# Episode 31: Pay to Prevail

**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 covid-19 pandemic. I'm Chris Dall, reporter for CIDRAP News, and I'm your host for these conversations.

**Chris Dall:** [00:00:42] It's November 12th, and in nearly every state in the nation, the covid-19 pandemic is raging, continuing to break records for new daily cases, pushing hospitals to the brink and adding to the already substantial national death toll. While the American public has been caught up in the presidential election, and its aftermath, the coronavirus forest fire has continued to burn through homes, schools, restaurants and workplaces, and there appears to be no end in sight. President elect Joe Biden has indicated that he'll pursue a national pandemic strategy based on science when he takes office. And there's been some hopeful news on the vaccine front. On this episode of The Osterholm Update, we're going to discuss the current trajectory of the pandemic, what kind of impact a more coordinated national strategy could have on that trajectory, and how people should interpret the latest vaccine news. We'll also talk more about the upcoming holidays and answer listener email on news out of Denmark about a strain of coronavirus found in minks. But first, as always, we'll start with Dr. Osterholm's welcome and dedication.

**Michael Osterholm:** [00:01:38] Thank you, Chris, and welcome to all of the podcast family here listening today. We are so pleased you're with us. Today, I'd like to dedicate the podcast to the veterans of our country. This Wednesday is Veterans Day. And it reminds us of the sacrifices made by so many over the years to give us the democracy that we have today. And given all the issues and questions and challenges about where our democracy is today, we had the opportunity last week to vote in what had to be, I think, one of the most amazing displays of patriotism, of not only the voters, but also all of the various polling workers, the people who made it possible, the people who counted the votes. I was singularly struck by that. It was not a Democratic or Republican response. It was a US response. And to me, that was really remarkable. So I reflect on the one million, three hundred and fifty four estimated individuals who have died on behalf of this country to give us what we have today. This includes the two hundred ninety one thousand individuals who died in World War Two and the two hundred eighteen thousand plus individuals who died in the Civil War. We thank you. We thank your families. We thank your loved ones, those who may be long gone and only remembered by few. But thank you for giving me and the rest of our team here the opportunity to do what we do every week. I also want to note that we have some good news. We will have our new website, The Osterholm Update website, available now. The address is www.osterholmupdate.com. It's a place you can come and find all the old podcasts. You can learn more about the podcast. And it's a place where you can share with us your acts of kindness. And we look forward to continuing that pandemic of kindness, not just in everyday practice, but share it with us. These are feel good stories. These are the things that we all want to know and feel. So, you know, as things get more complicated, more difficult with this pandemic, I hope that this vehicle can become a place where people can get away from all of it and come together to understand the very best of what makes us all who we are.

**Chris Dall:** [00:04:13] Mike, as many of our listeners are probably aware, you have been named to a covid-19 advisory board that will help guide President elect Biden and his team in the months leading up to the Jan. 20th inauguration. Recognizing that there are limits to what you can say, what can you tell our listeners about the advisory board?

**Michael Osterholm:** [00:04:30] Well, first of all, I'm incredibly honored to have been asked to participate in this, you know, as a apolitical center and individual, you know, my job is to provide information to whoever wants it, however they can use it. So we surely had no kinds of related activities with the campaign. And so I have not served as an adviser as such up until this time. And again, in keeping with the non-partisan approach, we will share our information with whoever we believe can help improve the general lot of all of us, in terms of the public health issues. So when I received the call and request to participate, I surely want to do my duty, and CIDRAP will do whatever it can to help. And I see this really as a civic duty. All of us should step up. At this point, I just want to reassure you that this transition team and task force will go on through the inauguration. I'm not sure what the activities will be after that. The transition team has a plan listed on their website in terms of looking at the high level issues around our immediate response to covid-19, our task will be to fill those out, to further elaborate upon them and to do what we can during a time when clearly, you know, someone else is in charge of the U.S. government and how they may or may not cooperate with these is yet to be determined. We know that these are going to be very difficult months ahead. And so we want to be able to help, if nothing else, provide the framework for hitting the ground running on January 20th, as well as just what information we can provide to the rest of the country in terms of helping to solidify and bring together a national plan. I would also just want to say, because I've been asked this question multiple times, am I leaving CIDRAP? Is this podcast going to end given my new responsibilities? And, you know, I think that let me just be real clear up front. No, I'm not. I'm not leaving CIDRAP. I'm not leaving this podcast. CIDRAP is everything to me. And while I surely hope that I can be of sound mind, not sure about the body part, but that when they finally do have to haul me out one day, it'll only be because I had a slight glitch and not a long term demise. And the other thing I just wanted to add that, as I've said many times, and I speak for other people and CIDRAP, these podcasts are incredibly helpful to us. They're very therapeutic in the sense of sharing information with you and getting information back. So I'm really committed to this podcast. You know, as long as I can talk and can think coherently or at least try to think coherently, you'll have me. I'm here. The team is here. I can't begin to explain to you what it's like each week for Chris and Maya and Corey and Angie and I to work on this, to put this together. So we're here too. So I'm honored to be involved with this task force. I will just have to find eight more hours each day, which we unfortunately try to do a bit too often. But we're here and hopefully we can also have an impact on a national level with our response to this horrible pandemic.

