon Greenhouse with Jim's family purchasing the business in 1964. Jim was renowned for his beautiful poinsettias and geraniums. All the geraniums were propagated from a single plant started in 1955. It was because of him that the multitude of beautiful urns of geraniums graced our cemeteries in the Waukon area throughout the generations. Jim, Helen and their daughter Cheri brought comfort to us during times of grief and joy with their beautiful flower arrangements over all of those years. Every Easter, I would save my paper out money so I could go buy a corsage for my mom from Jim and Helen. She wore it proudly at Mass each Easter. In 2001, Jim and Helen retired. The Johnsons were friends of Laurie's parents, and her childhood is filled with memories of holidays shared together. Jim was a gift in my life and that of Laurie's. Neither of us will ever forget the kind and gentle lieutenant colonel and all he did for all those close to him. Helen also recently developed COVID-19 infection and is currently recovering. Godspeed, Jim. You you're a gift that COVID robbed from us. We will never forget you.

**Chris Dall** [00:56:02] And I just want to remind our listeners to feel free to send us memories you have, celebrations of life of people you've lost to COVID-19. It could be relatives, friends, people you've known in your life who you would like to commemorate. You can e-mail those memories to us. Mike, one last question here before we wrap up. Just a question from me. So Johnson&Johnson announced today that they put a pause on their COVID-19 vaccine phase three trial due to an adverse event. This the second adverse event report we've received with the COVID-19 vaccines. Just so our listeners understand this process, I mean, should people be concerned when they hear about these adverse events?

**Michael Osterholm** [00:56:47] Actually, it's just the opposite. They should be reassured that the FDA is doing their job. And this is exactly what we need to have done. And I think they're doing exceedingly well. As you know, the AstraZeneca pause is still in place. It's been for weeks now. That doesn't mean that this is really related to the vaccine. It's a function of how in-depth they're going to make certain they can understand did this adverse event occur because of the vaccine or is it just chance, you know, that somebody would have had something happen no matter what the timing was in terms of having been vaccinated? So I celebrate these not because I want to see them. They're surely slowing things down. That's not good. I sure don't want to be involved with vaccine, but I'm reassured that the FDA is doing their job as well as the other federal agencies. The NIH is helping to analyze this situation. So I think we can be really pleased that the government agencies that I talked about earlier are doing their job to make sure that we have all the information that we need to determine the safety of these vaccines.

**Chris Dall** [00:57:57] So, Mike, do you have a poem or a song that you'd like to close us out with tonight?

**Michael Osterholm** [00:58:01] Well, actually, I do. And I think we're at a point right now we've been talking about, you know, how challenging things are right now. And some could say, oh, we can't keep this up. Well, you can. You will. You're going to. This is our team. OK, it's team podcast. We're gonna do it. And this poem is really about that. It's by John Greenleaf Whittier, who lived from 1807 to 1892. He was a very famous American poet back at that time. And the title of the poem is Don't Quit. When things go wrong, as they sometimes will. When the road you're trudging seems all uphill. When the funds are low and the debts are high and you want to smile, but you have to sigh when care is pressing, you're down a bit. Rest if you must. But don't you quit. Life is strange with its twists and turns, as every one of us sometimes learns. Many have failure come about when he might have won had he just stuck it out. Don't give up though the pace seems slow. You may succeed with another blow. Success is failure turned inside out. The silver tent to the clouds of doubt. And you never can tell when how close you are. It may be near when it seems so far. So stick to the fight when your hardest hit. It's when things seem worse that you must not quit. We're going into a really tough time, everybody. It's just straightforward. We are no sugar coating it. Balls and strikes, whatever we're going into it, but we can't quit. This is when our families and our friends, when our colleagues need us the most. You know, I think about that all the time. You know, this is not the time to quit. So you're going to hear each week is not going to be very good for the few next few weeks. Just know ahead. But we can do something about it. We can impact on this virus by protecting ourselves. Reaching out to others. As I've said so many, many times, you know, kindness and understanding and tolerance right now is everything. Find those people. Every morning get up thinking about I'm going to do my act of kindness before 10:00. And then when you accomplish that say, well maybe I can get one more in before 2:00. And you say, you know, wouldn't it be great if I got one through the afternoon and just live your life that way. That's what's gonna get us through. It's not going to be some miracle scientific finding in the next couple of weeks or months. It's gonna be us ourselves. And I speak those words to myself every morning just as I'm speaking them with you. So I just want to thank you for being with us tonight. This was a special time to be with you live. Max back here says hi. And I just want to thank Chris and the entire team at CIDRAP for all they do to put this together and keep the cards, keep the e-mails coming. We read them all. We listen to all of what you have to say. It's very helpful. And I just want you all to be safe, be well and be kind. Thank you.

**Chris Dall** [01:01:07] Thanks again to everyone who tuned into this live episode of The Osterholm Update podcast. And to those who send us questions and special thanks to podcast producers Maya Peters, Corey Anderson and Angela Oelrich for making this all happen. We'll be back next week with another episode of The Osterholm Update. Stay safe, everyone.

**Chris Dall** [01:01:29] Thanks for listening to this week's episode of The Osterholm Update. If you're enjoying the podcast, please subscribe, write and review and be sure to keep up with the latest COVID-19 news by visiting our website, CIDRAP.umn.ed. The Osterholm Update is produced by Maya Peters, Corey Anderson and Angela Olerich.