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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 on more than 45 years of experience investigating infectious disease outbreaks to provide straight talk on the Code 19 pandemic. I'm Chris Dalll, reporter for CIDRAP News, and I'm your host for these conversations.

**Chris Dall** [00:00:42] It's September 3rd and there've been more than six million Covid-19 cases in the U.S. since the start of the pandemic. Six million infections from a virus that has decimated families and communities, shut down an entire economy and put millions out of work, and left public health officials grasping for answers. And while new infections are slowing and gains are being made in some parts of the country, the U.S. is still a long way from getting the pandemic under control. On this episode of The Osterholm update, we'll discuss what that number means, how we got here and what lies ahead. We'll also tackle some controversial theories on herd immunity, answer listener questions on COVID-19 and pregnancy, examine the potential danger of an October surprise vaccine announcement and talk about how we assess COVID-19 risk. But before we get to all of that, Dr. Osterholm will tell us who he's dedicating this episode of the podcast to.

**Michael Osterholm** [00:01:30] Oh, thank you, Chris. It's good to be with you again and with all the audience. Thank you for joining us on behalf of the entire CIDRAP team. We appreciate your listening to us and sharing your day with us on trying to understand as much as we can what's going on with this crazy, horrible pandemic.

**Michael Osterholm** [00:01:50] And in that regard, every time we do one of these podcasts, it's a gift to us to be able to share this information with you. So thank you very, very much for being with us. As I say, each week and we'll never forget. We know you have many choices to seek your information on COVID-19. And we appreciate you being with us. This dedication is for expectant moms and for those moms who have just recently delivered their newborns. And of course, it's for those special newborns, too. So as you enter that very special, incredibly beautiful time, it's also a time in a world of COVID-19 where concerns are very legitimate about what might this mean for me and my baby.

**Chris Dall** [00:02:34] Mike, as I mentioned in the intro, the U.S. just passed six billion, COVID-19 cases. And globally, there have been more than 25 million cases. While the outbreak in the U.S. continues to be among the worst in the world in many countries, we're seeing a rise in cases and corona virus fatigue really take hold. So what's your assessment of where we are in the pandemic?

**Michael Osterholm** [00:02:52] Each week, we review the status of where we're at and where we might be going with this pandemic. And sometimes I wish we could be wrong or at least have misjudged that future, because I have to say today. We're on a track that we've been talking about for the past several months and one that frankly, for no other way to describe it, it's not very pretty. We happen to have been experiencing over the recent weeks a substantial decrease in cases which I think surely should be for most people, considered something positive. And every case that's averted, avoided or is only a mild case is obviously a good thing.

**Michael Osterholm** [00:03:42] But at the same time, it puts us back into that spot where I think there's a sense of complacency that we saw that happened right around Memorial Day where case numbers had come down from that 32000 peak high to into the low 20s today, just as we go into the Labor Day weekend. We're seeing case numbers having dropped from sixty five thousand new cases a day in late July to over the last seven days, an average of forty one thousand five hundred and twenty cases, a substantial drop. In fact, a 17 percent drop just in the last two weeks. We have maintained, however, through most of the month of August, about a thousand deaths a day. Now, why do I say that? You know, this is a challenge which should be good news. I'm certain that this is just basically the quiet before the storm. We've already had indications that we're going to be seeing substantial activity in our colleges, universities and in our high schools. That by itself will add up to a number of cases over the course of the next six to 10 weeks. But then in addition, we're really beginning to see in many locations this country that same kind of pandemic fatigue set in an almost steroids this time. And I'll talk more about that later in this podcast in terms of the psychology of what we're doing. But in this instance, what we're really seeing is almost this double dose of not only in May did I experience pandemic fatigue and I'm going to get back out and kind of muscle my way into the world again. But now we're beginning to see almost like if we in public health are trying to limit transmission with the advice that we've been giving, we've almost become culprits.

**Michael Osterholm** [00:05:38] We've become bad guys. I can't tell you how many of my public health colleagues really feel out of place today if they're in public. In terms of their masking, if in fact, they are in public settings where family may be nearby, even with the distancing, the challenge that that's the case. And right here in the upper Midwest, we are unfortunately on the road to following what happened in Georgia, Florida and Texas, in parts of California. Right now, there are 10 states where we've seen the transmission increased substantially over the course of the past several weeks, including Iowa, North Dakota, South Dakota, Kansas, Nebraska and Minnesota. And in that time period, we really have started to look just like those states of Florida, Texas and Georgia. California did some eight to 10 weeks ago. And so we are very concerned about this. In fact, the White House task force has pointed out this serious challenge. And when I look around in our state and what I've done for entertainment lately, which I'm sure you all realize what a dull life I have, I've actually got in my car and just driven around at night. And looked inside the restaurants, the bars, the people on the street watching people in bars, numbers go back into movie theaters. There isn't a sense right now among many that we are living in a pandemic. Reports from so many colleagues and and friends of large weddings going on funerals and so forth, where people are almost as if this pandemic doesn't exist. And so my concern is, is that what's going to happen over the course of the next few weeks is a combination of the impact of the colleges and universities. More people feeling as if they are some for some reason not at risk of those virus, combined with the indoor heating season beginning soon.

**Michael Osterholm** [00:07:45] And indoor air playing an ever increasing role in transmission. And I wish I could say I'm going to be wrong here. I hope I am. I will celebrate that on this one. I will not be afraid to not only admit it and and try to understand why I was wrong, but I hope I'm wrong. But I'm afraid I'm not. I think that over the course of the next month and a half to two months, we're going to see a resurgence of virus activity. And it's going to be a real challenge. And it's coming at a time, as we'll talk in a moment, when there are a number of other things happening in this country that are going to make those increases in cases doubly difficult, not just in terms of the medical outcome, but also the social political outcome. So, Chris, I think in the US we're in for a long haul over the next few months globally. I just want to emphasize that as much as you're hearing about substantial increases in cases in countries like Germany, France, Spain, and we look to Asia and we look at cases that have recently occurred in Vietnam, problems in Seoul, Japan, even China, and then look at the the islands of Australia and New Zealand, both which have had such success for some time, keeping case numbers almost absent and then seeing the resurgence of activity. But in every one of these countries, it must be understood that the level of cases is so far below what we're experiencing here per population that their ability to control the disease transmission is substantially improved or what we have. And we continue to lead the world in this situation in a way that is really disappointing as well as it's concerning about what it says about Americans.