**Chris Dall:** [00:08:02] As I noted in the intro, the pandemic continues unabated in the United States, with the country now seeing well over one hundred thousand new infections a day. I believe there have been more than a million just in November alone. You told CNBC earlier this week that what America needs to understand is that we are about to enter covid hell. So what are the various models saying about the next few months? And where do you see the the trajectory of the pandemic heading?

**Michael Osterholm:** [00:08:29] Let me start by dividing out this into two pieces. One is I will talk about the models in a moment. But let me just give you some perspective in terms of how I see this unfolding where we're at. This isn't anything new. This shouldn't be a surprise to you. I mean, we've been seeing this coming. I feel like I'm somewhere on the Great Plains where I can see 50 miles away the tornado coming at us and it keeps getting closer and closer. And pretty soon it almost senses like you can feel it. And it's there. When you think back to September 8th, just eight and a half weeks ago, it was the Tuesday after Labor Day. We had twenty eight thousand nine hundred and forty one cases reported and people were beginning to feel like, you know, it's coming down. We were at almost seventy thousand cases in July, kind of a gradual decrease, but we're doing it. And of course, we knew on this podcast, we knew that wasn't true. We knew it was going to change. We knew it because we had been talking about it since early August, that the combination of pandemic fatigue, pandemic anger and then increasing activities indoors were all going to basically form kind of this perfect storm of risk factors for a big increase in cases. I have been accused over and over again of playing the longest inning of baseball in history since I've been talking about, you know, we're in the bottom of the third or the top of the fourth inning with this pandemic for months. And this was the moment that I most feared, but I also most anticipated. This is going to be the middle innings. And it'll probably move somewhat quickly compared to where we've been, but these are going to be innings we will never, never, never forget. When we think about that twenty eight thousand nine hundred and forty one on September 8th, where today at one hundred and thirty thousand five hundred and fifty three cases, four point five times increase just in those eight weeks. And the curve now is clearly what we call exponential growth. It's growing faster and faster as it grows taller and taller in terms of number of cases. At this point, I don't see anything that's going to have a major impact on this pandemic curve in the United States short of two hundred thousand new cases a day. And that will clearly, clearly overwhelm our health care systems. When we look at where we're at today in terms of cases, let me just say, if you just consider the various states out there, 20 states yesterday recorded new highs and hospitalization. Five states hit new highs and average daily new deaths. Those are lagging indicators. So as we see the case, curves go up, remember, hospitalizations and deaths are going to follow anywhere by seven to twenty one days later. And so when I hear from people, well, it's no big deal. Cases might be going up. But look at the deaths haven't gone up much yet. Oh, please understand that that's a lagging indicator. And I'm going to come back to that in a moment because that's of grave concern. I think the situation right now, we have over 56000 patients currently in hospitals around the country with covid. That is beginning to overwhelm our system. We also are seeing an increasing number of cases in kids. Last week, the US reported over seventy four thousand covid cases in kids. Now, the problem with that I have is that, again, that involves junior high high school students, also not just grade school kids. And so for many of us, that's where the sensitivity is. I can tell you right now in Minnesota, we actually have 17 children in the hospital, at children's hospitals here in the Twin Cities, of which five are in intensive care, you know, small numbers relative to everyone else. But surely you can take in a real hit there. In terms of looking at where we're at for the first time in my memory in terms of this pandemic, all 50 states plus the District of Columbia reporting marked increases in cases over the past 14 days, all 50. Twenty nine states and the District of Columbia reporting major increases over the last two weeks with deaths and again, those lagging indicators are going to catch up eventually. When you look at the level of infection in some states, it's remarkable. If you just look at North Dakota, one hundred and seventy four cases per 100000 population on a seven day average. Let me repeat that. One hundred and seventy four cases per hundred thousand population, a seven day average. If you think about that, that's the highest number that we've seen anywhere in the modern world, the of the higher income countries, even higher than Wuhan, higher than we saw in the Lombardy region of Italy. South Dakota is not far behind, one hundred and forty cases per hundred thousand. Iowa, one hundred twenty eight cases. Wyoming, one hundred and thirteen, Wisconsin, one hundred and six. Minnesota still, fortunately, is down at eighty four, which is still incredibly high. But compared to our neighbors, that seems low. But what's happening is, instead of having a situation like we've had in the previous activity in April and then again in July, where we see these regionalization is really driving case counts in the country and the rest of the country being relatively low in activity, or at least moderate at most, this one started in the upper Midwest, but now we're beginning to see it spread throughout the entire country. And I don't know for sure where this is going to go in terms of will all 50 states light on fire? But I have no doubt that we'll be over two hundred thousand cases in the near term. This is why I've said that these were going to be the darkest days. Now, when you hear this, I'm sure this is chilling and it's almost like, why in the hell am I listening to this podcast? But this is the information you need, because this should give you all the more motivation to protect yourself. And I even want to share with you what it's doing to our health care workers. I've talked about this last week. This is taking a big toll on me because I have so many friends and colleagues who are feeling broken, who are doing everything they can. And yet they are at this point exhausted. I received a number of emails this week from intensivists, people working in the intensive care units here in Minnesota and elsewhere, hoping that I could add a voice to warning the public and even their bosses as to what was happening. This is an email I got this past weekend. As this person said, "I was on hospital service last week at Hospital X, I became more and more alarmed at what was happening. Number 1, I could not transfer patients who needed advanced heart failure therapies. They will die where they are because we don't have space. One of the physicians in one of the adjoining hospitals informed me that a patient collapsed with GI bleeding in their lobby with a lactate of 16 on Thursday as they were so swamped and full, they could not appropriately triage the case. We had two staffed ICU beds in the state on Friday. This was Minnesota. Bed control had one hundred phone calls on Friday morning alone trying to place patients. One city out-state Minnesota, canceled all surgeries except for emergent ones last week. The hospital curb belongs on a log scale. Where is the top?" And they go on and explained what they think should be done, which is calling on the governor to take action, and then they go on and say this all feels too late, but something needs to be done now. "Who is listening to you? Is anyone listening? An open letter to the Star Tribune in Minnesotan's appealing for them to make the right choices? Our mortality rate is about to skyrocket. I'm volunteering for more and more covid ICU shifts. It is not like it's feels nearly enough." This is an intensive us who cares so much about their patients and sees what's coming in now. This is where we're at. Now, imagine if we double the number of cases in our state, which we could easily do in the short term. Please, all of you in the audience. I don't care if you live in Minnesota where you live, please take care of yourself right now. Distance, distance and distance do not swap air with anyone. Number 2, make sure all of those you are close to are bubbled. No air here, no leeway. It's not kind of halfway. You don't want to find out through a very cruel experiment that someone who everyone thought was bubbled in your circle wasn't. If because of professional reasons you can't bubble, you have kids in school, you can't bubble. I understand. But right now, try to do the best you can and removing that risk. And we'll talk more about that as we talk about the holidays. Just know that at this point, the likelihood of becoming infected each week becomes greater and greater if you do the same activity you did two weeks ago or five weeks ago or eight weeks ago, because just the sheer number of people in the community who are infected, who you don't know them and they don't know you and neither of you know either one's infected. One of the areas that I have real challenges with and I've not said much about it. But I think that it's time for me to say something about it is modeling, as many listeners know following this podcast, that over the years I've been challenged by some of the statistical modeling that has been done that I think has actually caused us challenges more than has been helpful. There's that old line that all models are wrong, but some give you useful information. I have great respect for various groups of modelers who I think have done incredibly responsive and responsible work and that have helped us. But I think there's also been others that have been a challenge. For example, I personally can tell you that back in the West African Ebola crisis, some of the modeling that was done, particularly by the CDC that put out and I realized that these are the ranges, up to a million cases might occur over the ensuing months in two countries caused a great deal of almost panic concern in Washington, D.C., and particularly on the Hill, whereas the World Health Organization came out with estimates for three countries of about twenty thousand and which ultimately ended up being right. We were accused afterwards, as a public health community, having hyped the situation in Africa for whatever various political reasons. And I think to a certain degree, some of that challenge is occurring right now with sars-cov-2. You know, I don't rely on models as such. I surely read about them. I look at them, I take them into consideration. But as I've said on multiple occasions, I'm much more counting on what I know human behavior to be like and looking forward. That's why in early August in The New York Times, I basically said this fall was going to be a crisis. And, you know, that was five to six weeks before the Labor Day change in case incidences started to occur. And I think that's just for a lot of us. That's kind of like us keeping to the baseball analogy, playing center field. You know, I don't know why center fielders in baseball are so attuned, but as soon as that ball hits the bat, they just know automatically where to run. They don't think about it. They don't process. They go to the left or they go to the right or they run in towards the infield quickly or back to the wall. And it includes a lot of things. It includes, you know, the sound of the the ball off the bat, the experience in that stadium with wind and how it handles the ball. You know, that first 12 inches off the bat, what's the trajectory? All that comes to play almost automatically. So I will confess that I am not a modeling expert and don't pretend to be. Although, you know, I've had over 60 hours of graduate statistics and have had graduate students doing a lot of modeling work, I still would say that I'm the neophyte at it, but I'm concerned about it. And I look at models for public policy discussion and in particular for looking at health care resources and how we're going to allocate them. You know, we know that to be effective, that models have to have certain characteristics. And