**Michael Osterholm** [00:09:35] You know, I've had people say over and over to me and all it's just this rugged individualism of the United States. No, it's not. It is not. It is a I believe, a symptom of us believing somehow the rules of Mother Nature, the rules of society don't apply to us. And I think that this is going to be a challenge down the road. And I fear more than anything that the way people will come to understand the impact of this pandemic and an attempt to then limit transmission is when their own start to die. I've already seen that. I already know of a number of situations where families in virtual denial that this pandemic exists finally had their wakeup call when one or more family members became severely ill and died. And so I think that, you know, public health, whole purpose, our goal, it's a noble it's a noble profession. It's a it's it's the very heart of a social conscience. And the goodness of all of society is to reduce morbidity and mortality and pain in a population. And yet it's so hard right now because there are a lot of people that just don't seem to sense that that's what this is all about. So with this, I just I'd like to be more upbeat. I surely won't give up. I know our team won't give up. I know the public health community in this country will continue to strive to do what they can, but we've got some really difficult weeks ahead of us. And by knowing that at least gives us a sense of what we're up against and why we have to triple, quadruple our game to make sure that we do everything we can to reduce that morbidity, mortality.

**Chris Dall** [00:11:17] The Washington Post reported earlier this week that a member of the White House coronavirus task force has been promoting a herd immunity strategy similar to that of Sweden, with the idea being that you let the virus spread in the community while protecting the most vulnerable. This is an idea that's been widely criticized by public health experts. And on a related note. There's also been some suggestions coming from the White House that the COVID-19 death toll is actually lower than what's being reported. Mike, why do these ideas keep coming up?

**Michael Osterholm** [00:11:47] We live in a very challenged conspiracy world today. Social media surely is contributing to that. But you have to have a receptive audience to also allow social media to have the impact that it's having. And today, it it amazes me what people will believe based on the writing of one individual who has no particular expertize in an area. It's almost as if we're looking for that haha. See, I told you so kind of moment. And again, this goes back to public health has to keep its eye on the long game. We just have to keep telling the truth with what we know and what we don't know, how we know it. And when things change, why they changed and what we learned about why that change occurred. Instead, today, I find us as a public health community, and I know you and the public, and I know there are a number of public health people who listen to this podcast. You get exactly what I'm talking about. We have to sort through all this information ourselves. And as I've said many times, you know, there are days I feel like I know less about this disease today than I did 10, ten weeks ago.

**Michael Osterholm** [00:12:58] You know, we're learning constantly. And this is a virus that should keep all of us incredibly humble who are in this business because of the fact of what it does and what we have to learn about what it does as we are going through this journey with this virus in this case. There are two separate issues, both playing to certain social political aspects of what's going on. The first one was this idea of herd immunity that were there. Remember, let's go back to what herd immunity is. I have received a number of e-mails from you. Thank you. By the way, they were very thoughtful e-mails asking for more clarification on herd immunity. Obviously, I haven't been clear enough and I need to be. Herd immunity is a simple concept, really. It's about the fact that in particular, if you look at this, take a respiratory transmitted agent like SARS-CoV-2 is I in order to keep this epidemic going as a case, need to transmit to at least one other person or the chain starts to die out. If I transmit to two people, then the outbreak doubles in size. And then if they transmit to two people, now it's four and then eight and then 16. If you have some diseases that are highly infectious, where the viruses are carried and aerosols long distances and highly infectious like measles, you may have a situation where lots of people in the population need to be immune before that slows that level of transmission from one person to another down. And in a sense, it's kind of a chance issue of do I come in contact in the right way with the susceptible person in the population? And we surely know that herd immunity is not a universal uniform number in the society.

**Michael Osterholm** [00:14:46] You can have ninety five percent of the population vaccinated against a disease like measles. But if the measles virus gets into that five percent of kids who all happen to go to the same school or live in the same household or live in the same neighborhood, you can have a major outbreak. Even though your state had ninety five percent of the kids vaccinated. And so it's all dependent on what's the chance of me transferring to somebody else. And our whole goal is to keep that number below one. And then basically the cases eventually tail off. Larger than that, it gets bigger. So we're talking about herd immunity with this particular disease. We're talking about we have enough people in our society that are immune from having had previous infection or vaccinated. And we'll come back and talk more about immunity later, because that's the challenge today to understand what durable immunity is. And some of you ask that question, and you're absolutely right. If we're going to have herd immunity, that's sustainable, meaning not short term. Only then we're gonna have to also talk about how long does this an immune protection last. But so in in this instance, what we're talking about is a virus that actually is quite easily transmitted. And what has really challenged people over the course of the past six months is try to understand that we had this big debate droplets versus aerosols, which in of itself is not even the right language in terms of understanding what we mean by respiratory transmitted agents. It's old old language. We've talked about airborne transmission today, but for the sake of this conversation, just think of it from the difference between bowling balls and beebees and the bowling balls being that kind of droplets and the beebees being those aerosols and everything in between.

**Michael Osterholm** [00:16:30] And so when that virus is exhaled out by me or coughed out whatever the big boulders, the bowling balls fall out pretty quickly, but the aerosols can transmit around for some time. And we now recognize that they can play an important role in transmission and the debate has been about, Well, wait a minute. Is this droplet likely or droplet only or is aerosols involved? And what we've had to come to reconcile is, is that not everybody is equal in any way, shape or form in terms of capability, of transmitting. So some people transmit to a lot of people. Other people probably transmit to very few. The old line so far, and this is about 80 percent of all transmission, probably accounts from about 20 percent of the population that are infected. And so you could have households or one infected person won't transmit to anybody in the household you say well this isn't very infectious. And then you can have one person who's in the church choir who can transmit to sixty five different people all in one morning. And so it has been a bit confusing. So but the bottom line is it still doesn't matter how many people are immune in your population. And we estimate based on, you know, you can do some mixing studies about you know, I mentioned about the 95 percent vaccinated, five percent not and so forth. But assuming across the board, people are susceptible to this. We estimate you need at least 50 to 70 percent of the population to be immune either through vaccine or through natural disease to then begin to slow this down. Meaning that if I'm in front of 10 people, at least five to seven of those people have to be immune for this to start to slow down.

**Michael Osterholm** [00:18:15] And again, with herd immunity, you don't stop it. It just slows down transmission. I kind of liken it to when you're the old days when I used to fly way back when I think I could remember that. And the pilot announces we're about to descend into the Minneapolis St. Paul International Airport. We still got 25, 30 minutes to go or drop in elevation the whole time, but basically don't land yet. The same thing is true with herd immunity. Once we hit 50 to 70 percent will slow down transmission. Well, people have interpreted data to suggest that based on countries like Sweden, herd immunity has been met already. And yet a country like Sweden. Let me just point out, has had relatively level cases, low level for the last eight to 10 weeks. And people have interpreted that say, see, after the house was on fire, they hit herd immunity and only about 20 percent of the population appears to have antibody. That means, haha, that's what it's all about. And all of us will soon experience herd immunity. Not true. Remember back in May and June at that time when everybody said, why is California spared from most of this disease? And we had all kinds of answers. Oh, but the big one was lack of public transportation. That's why New York got hit so hard. You know, the idea that people were all together. We never bought that back then and said, just wait, just give it some time. Well, you know where California is today. Why did we not see transmission in March, April and May in any sizable amount? I don't know. We don't know. Anybody that tells you they do know, don't listen to another thing they have to say. So I'm convinced Sweden will, in the next weeks to months, suddenly see a big increase in cases again, and we'll see it on fire all over again.