I'm very fortunate to work at CIDRAP with Angie Ulrich, who is one of our epidemiologists, who along her with Maria Sundaram, who a former student, a PhD student of mine who now is working in Toronto, and I are working on a paper about this very issue of how do we interpret modeling? And we know that they must be accessible to users quickly. They are best when they're aggregated among multiple models and interpreted in tandem. And we know that model limitations should be communicated to the public and policymakers. One for credibility, but two for perspective. And with sars-cov-2, you know, I think we've had some real challenges. We've had varying numbers of cases and deaths reported, some widely varying. And it's all been because the different approaches, different timescales and how these models deal with uncertainty. My hat is off to the Reich Lab at the University of Massachusetts in Amherst, which came up with the covid-19 forecast hub. This is 50 different modeling research groups who have come together to share their models, to share their information. And every Tuesday morning, the latest forecast, including that is shared with CDC, comes from this group and they do not project more than four weeks out. Again, I think a very responsible, a very thoughtful approach that they're using. On the other hand, if you look what most people in this country think about when they see models, they think of one that comes from the Institute of Health Metrics and Evaluation or IHME at the University of Washington. This is the one that is cited by the media constantly. We actually conducted a proquest news stream search of four major U.S. news online publications, The Wall Street Journal, The New York Times, The Washington Post and USA Today between April and October. The articles reviewed independently and in duplicate for relevance. And we found that the IHME model has been disproportionately cited by the media compared with the ensemble model put out by the forecast hub and in fact extensively different. IHME was cited ninety five times while the ensemble model appeared only three times. Yet I would tell you that the ensemble model was by far the most valid of the models there. IHME has often projected out extensive periods of time, which I think is absolutely inappropriate and not helpful. And in fact, if you look at their past history, it's been very unstable and the instability of these models really are a challenge. For example, in late March, IHME said, you know, by August of eighty one thousand cases, then in April, they changed it to sixty thousand three hundred eight cases. Then in May, they went back one hundred thirty seven thousand one hundred and eighty four cases. And these estimates have often been wildly off. If you look on July 7th, they said there would be two hundred and eight thousand two hundred fifty five deaths by November 1st. That was actually accomplished in very early October. That number, unfortunately, not an accomplishment, really a horrible disaster. I don't know why the media continues to use IHME for their work. A good example of what I think is absolutely inappropriate modeling, but it gives a sense of accuracy, which I think is really a disservice. For example, right now, if you go to the IHME dashboard, they'll tell you that the current projections for deaths on February 1st, so without any understanding of what's happening right now with this exponential growth, they said current projections are three hundred ninety nine thousand one hundred and sixty three deaths. If you use mandates and come off mandates, it will be five hundred and thirteen thousand six hundred and fifty eight. And if you have universal masking,it will be three hundred and seventy seven thousand six hundred and sixty nine with intervals of reported, for ninety five percent confidence intervals. But reporting these numbers is absolutely wrong. There is no precision that they can say for current projections three hundred ninety nine thousand one hundred sixty three. That gives the public, that gives the media the sense of really a level of accuracy, which is just plain wrong. When you look at daily infection's for February 1st on their dashboard right now, current projections are two hundred and fifty nine thousand one hundred and thirty eight infection's. If they ease mandates, seven hundred seventy nine thousand four hundred forty two. And if you look at universal masking, there'd be one hundred and seventy one thousand four hundred thirty seven infections on February 1st. If you look at the masking issue, and we've studied this a lot, as you know, much of what they used is just not at all able to provide the definition that they have here about the effectiveness of masking. And in fact, I would go so far as to say, based on what they've used, it's the old axiom, garbage in, garbage out. But I think to put the kind of accuracy here and to have the media continue to focus on this model as they do is just wrong. And I hope some of my colleagues out there who have shared with me their concerns and their reluctance to, in fact, use this modeling data from IHME at all. I hope they speak up, too. We need accurate data. I don't want the public to be misled by some kind of estimates that are absolutely not stable. They're not based on what I would consider to be the kind of information about what's happening in the population, the behavior. Again, remember, many of these models look back at previous behavior that predict what will happen in the future. How do you know easing mandates will have a certain impact on the number of cases? The assumptions that go into that are as wide as the Grand Canyon. And so I just leave it with this piece on modeling and say that, you know, be careful. As I've said to all the on my podcast, be skeptical of everybody's data, including anything I tell you, be skeptical. And in this case, be highly, highly skeptical of anything coming out from IHME right now in terms of modeling, I urge you to look at the ensemble models. I think that it's the best we have. I think their responsible approach to the four week time period and how they're doing that is commendable. And I think that's what we all should be counting on, government as well as the media.

**Chris Dall:** [00:27:55] With the dramatic rise in cases we're seeing across the country, we're starting to see several states implement more targeted strategies to curb the spread of the virus, like reducing restaurant and bar hours and putting limits on social gatherings. Mike, do you think these limited strategies will have any impact given how widespread the virus is right now?

**Michael Osterholm:** [00:28:15] I want to believe more than I can put into words that somehow we'll all wake up one morning and realize what is our future if we don't change our behaviors, we don't start limiting the kind of physical contact we have with people and that we don't take into consideration what it means to basically go to weddings or funerals or be in bars and restaurants or go to social events in people's houses, etcetera, etcetera, etcetera. But at this point, I also have to be realistic and realize that that's not likely to happen, particularly given that there is a core group of people right now, as I've said over and over again, and I can surely attest to this by my email, they don't believe this pandemic is real. So I do believe that if we're going to, one, save lives and two, actually have less economic disruption, we are going to have to take much more extreme measures. Now, when people hear that that is like triple nails on a chalkboard to the world. I know that. But just hear me out. First of all, let's be clear what a lockdown is. If I interview 50 people today and ask them their definition of a lockdown, I'll get seventy five different answers. No one can really tell you what that means. Let me come back to what we know. Number one, if you look at Asia. And I'm not talking just about those countries that some have suggested are authoritarian countries that can get people to do whatever the government wills. Look at places like New Zealand and Australia that have done a remarkable job of having outbreaks, bringing the force of government to limit social activity, to limit contact, and to drive the case numbers down to where follow up with routine testing, contact tracing and quarantine and isolation can work. They know how to do this and we should know from them how to do this. You all know from this podcast I've said over and over again, you know, after the April quote unquote, shut down, lock down, stay at home order, flatten the curve. I don't know all the different terms you want to add to it. You know, that was not well done. You know, we all are involved with that. There were many counties out there that didn't have any cases at the time and they couldn't understand why their stores were shut down, their bars were shut down. Even right here in a place like the Twin Cities where mom and pop hardware store had to be shut down. But Home Depot down the street six blocks was wide open. You know, it didn't make sense to people, and when it doesn't make sense to people, that's the first way to, number one, get them to not do it. And number two is to have them challenge the very authority upon which you have to do it. So when we look at what happened after April, we saw this beginning to kind of this pandemic fatigue. But people really believed they had to do this. Then, of course, after Memorial Day and we saw the big run up in cases primarily in in Georgia, Florida, Texas, Arizona and California. At that point, what really brought the case numbers down in those states was the fact that there was such a house on fire, Florida, with up to a third of their ICU units overflowing. That caused a temporary change in behavior in many of these communities, such that distancing was now occurring. But it didn't last. It got to Labor Day. Well, you know, some of us saw that happening. We knew that was going to happen on August 7th. Neel Kashkari, the president of the Minneapolis Federal Reserve Bank, and I wrote an op ed piece in The New York Times about here's how to crush the virus until vaccines arrive. And we were trying to put into some play what we anticipated human behavior would be like. And you know what, it happened just exactly as we said it would. In that particular piece, we actually have said, and I quote, "And the next six months could make what we have experienced so far seem like just a warm up to a greater catastrophe. With many schools and colleges starting, stores and businesses reopening and the beginning of the indoor heating season, new case numbers will grow quickly". We saw this coming. But what we proposed was to drive the case numbers down with five solid, hard weeks of the kind of stay at home orders, the shutting down to real essential workers. For example, when we had the April flatten the curve shut down, Minnesota deemed seventy eight percent of the workers to be essential. And yet our own data from workforce studies showed that it was no higher than thirty nine percent of the population were essential workers. We really didn't lock down. We had a soft, soft lockdown. But what we said is lock it down, get the case numbers down less than one case per hundred thousand per seven day period. And you know what we could do what Australia and New Zealand did. And everybody said, "oh, my God, the cost of that" but what we did is we went further. And what we have put forward as the plan, which should have been done, I believe, by our leadership in Washington and has not, is to recognize we are in a very unique place in terms of being able to borrow money to help ourselves. As Neel and his colleagues at the Federal Reserve Bank have done so well, they've actually found that since the pandemic began, we actually were saving lots of money because people weren't out spending it. And it turns out that, in fact, we saw the personal savings rate soar over 20 percent by August from around eight percent in January. There was enough money sitting in banks waiting to be to used somewhere in an investment. With historic low interest rates, we could have as a U.S. government borrowed the money from ourselves and had plenty of money in that reserve to actually pay people not to work, cover them for their losses, small businesses would be held whole, medium businesses, too. We would have made sure that cities, counties, state governments were covered, academia, medical care facilities. And we would have actually made that trauma of that, quote unquote, 'stay at home order' so much different if nobody was risking anything. But we didn't. We abandoned them. And now we're in the same boat. I still believe what we should do is do a national lockdown. And that term, I know how bad it is, come up with a new term, and we should pay to have that happen and that's what I call 'pay to prevail'. That's my term. If we did that, I think we could for the next six to eight months, drive case numbers down, keep them down such that we can get to vaccine, this is the story we need. We need to tell the story of what we're trying to do. And the story is we're not asking you to do this forever. We're saying till we can get to vaccines, let's get the case numbers down and the way we do that as this five week to six week period. We pay you if in any way you're harmed financially. And then at that point, we will reopen back up to the extent that we can keep transmission down. Look what's happening in Asia right now, their economies are booming, they're booming. In the face of a global pandemic. What's happening in Europe? What they did is they actually did a great job after the April house on fire and they actually contained things well into the summer. But then they thought, well, you know, it must be over with and they let up quickly. That brake pedal practically got pushed up. And at that point they blew up just like we did. So they learned from us all the bad things. Now they're in lockdown's, they're not trying to cover the cost of people. And there's surely clear and major pushback, and I understand that. But so at this point, the Federal Reserve Bank has the data to show that, in fact, if we invested now in this type of program economically would have big dividends, we'd be paying ourselves back for more money. We borrowed from ourselves at a very low interest rate and we would basically turn the engines of our economy back on. Our hospitals would not be flooded with cases and it would be a different world. Now, tell me logically what's wrong with that picture? And so I reject and find really difficult when I hear people say 'well another lockdown's not possible'. In fact, it gets their back up just like that because they don't understand it. There is no trade off between health and the economy. Both require aggressively getting control of this virus. And I really believe, this is in the last sentence of our op ed piece, "History will judge us harshly if we miss this life and economy saving opportunity to get it right this time". And we still have time to do this because we got a long ways to go to get the vaccines. We got weeks and weeks and weeks and weeks. So I think in that regard, do I think these kind of limited close the bar is a little earlier, you know, that kind of thing going to make a difference? I actually am not sure it will. Maybe it will cut it down a little bit. But until we do what I think we've laid out here and we have the US government behind this, Congress and the administration, I'm not sure what we'll accomplish.

**Chris Dall:** [00:38:20] So speaking of vaccines, pharmaceutical company Pfizer announced earlier this week in a press release that it's covid-19 vaccine candidate developed with Germany's BioNTech was more than 90 percent effective in preventing covid-19 in phase three trial participants. Mike, what do you make of this news and how should our listeners interpret it?