**Michael Osterholm** [00:20:00] And so that doesn't give me any sense about herd immunity. If you look at a country like Iran where they had a major epidemic last spring, at the same time we did things, they were brought under control with the same kind of locked down approach that we used in this country. And then they let up completely on it. And for the last eight to 10 weeks, they've had another house on fire there. And so that it doesn't mean that it can't come back if they're still people who are susceptible. Now, in this country, in our seral surveys, antibody studies that have been conducted by a number of groups and coordinated in some part by the CDC, we're estimating that somewhere probably between eight to 10 percent of the U.S. population has been infected to date with this virus. Places like New York, particularly the Corona district of all ironic names, probably close to 50 percent. But even in the metropolitan area of New York City, it's probably well, less than 15 to 18 percent of the population has developed antibody. They're absolutely ripe, again, for another hit, as is most of the United States. So this idea that herd immunity in of itself has been reached is absolutely wrong. It's not. We are still very vulnerable to this. And and this idea that somehow we can just let things rip and it's gonna be OK because we have this protection would be absolutely foolhardy. And I just would come back to say that, you know, despite the fact that this has been promoted by someone in the White House who has no background in this area, doesn't have any expertize take it for what it's worth. And I will stick by one hundred percent that the herd immunity has far from being achieved in this country, even in

**Michael Osterholm** [00:21:47] any one neighborhood, again, people will say, well, how do you know it's going to get that high? You know, it got 50 percent in the Corona region. We continue to see prisons time and time again. And now people say prisons aren't what's out there in the population, no but they're absolutely perfect for understanding herd immunity, because if there was this innate immunity, if really they already had had preexisting antibody or some part of their immune system, you wouldn't expect to see transmission continue in these prisons. And yet we have seen in a number of prisons, transmission is dynamic right up into 50 to 60, even a low 70 percent level before it slows down, meaning that it didn't even stop. It just slowed down. This is an example of what I'm talking about. And because they couldn't do much, or least that was the sense about prisons and trying to isolate people, it's a very cruel situation in a way. You could study this. And so we have. Now the second issue that came up, which is also a very challenging one. And I've been asked this several times this week, and it most often is somewhat pointed questioning about the idea that how many people have really died from the corona virus infection here in the United States. Did COVID-19 been grossly overestimated to be the cause of death in the US? And the answer is simply absolutely no. Today, we know that there have been over one hundred and eighty two thousand Americans who have been diagnosed with COVID- 19 infection, who have subsequently died, for which the COVID-19 was a contributing factor. And what happened was the CDC put out a document, updated a document that basically said that about 90 to 100 Americans who have died from the virus had no other cause, meaning that was it.

**Michael Osterholm** [00:23:39] And that had been interpreted to mean then all the other ones died from something else. That's not true today when we actually declare a cause of death through our well established medical examiners, community or physicians. One always puts down the cause of death and the co morbidities contributed to that death. And in that sense, what has happened is all the others other than those 9200, all had some comorbidities. Well, that shouldn't be surprising. You know, increased BMI, body mass index there. Right there. You can get 40 percent of adults in this country. You can look at diabetes. You can look at underlying heart disease. Look at all those things. Now, those aren't things you just die from necessarily. You know, you can have diabetes and live many, many, many years. But if that's a risk factor for developing a severe COVID case. Now, the cause of death is COVID-19. But diabetes was a major contributing co morbidity. And so when we look at the data today in this country, it's exactly what we've been saying all along. This is what we're seeing is this underlying comorbidity. But let me just be really clear about this. Comorbidities occurred all ages. I hear this all the time. And frankly, it's not shocking anymore. And I think I worry about that. Have I become numb to this? And if I have shame on me, but I get asked questions all the time. So what it's a bunch of people in nursing homes? You know, there used to be a day when I would get really angry when I'd hear that. Because that could be my mom or grandmother or brother or somebody in that nursing home. And, boy, that would just irritate me.

**Michael Osterholm** [00:25:27] Now, it's almost the point where I'm saying you're saying, you know, you just don't get it. You know, all of us are going to die. There'll always be a top 10 causes of death. And if you eliminate the current top 10 there'll be 10 new ones, I'm not sure they're going to be better. But I've always believed once somebody is born, the sanctity of life is forever. And so I don't just accept that people have to die in nursing home because they're gonna die, OK? They will die. But something like this shouldn't be an accelerating event for that. Today, over twenty five thousand of the deaths that have been recorded with COVID-19 have occurred in those under age 65. And when I hear somebody talk about, well, you know, they they had all these other health problems, that's what really killed them. You know, being 30 pounds overweight doesn't kill you right like that. A lot of people live a lot of years like that. But that could be the risk factor. Why when you developed your COVID- 19 infection, you died because there's some combination of comorbidity impact. That's real. And so to take this back, there is absolutely no truth to the fact that these the number of deaths in the US is nine thousand two hundred and ten as opposed to the hundred eighty two thousand. And let me just add, we know we have undercounted deaths substantially in this country. And I'm you know, I've heard so many of these urban legends about this. I've tracked some of them down and not once can anyone confirm it. I've heard stories about, you know, three people were found to be COVID-19 positive last month. And now they're in a car accident today and their cause of death was listed as COVID-19.

**Michael Osterholm** [00:27:03] Everybody talks about these kinds of things. I have yet to find one that could validat it. Show me once that that really happened. And so I think that one of the challenge we have today is, again, this is part of the myth we have to deal with. This is a bad disease. A lot of people have died and a lot more are going to die. And we shouldn't minimize it by suggesting somehow that we in the public health system have gained. Last but not least, one of the rumors that I had to deal with in a series of questions recently was this idea that hospitals were being paid a thousand dollars a a case to call somebody a COVID-19 death and that they were being paid that by by public health. I mean, this is just so incredible. And, you know, I myself have to find myself just turning away and saying I don't have time to deal with that because there's too many other important things within if you don't deal with it. The rumor just continues is unsubstantiated. And so we are all challenged in our business today. And I know many of you listening to this are challenged because you have the same problem you get in these discussions where somebody will you know, there really aren't that many deaths at all. It was all been, you know, not true. And so we'll keep trying to feed you the truth. And all I can tell you is there is a very specific guidelines for how to certify deaths and particularly with COVID-19. And when comorbidities are listed, they're listed. And what actually killed you if you had a heart attack and you had COVID-19 and that heart attack had nothing to do with your COVID-19, then that's counted one way.