**Michael Osterholm:** [00:38:41] Well, this is a bit of a complicated story, but let me just start out with one word: encouraging. This was encouraging findings. You know, these mRNA vaccines we've been talking about clearly have provided some type of antibody response, some immune component responding to the virus because they were able to show among those who are placebos who received basically inert substance versus those that received the vaccine, that there was basically a 90 percent level of protection. That's great news. The challenge we have is I don't know how to interpret that news because I don't have a clue what the 90 percent efficacy means. What I'm saying here is, is that did, it prevent 90 percent of fever, cough and chills as the illness outcome? Did prevent 90 percent of people from dying? From being hospitalized? From having severe illness? We don't know that yet. And a vaccine that only basically reduces mild illness while still surely having some role, maybe even slowing down transmission, isn't going to be the game changer that we need if we're trying to look at the overall risk of serious outcomes. And we know with influenza that the very people who we want to protect most, those who are older, have underlying health concerns, increased body mass indexes. Those are the same people that don't respond nearly as well to the vaccine. And they surely can have reduced illness status that can reduce hospitalization some. But the bottom line is, until we get those numbers, I don't know how to interpret this. So it's encouraging that something happened here. But it still is unclear that this is the great success that so many saw it to be. They assumed it was like preventing 90 percent of all covid-19 illness. The second thing is, and there's nothing that is inherently wrong with these studies, we just don't know, what is the durability of this protection, how long will it last? And we can't wait four years to figure that out and then put a vaccine out when we have a thousand people a day dying. So it's going to be a learn and see as we go. We're going to be doing pharmacovigilance studies that are going to be trying to understand, you know, at three, seven, 12, 18, 24 months what does your immune picture look like if you're a vaccinee? And what happens in terms of the efficacy after 12 months, after 18 months? Will it drop from ninety four/ninety five percent to 70 percent down to 50 percent? And how might we have to look at the issue of booster doses? From this perspective, we still have a lot to learn yet. I do want to add one other piece, because I've had a discussion with a number of public health colleagues over the course of the past couple of weeks. I'm quite certain that these mRNA vaccines are going to be coming to the market and that they surely are going to offer some protection. But the challenge is going to be, number one, how do you distribute these vaccines? And number two, how difficult would it be to distribute them based on their unique physical characteristics, i.e. requiring minus ninety four degree Fahrenheit refrigeration freezer? That's going to be a challenge. Let me look at the first one first. Health care workers are going to be front and center in terms of using this vaccine, in terms of protecting them. If we're trying to vaccinate health care workers right during house on fire activities and many of these institutions are going to be hard to do, is going to be very hard to do. Who are you going to get to do it when every hand on deck is being used three times a day? And so I think that we have to make that plan now, assuming that there will be a confluence between this very, very high incidence and trying to vaccinate health care workers. The second thing is, with this refrigeration requirement, it's going to be really very important that we have a fine, fine protocol. For once you take this vaccine out of the unique freezer, compartments are going to come in, you basically have about twenty four hours to get that vaccine into somebody's arm. And it's how are we going to make that program work? There's been very little resource support from the federal government for it, there's been some for planning. But right now, who would you hire to help you do this? How does it get done? And the third thing that you know, and I've said this several times this week, and this is all coming from really respected colleagues in public health departments at both state and local level, has been as much as Operation Warp Speed has done a remarkable job at the research and development, bringing these vaccines along through clinical trials, the manufacturing component. I can't say that it's equal in terms of its delivery issues. If you saw 60 Minutes last week, you saw some of the military leaders in this operation make it seem as if they had everything under control and things were ready to go, and I tell you that system is actually bucking up against the traditional system that we've had for decades to deliver vaccines to kids, to adults, etc., to actually use private sector suppliers who can help move that. And I think at this point, I've actually had several of the public health vaccine leaders, immunization managers say to me they wish that Operation Warp Speed would get out of the way, you know, they just are not acknowledging the complexities of what they're asking the states to accomplish. You know, changing courses without communicating to the states in an attempt to get something different in place faster. There's a number of things I could go through here. But also I think that we've got to really concentrate over the course of the next month, how are we going to deliver these vaccines? And it can't be top down like it is right now or it'll fail. The final piece on that is we have got to start working on helping the public believe they want this vaccine. We do not have a story yet to tell. I mentioned this last week when I talked about my experience with the black barbers in Maryland. You know, the need to get communities of color involved in supporting the vaccine use across the board with the anti vaccine message out there, loud and clear, how do we help people see this is what they want and need? And I think that's another part of it. So the good news is, yes, the Pfizer vaccine gave us hope that these vaccines might work. We still have a lot more information to get. Number two, we do have challenges before us in getting these vaccines delivered and effectively delivered. And last but not least, we have a situation where we have to help the public understand well in advance when this vaccine arrives, why they should want a dose or two as soon as possible.

**Chris Dall:** [00:45:56] Now to some emails. We've received a few this week about news that came out of Denmark last week about a strain of the coronavirus found in minks. Una writes, "Could you please speak to the implications of the mutation in a mink that has been transmitted to humans leaving Denmark to cull its entire minke population? I understand that the mutation reduces the antibody response and could make vaccines less effective. I also understand that the mutation has spread to mink farms in Utah, where they're not taking the same measures to contain the mutated virus. What might this mean, especially given the US strategy of relying on developing a vaccine to address the pandemic?"