**Michael Osterholm** [00:28:40] But if, in fact, it may have had an underlying impact and that, in fact, you will be counted. So I hope that's helpful in understanding where we're today.

**Chris Dall** [00:28:49] Mike, you mentioned durable immunity in your answer, and that leads me to some reports that came out last week about more people getting reinfected with SARS CoV-2, including a patient in Nevada whose second infection was reportedly worse than the first. Do these infections raise any concerns about immunity?

**Michael Osterholm** [00:29:10] We knew that we would start to see reinfection in individuals just based on what we knew about coronavirus infection and immune response. So these aren't surprises. No one should suddenly say, you know, oh, boy, these are. This is something we didn't expect. We did. What we don't yet understand is what the long term implications are. Remember this pandemic, for all intents purposes, is eight months old. And in countries like the United States, you know, it's really been most of the transmission has been the last four months, so that when we think about someone getting infected, develop an immune response, having that immune response wane and then being exposed again and getting infection, you would expect that, you know, it won't happen for months and months. And so if we're seeing them now, this is just the beginning of what's coming. The other thing that is very important to understand is most reinfection probably will never, ever be documented at this time because in the ones I'm going to talk about now, just by chance, the individuals had a virus isolated or genetic material available from the swab to determine what the first isolate of the virus was two months ago or three months ago and what they have now so that we can say aha!

**Michael Osterholm** [00:30:37] Different viruses it had to be reinfection, whereas, you know, it was the same virus. You could argue theoretically they were chronically infected. So I am now aware in the last nine days of eight different reinfection cases that have been documented most in Europe, one here in the United States and one in Hong Kong. The Hong Kong was the first one that came forward. This was an individual who was infected last March who basically after his infection, which was a relatively minor illness, had a virus cultured, recovered and then was traveling to Europe. Two and a half months later. And at that point, on his way back into Hong Kong was retested, 33 year old man and otherwise doing fine. At that point, when he was found to be PCR positive, again, it was a curiosity issue and they cultured him and found a totally new virus. And it happened to be a virus that genetically looked very much like the ones that were circulated in Europe at the time. Quite good proof that there was a second infection. For all the infections except one, the evidence has been that the cases were milder or in some instances didn't even know they were infected. But there was one case that has triggered a real question and concern. And this was a case that occurred in a young 25 year old resident of Reno, Nevada, and he first tested positive for SARS-CoV-2 in April after coming down with a sore throat, cough and headache and some nausea and diarrhea. But he got better over time and subsequently tested negative twice. He then recovered. He was fine. But then some 48 days later, the man started experiencing headaches, cough, other symptoms again. Eventually, it came so sick that he had to be hospitalized and was found to have pneumonia.

**Michael Osterholm** [00:32:31] And a complicated case at that. Genetic material from the swabs that had been obtained in his first illness were still available. And the genetic material from this swab with his second illness was available. And when comparing him, they were different viruses. And so it could be demonstrated that that he was actually infected a second time. Now, what does this mean? Well, we're not completely clear yet. I don't want to sit here and say, oh, my, we're done. But at the same time, this has been a challenge we've all worried about. We don't know what durable immunity is. So if I go back to herd immunity, remember that infers that there's some immunity there. But if this wears off over time, you know, we may get some new people joining the herd immunity crowd and some falling out because they've lost their immunity. We don't know. This also is unclear what it means for vaccines. So this is what makes this virus kind of the classic we call disease X, kind of that bad bug that we could all have dreamed would never happen, at least hope not, and might be happening now. You know, if this were influenza, I'd feel very confident that immunity among those who had been infected and even to a real degree, a substantial number of those vaccinated would be protected for some time to come. Here we don't know. So this is a state tuned moment. This is one where, again, we have to be incredibly humble and say, you know, we got to follow this closely. We're going to need to make sure we understand more and more about reinfection cases, because so many people today would not be in a position of having a first and second virus available.

**Michael Osterholm** [00:34:01] So even if they were reinfection, we wouldn't know it. So to summarize, let me just say that, you know, this isn't a reason to go off. You know, the sky is falling, the sky is falling, but this is concerning. This is concerning a concern that we had already. We thought this could happen. We're hoping it wouldn't. But as you well know and I've said many times, hope is not a strategy and it surely isn't here. But we have to understand that this could have some real implications down the road. It has implications not only, by the way, for vaccination and how well you're protected, but do we need booster doses, which would add substantially to the efforts needed in the amount of vaccine needed to deliver? I mean, we're already talking about two doses just to get primed with the first set. Would you need a new dose every six months, 12 months? Would they work? What would happen? So we have so much more to learn about this disease and this infection. And this is right at the top of the list.

**Chris Dall** [00:35:00] So, Mike, as you mentioned, we've got several e-mails with questions about COVID-19 and pregnancy. I'm going to use two of those e-mails for our listener question this week. Rose writes, I'm a mother of one in my early thirties with no health issues. My husband and I would love to have another baby. But in this COVID-19 climate, is this wise to do? I am a NICU nurse. Even though I use PPE, I have some risk to exposure since I work in a hospital. How would you advise on getting pregnant during the crisis? Then Taylor writes, Given that our household is extremely COVID-19 safe, working from home, only seeing friends outside with physical distancing. Do you believe that COVID-19 presents a significant risk to pregnancy?

**Michael Osterholm** [00:35:38] Rose. Taylor. I have good news for you. I would very strongly support what you want to do here. And let me give you the context for it. This is a time of life that we shouldn't put aside just because of this virus. And you can deal with this in a safe and responsible way, and the very fact you're asking the questions you are really give us give me that sense that you are ready to deal with this. Before we launch off a bit into talking about the issue of pregnancy delivery and newborns. Let me say, I had advice from three, quote unquote, real experts. I hardly am an expert in this area, and I told you I promise I would tell you when I'm not. So I'm going to try to share what I learned from them. I will take one hundred and ten percent of the responsibility for any mistakes I make. So for the three of you, if I misstate something, you can tell everybody he just didn't get that right. OK, but for the things I got right. Please know that I thank you. At the top of the list, a mentor to me and someone who it's very hard for me to talk about without becoming a bit emotional. Is my daughter Erin Osterholm. Erin is an neonatologist, tiny baby doctor. She is the medical director of the neonatal intensive care unit at the University of Minnesota. And I can say without any question in my mind of all of my years on this Earth, those 10 minutes after you were born as my first born child, will always be the most emotional moments of my life. I literally held her crying uncontrollably, in a delivery room to see such a beautiful, beautiful baby.

**Michael Osterholm** [00:37:20] And now I look at her and I still get those tears when I realize what an incredible mother, a mother of three wonderful grandsons and what an incredible professional she's turned out to be. So to you, dear, thank you. To Sarah Cross, who is also a physician at the University of Minnesota. She's in the department of OBGYN in women's health. She's the medical director of the birth place at the University of Minnesota Medical Center and a recent mom herself during the COVID period. And finally, Sara Lim, who is a medical specialist and infectious disease epidemiologist, at the Minnesota Department of Health. These three individuals have tried hard to educate me. So what I'm trying to share today is as a result of having received so many emails and questions from people just like Rose and Taylor wanting to know what's it all about, what can I do? And we want to take this special time to make sure it's safe and special for you. So let me just break it down into the pregnancy, delivery, newborn as I as I see it. First only look at pregnancy itself. I'm happy to report that there really is minimal, minimal evidence of the virus having any negative impact on the fetus or the newborn child. There are two reports of transplacental infection with SARS-CoV-2, and that's it. And generally speaking, there is no reason to alter delivery when you are pregnant, whether it be C-section or vaginal. And that depends on, of course, the clinical status at the time, whether you are severely ill at the time of delivery, etc. That obviously does play a role. But in a sense, it's not about the pregnancy enhancing or causing a more severe illness, such as the presence of COVID-19 will change very little

**Michael Osterholm** [00:39:15] how you have the baby. It's gonna be pretty much the same kind of delivery, depending on the health of the mother. And that includes even being able to breastfeed at this point. Erin, my daughter is actually leading a study looking at a virus in breast milk. And there was one recently published, one suggesting very low level at all for someone who is breastfeeding. A recommendation is, of course, good hand hygiene and masking at that time, but surely allowing a COVID-19 infected mother to still breastfeed. One area you will be challenged is you won't be able to have hospital visitors. There'll be limited probably to one other person, the father most likely. But the family won't be able to come up and and basically have that wonderful bonding experience. Overall, the kids do well, they just do well. And and I think that what's really important here, if I had to say anything about pregnancy, is the fact that what you want to do is make sure you stay virus free at the time of the delivery. So at before your due date, make sure you're doing everything you can to limit transmission, you know, bubble yourself, bubble those around you, because if you can go in without being infected, you are going to see a much different kind of experience than if you are infected. Not saying that it's gonna be a challenge in terms of the health side, but just all the ancillary issues of how you'll be handled and what will occur. So in general, if I could summarize it, just say that the pregnancy will be as otherwise, you would expect to see. Now, having said that, let me just be really clear that pregnancy today still is a challenge in this country.

**Michael Osterholm** [00:41:08] So this isn't just for COVID-19 situations, but COVID infections overlaid on the already significant challenges we have based on other risk factors for birthing and the pregnancy overall. If you look at preterm deliveries, miscarriages, etc, by far the impact will be from this kind of situation will be all about the issue of underlying risk factors for any negative outcome in a pregnancy that largely focus on racial cultural issues. The poverty, communal living issues, racial disparities in this country are real. They are so real. We have to address these. And today, being an expectant mother where you live, who you live with, how many people you live with, all the issues of poverty, SES. are so critical. So one of the things we we are concerned about is in terms of even the issue of whether the miscarriages, preterm delivery support, it's going to be about that. It's not about the COVID not nearly as much. Now COVID as we already know is a factor of racial disparities, living conditions. And and so that obviously puts people at higher risk for being COVID infected if, in fact, you live in a multigenerational apartment building, two bedrooms with nine people who live there and three generations of people, that's a hard place to be in terms of trying to protect yourself from getting infected and what that means. So at this point, let me just say that it's a it's a situation where we have much more to deal with here. I don't want to. I'm not an expert on this area at all other than to say that I recognize as an epidemiologist the important features here that we will know one day when we're really having the kind of quote unquote, disease care, health care system.

**Michael Osterholm** [00:43:08] So much of our health care is disease care. We need to be talking about what is healthy lives when we know that we can eliminate many of these racial disparity related issues on delivery. Now, let me move to the issue of the kids themselves. OK, so what's happening in children today? And, of course, with the school setting issue and what we're seeing happen there. We recognize the concerns that parents have. Let me just start out by talking about some numbers, which I you know, I say this every time I cringe. When I do that, it's nails on a chalkboard, because not one of these kids is a number. Not one of them. Not one of them. But if you look at how this COVID-19 related morbidity, mortality comparison, younger kids just compare to influenza. If you look at influenza associated deaths in this country in young children between 2016 and 17 that season, there were 110, 2017, 18, 188 deaths. 2018-19, 144 deaths. And 2019-20, one 185 deaths. Now, that's for a flu season that lasts about four months. We are now six months, seven months into this one. To date, there are have been 100 deaths. Exactly that have been documented. And but this is among the more than four hundred seventy six thousand children who have now tested positive in the most recent data from the American Academy of Pediatrics last week. This includes data from 49 states, the District of Columbia, Puerto Rico and Guam. So from an overall standpoint, this is very similar to what we see in terms of annual flu. If it's not slightly lower. Now, when you look at deaths in kids, though, it bears out exactly what I just said about the adverse outcome issues with pregnancy.

**Michael Osterholm** [00:45:10] If you look at deaths in kids, we have data ninety two of the hundred that I can tell you about. Forty one of the deaths were among Hispanic children. That's right. Now, 41 percent of the 92 is 44 percent overall. Hispanic kids only make up 25 percent of the population. So 44 percent of the deaths in Hispanics, 25 percent of the population. There've been 24 deaths among black children. That's twenty six percent of the total. Black children make up 14 percent of the total of the U.S. population. There have been 19 deaths in white children. That's twenty one percent of the total. White children make up 50 percent of the U.S. population. So the proportion of children dying among white children is substantially lower than we see for these other racial groups. If you look at the remaining ones, three cases occurred among Asian-Americans. That's overall five point four percent of the total population and three percent of the cases. Three percent of American Indians and Alaskan native children have died. That's three percent of the total here. They only make up one percent of the population. So the racial disparities issue remains huge and again, tied largely to a socioeconomic status, underlying health conditions as it relates to the kinds of issues that poverty brings about. So just that's a point to emphasize. When you look at these cases, the condition that we are most concerned about in these young kids is a thing called multi-system inflammatory syndrome in children or MIS-C. And as you've heard, there have been a number of these cases reported in terms of of around the country, the idea of this severe illness that we see in terms of these young kids. But again, remember, the number of deaths have been relatively reduced as of August 20th.