**Michael Osterholm:** [00:46:31] I wish I could answer all the questions that come in. This was a great question and we have so many that come in every week and I feel like we could probably do a 40 hour podcast a week just taking your really, really good questions. So thank you for that question. It was a very good one. The situation that were being described here is in fact, since June of 2020, there have been two hundred and fourteen human cases of covid-19 identified in Denmark that have a unique variant of sars-cov-2 infection that's associated with farmed minks. As you know, that's a very large business in Denmark. And what they have found is 12 specific cases with unique variant that were reported in November. All 12 of the human cases were identified in September in an area of Denmark, and the cases ranged in from seven to seventy nine years of age, eight had a link to a specific mink farming industry area and four were just from the community. And what they found was, is that this group of individuals had a variant, as I said, virus that had a combination of mutations or changes that had not previously been observed. And what they found was, is that these human cases had moderately decreased sensitivity to neutralizing antibodies, meaning they weren't nearly as effective. As such, the government officials in Denmark were going to basically exterminate the mink that were involved with this, well over 12 million of them that might be infected to try to stop this particular strain from spreading. Now, as of yesterday, it turned out that they couldn't. They found out that through the courts that they didn't have the authority to do that. So at the time you hear this podcast, I don't know what the actual status will be as it seems to be changing. But any time I have a situation like this, I call on my dear, dear friend Stanley Perlman. Stanley is a professor at the University of Iowa. And I think one of the brightest minds in the business around coronaviruses. Stanley has been a very kind mentor to me over the years and spent many hours tutoring me. And I've talked to him about this very situation. And his bottom line conclusion was, you know, we just have to know more about this. As he said to me, having a sars-cov-2 mutate to evade some of the antibody response would require more than one mutation because the antibody response is polyclonal, meaning that it would have to have several locations because it's not one antibody. And he pointed out and of course, we know this in MERS, some of the viruses in the Korean outbreak that occurred in 2015 at Samsung Medical Center in Seoul did mutate to moderately evade antibody response, a two to four fold loss in antibody. But what they also found in Stanley's work is at the same time, these particular strains became quite attenuated, meaning they weren't causing illness. And so he's still studying these viruses and actually has a problem growing them in terms of in the laboratory itself. So, you know, the questions are still how much antibody evasion did occur in these human cases in Denmark? Is the virus transmitted successfully in human populations? I would have to say, based on what we know here, it's not. There was exhaustive investigations done in this regional area of Denmark. And to find only these number of cases, I think given the dynamic nature of the transmission of of sars-cov-2, I don't think this is evident of enhanced transmission. And clearly, from what we know, there's no evidence of increased virulence or ability to cause disease. So this is one of those curiosities which, again, a human likely gave this virus to the mink. The mink got infected, spread within the mink farms. It came back to humans from the mink with these variants. And this isn't like in my mind, what we'd expect to see, for example, with influenza where, you know, a bird virus gets into a pig, it transmits to another pig, a bird virus and a human virus get into the same lung of a pig and swap some genes out, I mean, etc. where then we get this new strain while we now have an influenza pandemic. I don't think there's any evidence here that that's the case. But we'll stay on top of it. And I feel very, very fortunate again, and I thank Stanley Perlman and actually Kristen Anderson also, who both are incredible resource to us. And we'll keep you posted if we hear more.

**Chris Dall:** [00:51:19] So, Mike, we've discussed the holidays a lot on the podcast in recent weeks, but with Thanksgiving just two weeks away, I'm sure you continue to get questions. And is there anything else you want to tell our listeners about how they should approach the holidays?

**Michael Osterholm:** [00:51:34] I just come back to the fact feel empowered. Feel like you have the ability to negotiate and I don't mean negotiate to come to the middle, negotiate to understand each other, why in your family setting you're going to have a virtual Thanksgiving. I can only tell you that in the past week, more and more examples are coming forward of these outbreaks in homes that are really tragic. And more often than not, they involve a younger individual, a child, a grandchild, a young adult child transmitting the virus to someone else in the family, often multiple people and someone becoming severely ill and even dying. And, you know, that type of situation is lifelong. Not only for the person who dies, but for the person who has to stay alive and realize I was responsible for that. Again, if you can bubble, if you can bubble and, you know, for the the 10 minimum 14 days ideal, I didn't have contact with anyone else and I end up going to John Doe's house in my car, you know, I'm there. And everyone else at John Doe's house, whether it's one extended family, whatever, all did the same thing, go for it. But if you can't be assured of that, then don't go. Feel empowered not to go. Listen to me and say it's all Osterholm's fault. I want to come. I can't. I'm surely giving myself far more credit than due. But I think it's that kind of message that you want to assure yourself that you're OK. You're right. So feel empowered, but also promise them that there will be a day where you're going to have a remarkable Thanksgiving Day party. It'll be incredible. It'll be the best you had. And so I really hope that individuals can do that. Now, if you have someone who, you know, is potentially in a precarious position in life, they may be on their last days of life. You know, again, that outdoor meeting, if you can, you know, at the back porch, that may be a difficulty. Find creative ways not to expose each other. Find ways to be creative at Thanksgiving. Take dinner to people who are shut in, you know, drop it off in their porch, drop it off somewhere where they can get it, you know, be far enough away, 20 feet away, wave high, say all these wonderful things. Communicate with people. Thanksgiving should be a day where you wake up in the morning and you think in your long list of all the people I'm thankful for, everybody I'm thankful for, I'm going to call today and tell them how thankful I am that they were born. Can you imagine what a wonderful day that would be for so many people? If people just started calling people and said, oh, my, I'm so glad you were born and then just do that. That's what we need to do. And that's what's going to keep this virus down. Because right now, if you go outside, and I say that with quotes around it, you're playing with fire. It is hot out there right now. It is hot. There is so much virus in our communities right now. It is hot. So please, please be careful. And, you know, as they would say in the movies, live for another day because it could be a good one.