**Michael Osterholm** [00:47:18] The CDC has received reports of six hundred ninety four confirmed cases of Mis C and eleven deaths. These are this multisystem condition in the younger kids is what we call often like Kawasaki type disease is inflammatory disease. And in older kids, it's a little bit different, more shock like picture, etcetera I'll come to that in a minute. If we look at most of the cases in children occur between the ages of one to 14 with about an average age of eight. Cases have occurred, however, in children from less than a year up to 20 years. More than 70 percent of the reported cases have occurred in children who are Spanish, Latino or non Hispanic black. That's remarkable. So even though the deaths I mentioned are disproportionately higher here, for the most cases, the Hispanic and Latino non Hispanic black children are substantially higher and ninety nine percent of the cases have tested positive for SARS-CoV-2 or the one percent were in the presence of someone who had COVID-19, and therefore highly suspected of this. Most the children actually develop their illness two to four weeks after infection with SARS-CoV which is this kind of reaction that we see immunologic reaction that occurs post recovery almost. That has been part of the characterization we see with Kawasaki. About half the cases are male and female. 55 percent of the cases were male. When we look at the conditions of these kids, most of the Kawasaki like cases occur in those under age six, and they typically do quite well overall. And if you look at those children over age 10, this is where you're more likely to see kind of the shock, severe abdominal pain, myocarditis like situation. And so these are really separate issues.

**Michael Osterholm** [00:49:16] Generally speaking, the kids do well. I always, again, hesitate to say that's because any deaths is just not good. Finally, let me just say that we just had an opportunity to review a major study that just came out in the British Medical Journal this week on clinical charge risks to children and young people admitted to hospital with COVID- 19 in the United Kingdom. This is a prospective multicenter observational cohort study. Big words to mean that this was already in place. They were following individuals when they first were admitted. And even if they, for example, had known this two to four weeks later with Mis C, they had would have been detected earlier. Had they been first admitted. In short. This study showed very similar results as to what we've seen so far in the United States and that we are following these cases closely. But the long term prognosis is very good. And I think as we learn more about this multi-system illness and how to treat it, I expect that we're going to see even more improvement in clinical outcomes. So let me just summarize kind of come back around here and say Rose and Taylor, go for it. Just remember to try to do whatever you can to avoid contracting the viral infection in those weeks before your delivery. You don't have to name the kids after any of us, but make sure that at least you think about us because we're thinking about you. And this is a tough time. But there can't be anything, I think, better than bringing a bundle of love into one's home at a time like this in a COVID world. And I promise you, with the kind of care that you get from Erin, Sarah and Sarah, it's dedicated people like that that will assure you the very best of experiences.

**Chris Dall** [00:51:12] I want to get now to a question about testing, the issue that never seems to go away. There was a story last weekend in The New York Times that questioned whether the standard diagnostic tests for COVID-19 are too sensitive and they're diagnosing too many people with, quote unquote, relatively insignificant amount of the virus. Mike, what did you make of this story?

**Michael Osterholm** [00:51:30] Well, this story has received a fair amount of attention because it suggested and as I quote in this story, that basically many of the positives that we see today with by PCR are not infectious. In fact, the exact quote from the article was on Thursday, the United States recorded forty five thousand six hundred and four new Corona virus cases, according to a database maintained by the Times. If the rates of contagiousness in Massachusetts and New York were to apply nationwide, then perhaps only forty five hundred of those people may actually need to isolate and submit to contact tracing. So it's forty five hundred. A fourth. Forty five thousand. Unfortunately, I have some familiarity with the data that had been used actually from the state in New York, and this group just made an error. To better understand what happened here is when you do polyerase chain reaction testing, what happens is they use a cycle where they're trying to amp up the amount of genetic material, thereby reproducing it. So one copy goes to two, two goes to for four goes to eight. Eight goes to sixteen. Sixteen goes to thirty two. And you do a number of cycles till you get enough that you can actually detect and cycle times less than thirty five meaning you amped it thirty five times have always been considered in a sense positive. You have it. Meaning fewer cycle times means it's more likely there because you already could pick it up with very few cycles if you get more than thirty five cycles

**Michael Osterholm** [00:53:08] then it means that basically it may be not there or there's so little of it, you just can't see it or find it. The problem with this article is that they made a mistake. I don't know how, about exactly the proportion of positive PCR test results that have cycle times less than thirty five or over thirty five. And so their conclusions were not valid. They did have data from Massachusetts that I was unable to review, and I don't know what those data showed. But I'm also aware of data from other state health departments that were consistent with what we saw from the New York labs. And I think this article will be undergoing formal review inside The New York Times in the next few days to challenge some of these questions that were raised here. In addition, one of the areas that they missed, which I'm not sure how, but think today what happens with someone who is tested and found PCR positive? More often than not, we wouldn't retest them again, knowing what we know today. But if you look at the duration of the pandemic so far, a lot of people who were initially test positive got tested multiple times later until they cleared. So I might get tested on day four of my infection and have a a cycle time of of twenty nine pretty infected. But then when I get tested on day 10 and day 12 and day 14 and trying to clear it, make sure I'm clear that PCR positivity because of the time, we didn't know for certain that that really wasn't associated with infection. My cycle times might be, you know, thirty eight forty somewhere in that range. That would give me that very low positive. But that's not a new person.

**Michael Osterholm** [00:55:01] That's not a new test in the sense it's me. And so we don't really know among those tested here how many of them were retests. They could have very high cycle times, you know, 38, 40. That would have not really been representative of what a new infection was like. And so I just want to point out there we have we have a lot more to do. I'm the first to agree that it is important to understand how infectious someone is, when are they most infectious. But I don't feel like this study got us there. We will be doing work with several state health departments to look at just what cycle time data is available for PCRs. And I think you're going to find that the vast majority of them have always been under 35 and that the conclusions in this article will be challenged. I also want to just address the fact that last week I I received a number of very good comments and questions about helping me understand why I had concerns about this idea of using these cheap tests. You know, the dipstick kind of thing on a voluntary basis. And, you know, there were legitimate concerns that obviously I didn't do a good enough job explaining this. Or if I did, it didn't matter. But first, let me just point out that, you know, I'm I'm one of these guys that I care about the big picture in the saying, you know, how many cases we're going to have this day, this month and what can we do? To reduce that number. And one of the points I was trying to make about testing in general is that, number one, we have fewer and fewer people who I believe will agree to be tested today and that some of the dropping testing numbers we're seeing are because the public one doesn't believe this is a real pandemic.

**Michael Osterholm** [00:56:51] I'm not going to get tested. Number two, I'm not going to turn in my self or my friends as contacts to anyone by getting tested. And if I'm not any sicker than this. Forget it. And when you put that together with the fact that some people would possibly get tested if they're severely ill or even moderately ill, but on a day to day basis, I'm not going to do it. I'm not going to wake up every morning and, you know, go and take my vitamin pills. You know, do X and Y two for a healthy morning and then take my test. And the only point I'm trying to raise here is not that I'm condoning that, supporting that thinking that should be a reason we do or don't do something. But if that's a large proportion of our population, then that's a challenge, because in the end, that then limits the ability of those to have a big impact. And far too often, we have this fantastical kind of approach to life where we do find the magic bullet, the pixie dust is in the jar. So I'm a public health guy that basically I want to see that we can make a real difference here, whether it's in 25 or 30 percent of the population. But I want to get a handle on that in too much of this testing has been sold as this could fundamentally change the course of the pandemic. It simply cannot. And the people who are supporting this and moving this are people who have never been in the public health trenches in their life. And I think that's an important point, because those of us that have would say we are willing to take whatever tools. But this is a challenge.

**Michael Osterholm** [00:58:23] And so I think that's the important point. The second thing is, if people are tested, will they change their behavior? And we have data from other areas of science that say, you know, if I get tested and I'm tested today negative and I'm tested tomorrow negative, a tested tomorrow negative. And the day after that negative, it begins to reinforce my behavior in a way that says I'm kind of invincible. And we've not really studied that. We have looked at that with HIV. We've looked at that with other diseases where that clearly was a an issue. And so one of the challenges we have is, again, not to say we shouldn't explore this, not to say this isn't something we shouldn't consider, but don't automatically assume that testing is always going to give you the result. You think that somebody will get picked up positive and that immediately will get them out of the pool. What I'm worried about is for many of them, we'll keep them in the pool because as long as our tests negative, they'll just stay out there doing high risk behavior till they do become positive. And that's the challenge that surely you'll be great. At that point if they don't transmit to others. But why did they stay in that pool to begin with? That test enabled them in a way, it's almost like a crutch to do that. So those those are the reasons. Finally, I just want to say this is where I get really frustrated is related to the issues of of test licensure. You know, many of you know, I wrote an op ed in The New York Times in April talking about how the FDA approval for testing for COVID-19 was like the wild, wild West.

**Michael Osterholm** [00:59:54] I have not changed my opinion on that. So last week when the Abbott Binocs test a lateral flow antigen point of care test was approved under emergency use authorization, I saw so many people say, aha, this is the rapid test we need. This is what it's at. How ironic. This thing was approved based on 35 positive sample evaluation. And I can tell you that they although they report a sensitivity, 97 percent, haven't gotten 34 of 35. If you couldn't do that under those kind of settings, you really have a problem. But if you look at the Binocs Abbott test for influenza. It has been a disaster with 50 to 70 percent sensitivity. Even though it says it's much higher, the CDC says right on their Web site that you should avoid these types of tests for diagnostic purposes because of their lack of sensitivity for influenza. And we have no reason to think that this is going to be any better for for COVID-19. And so at this point, it's ironic that it was approved for diagnostic purposes ordered by a physician when that's the last thing you want to use it for because of low sensitivity. Now, if you want to use a screening test just to say, OK, I'm going to put it out there and, you know, just let people use it and you won't catch everybody. But if I can catch 50 to 70 percent, that's great. But again, it just amazes me how the media went off on this took. You know, right away an answer is, oh, boy, this is the next new big thing. They just weren't aware of it. Even a number of the science reporters didn't understand the challenges with lateral flow testing for antigens as point of care.

**Michael Osterholm** [01:01:39] And the flu people all knew right away what was going on. So so that test also it shouldn't be used as a diagnostic side. So it's not going to help us with sick people who need testing. It should never be used in that setting. And again, we still are lacking the kind of breakthrough technologies we need for point of care testing for a clinically ill people.

**Chris Dall** [01:02:06] So, Mike, our listeners know well that you try to avoid politics on this podcast. But as the election season kicks into high gear, there is a growing concern about a potential October surprise vaccine approval from the Food and Drug Administration. That's been prompted both by President Trump's promise of a vaccine for the end of the year, and some recent comments from FDA Commissioner Stephen Hahn about emergency authorization of a vaccine before there is data from phase three trials. How concerned are you about this?

**Michael Osterholm** [01:02:31] This keeps me up at night. This one is a real challenge. I have a tremendous fear that in October, a vaccine will receive emergency use authorization, not approval as a licensed vaccine, but that there'll be enough data to have the FDA say that we are authorizing this use. And it is going to be a nightmare if that happens and we don't have adequate data that the public health community can support right away. This study itself on that vaccine will end because who is going to be randomized to a placebo if you now have emergency use authorization for that vaccine, we'll never get more data on that vaccine as part of a Phase three trial. It will be only post marketing. Number two is what does it do to the other vaccines that are out there? Are there plans for how you keep people on a placebo controlled trial for a situation like this with this vaccine now receiving emergency use authorization, although we still don't have guidelines for who would get the vaccine first.

**Michael Osterholm** [01:03:37] Today, we were issued new guidelines as draft by the National Academy of Sciences, looking at these guidelines for how we might prioritize who gets vaccines. We have a lot of work to do in that yet. Well, before October. And so I can say I share the very real concern that many of my colleagues do, that this is a real challenge. And let me just say it. It only is accentuated by the fact that this week the NIH expert panel reviewing convalescent plasma looked at the same data the FDA did and came out with a recommendation that they did not see benefit. And that is such a contrast. We had the FDA just determining internally after the president said that not making it available was part of the deep state issues. And now the NIH coming out this week saying we brought together a group of experts who looked at this externally and said the data were not there to show that it had substantial benefit. This kind of second guessing, I mean, just this week, a very prominent medical figure in this country, an editor of an online journal, a highly respected, basically all but called for the commissioner of the FDA to step down because of lack of credibility. We've had the same situation happen with CDC this past week over the issue of who should be tested or not asymptomatic individuals. I mean, it's just one thing after another. And today, we have a piece in from several very prominent medical experts in this country saying don't listen to the CDC anymore. I'd never thought I would see that. Never in my lifetime. So we do have a challenge here. We have to maintain the integrity of the science and public health. It should be agnostic to partisan politics.