**Chris Dall:** [00:54:50] Mike, we've received another celebration of life this week. Who is it about?

**Michael Osterholm:** [00:54:55] This one is about Grandma Rhoda. Now, this is from Daniel and Rhoda died in April from covid-19. Daniel writes, "My grandma, Rhoda, lived a long and good life. Grandma was born in New Jersey and continued to live in the Garden State with my grandfather, George. This was through their retirement. A couple of years after my grandfather passed, Grandma moved to Michigan to be closer to my mom and family. Both Grandma and Grandpa George were pillars within their community and were always active role models for both her family and all of those around her. Grandma was a very hardworking woman, intelligent, neat, meticulous, quick witted and a great storyteller. Her wit would always surprise us in her later years, and when she would tell a story about summers in Spring Valley or their years in California during World War Two, my grandfather was in the military, she had a way of capturing everyone's attention around her. In her older years in Michigan, our family always commented on her smile and positivity, not something you always see in someone in their 90s. She had a tremendous amount of love for her grandchildren and received an immense amount of joy in her great grandchildren. We'd always talk about the great grandchildren at length and how cute they were. Grandma lived a long life, which was cut short by covid-19. A person passing away in their 90s doesn't seem as tragic as others, but the logistics around someone passing away during the pandemic is one of the worst parts. Not being able to say goodbye, not being able to give my grieving mother a hug, and not being able to mourn together as a family. With all that being said, this is about my grandmother and she lived a long and good life. She is missed, but she'll always be remembered. Best Daniel." Thank you, Daniel, very much. I wish I had known Grandma Rhoda. I'm sure she would have brought a lot of wonderful love to so many people.

**Chris Dall:** [00:56:53] And to our listeners, please keep those celebrations of life coming. You can send them to us at osterholmupdate@umn.edu. Mike, your closing thoughts today?

**Michael Osterholm:** [00:57:02] You know, I searched long and hard for what I wanted to say today, wrestling with the emotions of the day, the events of the day, trying to make sense of the world we're in right now, it's challenging. As I have said on many occasions, I believe right now, more than anything, we need FDR to talk to us. We need those fireside chats. You know, I have long appreciated those chats. I've read them all. There are 30 of them that were basically recorded between March 12th, 1933 and June 12th, 1944. Some of them had much more impact on me than others. They lasted between eleven and forty four minutes. Here is one that I just want to share an excerpt from. It was broadcasted on October 12th, 1942, called Report on the Home Front. And it was at a time when we were at a very low point in our war and there were real challenges about where we were going and would we be able to prevail in either the European or Pacific theaters. And Roosevelt this evening on October 12th stated, "My fellow Americans, as you know, I have recently come back from a trip of inspection of camps and training stations and war factories. The main thing that I observed on this trip is not exactly news. It is the plain fact that the American people are united as never before and their determination to do a job and to do it well. This whole nation of one hundred and thirty million free men, women and children, is becoming one of the great fighting forces. Some of us are soldiers or sailors. Some of us are civilians. Some of us are fighting the war in airplanes five miles above the continent of Europe or the islands of the Pacific. And some of us are fighting in the mines deep down in the earth of Pennsylvania or Montana. A few of us are decorated with medals for heroic achievement. But all of us can have the deep and permanent inner satisfaction that comes from doing the best we know how. Each of us playing an honorable part in the great struggle to save our democratic civilization. Whether our individual circumstances or opportunities, we're all in it and our spirit is good and we Americans and our allies are going to win and we do not let anyone tell us anything different. This is the main thing that I saw on my trip around the country. Unbeatable spirit. If the leaders of Germany and Japan could have been along with me and had seen what I saw, they would agree with my conclusions. Unfortunately, they were unable to make the trip with me. And that is one reason why we are carrying our war efforts overseas to them." What inspiring words. At a very dark time, we need that right now, we just need to be inspired. We're in a hell of a mess. But you know what, we can get through this, we will get through it. I know we will. We just have to keep reminding ourselves what we need to do to fight this virus. We have to remind ourselves that we never want to lose our human spirit. We want to remind ourselves to be kind. And that's hard right now. That is hard. I know that, you know, I don't own that thought at all. We all understand that. But we have to remind each other so that we continue to do these acts of kindness. You know, I hope FDR inspired you tonight to know even though those words were relevant to a situation in 1942, I can lift that spirit right off the page and put it in my heart tonight in 2020. And I hope that all of you can do the same and feel that.

**Chris Dall:** [01:00:52] Thanks for listening to this week's episode of The Osterholm Update, if you're enjoying the podcast, please subscribe, rate and review. And be sure to keep up with the latest covid-19 news by visiting our website CIDRAP.umn.edu. The Osterholm Update is produced by Maya Peters, Cory Anderson and Angela Ulrich.