**Michael Osterholm** [01:05:35] Red or blue states, it should be agnostic to all of that. It should stay to the science. It's about saving people's lives. And if we make decisions about drugs or vaccines that may be lifesaving and may not be that may actually help us or may hurt us, then it is absolutely required that we honor the authority and the responsibility put in our hands by the public to deliver them the truth of what we have and don't have. And so I can't imagine having a vaccine that gets approved for which the data are so incomplete that the public health committee says no. What will that do to the public? Oh, my God. Already, a third of them are not trusting the vaccines as is. And then now we have the other two thirds wondering, what should I do? So I can only say I hope the FDA does the right thing. If they have the data to support that these vaccines are, in fact effective and safe. I'll be the first one to jump on board and promote it. Twenty eight hours a day. But if they don't, I and others will stand up and say, this is wrong. We have to protect our public with the science and not with policy. Again, I hope for those I know. I'll hear from some of you who will be angry with me because I've gotten partisan. I haven't. I would be saying this if I was any either party, I would be saying this no matter what, the integrity of science must supersede all these other political considerations. And and I hope that, you know, this message is taken in that light. It's it's I can't say it any more humbly or any more honestly than that.

**Chris Dall** [01:07:15] And finally, we're going to circle back to where we started with Corona virus fatigue. There's an interesting article in The Washington Post about how people are becoming numb to the risks of COVID-19 as the pandemic wears on. Essentially, the longer people go without being infected, the more they're willing to push their boundaries. So, Mike, how should people be evaluating their individual level of risk?

**Michael Osterholm** [01:07:39] First to our we will link to this article on the Web site for the podcast. I urge everyone to read it. It's by Elizabeth Svoboda, an author that I very much appreciate and have read her books. Elizabeth is someone who has written for a number of different publications. But where I first really got to know about her, she wrote a really a a wonderful book about heroism and altruism. And the title the book, which was published in 2013, is What Makes a Hero the Surprising Science of Selflessness. And she described what she learned along the way with that book. A remarkable book. I urge you to read it. And then in 2019, she actually did one for young heroes in training. And in this case, the title of the book is A Life Heroic How to Unleash Your Most Amazing Self. In the August 22nd issue of The Washington Post, Elizabeth wrote an op ed piece, How Our Brains Numb Us to COVID- 19 Risks and What We Can Do About It. And as you said, Chris, in your question, she really laid out this idea that what's happened is we're basically becoming through what we call exposure therapy, more and more used to touching the candle. If we've gone out a little ways and have been a little risky and we're okay today, we've got a little farther the next time.

**Michael Osterholm** [01:09:02] And in a sense, it's this whole issue of perception of risk and where we're at. And, you know, when she said in here, for example, with parties, when you do the right thing and stay home and don't go to a big party, you feel an immediate cost. You're not able to be with your friends. So when you go to that party and you don't having bad happen, you just reinforce. Well, that was unnecessary anyway until, of course, that party is. Next one is what nails you. And and she actually said, and I quote, Because risk perception fails as we learn to live with COVID-19, researchers are calling for the renewal of tough government mandates to curb the virus spread. Now, you know, that's what I said back in the issue with the op ed piece New York Times several weeks ago. And I think that that that is a challenge today that these measures aren't going to work because people don't want to. But we have to understand we are, in fact, becoming numb to this. And so we just say, let's move on. I don't think it's gonna be real until it happens to you. And, you know, I surely don't want to, you know, tread on any any one's life right now and sensitivities. But, you know, I had someone say to me in a conversation that they have internalized this COVID risk in a very personal way in that they actually had a family member or a loved one who was killed by a drunk driver. And they said, you know, as many years as I always heard about that, I saw the billboards that never meant anything to me until it happened. And now it means everything to me.

**Michael Osterholm** [01:10:46] I think every day about how can I help reduce the risk of that happening. And what we don't want to have happen here is that we find ourselves becoming champions of reducing the risk of acquiring this virus in this pandemic, because we had to get there because of the loss of a loved one or a severe illness. And I think that's this article really will help give you a sense of that and what it's about. So I urge you to take a look at it if you get a chance. Elizabeth's incredible writer, very, very, very thoughtful.

**Chris Dall** [01:11:18] Well, Mike, we've covered a lot of territory, but do you have any closing thoughts for our audience?

**Michael Osterholm** [01:11:24] Well, thank you. Chris. Of course, you know, I have to have my closing thoughts and I urge everyone who is listening. If you have ideas for how to better close these sessions, I welcome that. But the one I have today to share with the group, a closing thought, the words to a song by a well-known American singer songwriter, Randy Newman. And in 1995, he wrote the part of the soundtrack to Toy Story. If you're a grandparent, you know this one. You do know this one. Trust me. And the name of the song and the title is You've Got a Friend in Me.

**Michael Osterholm** [01:12:05] You've got a friend in me, you've got a friend in me. When the road looks rough ahead and you're miles and miles from your nice warm bed, you just remember what your old pal said. Boy, you've got a friend in me. Yeah, you've got a friend in me. You've got a friend in me, you've got a friend in me. You got troubles. I got him, too. There isn't anything I wouldn't do for you.

**Michael Osterholm** [01:12:31] We stick together and we see it through because you've got a friend in me. You've got a friend in me. Some other folks might be a little bit smarter than I am, bigger and stronger, too, maybe. But none of them will ever love you the way I do. And it's me and you, boy. As the years go by, our friendship will never die. You're gonna see it. It's our destiny. You've got a friend in me. You've got a friend in me. You have got a friend in me.

**Michael Osterholm** [01:13:00] And thank you, Randy Newman. I leave this podcast today with, again, the the weekly reminder for kindness and and for reaching out to those who need a friend in this case, given how difficult some discussions are becoming, how how tough it is to to even talk about this topic. Just remember, we all need friends. And this is a time to value and cherish them. Everybody on this podcast go call one friend that you haven't talked to for a while and tell him hi and tell them how much they mean to you and how much you appreciate them. If everybody could do that this week, just do that and then whatever conversation happens after that happens. But we all need friends. We all need friends so badly. I have so many wonderful friends that I'm so fortunate to have. That's what gets me through this right now. I tell you, my family and my friends are everything. My friends at CIDRAP. Incredible. So I urge you all to have friends. I urge you to remind your friends that they are your friends and that they are valued and that we will keep the message going here at CIDRAP. We will share with you what we know and what we don't know.

**Michael Osterholm** [01:14:12] I know there's a lot of information we covered tonight, but thank you so much for being with us. Thank you for your notes. Your message is please keep them coming. If you don't like what I've said. Tell me. Let me know. I will try to do a better job. That goes for you, Ron. Thank you. And I just want to also say that, you know, if there's ways we can improve these podcasts and do a better job for you, please let us know. Have a good week. Be safe. Be kind. And have a friend. Thank you.

**Chris Dall** [01:14:49] 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 dot UMN dot edu. The Osterholm update is produced by Maya Peters, Cory Anderson and Angela Ulrich.