

Episode 65: An Ongoing Tug of War

Chris Dall: [00:00:00] Support for this podcast comes from Give Directly, a nonprofit that lets you send money directly to people living in extreme poverty. Due to the pandemic, global poverty rates are rising for the first time in two decades. In response, Give Directly has delivered contactless cash payments to over a half million people in seven countries in Africa. These countries are currently facing their highest covid infection rates yet, and only 1.5 percent of Africa has been fully vaccinated. Giving cash lets individuals invest in what they need the most right now. Visit, givedirectly.org/covid and your first gift will be matched up to \$200. Hello and welcome to the Osterholm Update covid-19 a 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. Welcome back, everyone, to another episode of the Osterholm Update podcast. It's August 19th and the summer wave of new covid-19 infections, hospitalizations, and deaths in the US shows no signs of slowing down. A summer that started with the feeling that the worst of the pandemic was behind us is now nearing an end, with a heightened feeling of uncertainty dominated by new questions about how much worse the current surge will get, how much protection the vaccines will continue to provide, and how much the highly transmissible Delta variant has changed the equation. As Dr. Osterholm likes to say, we now appear to be in a completely different ballgame. This week on the podcast, we're going to provide an update on the rapidly changing situation here in the United States and take a look at what's going on in the rest of the world. We'll also delve into the latest data on vaccine efficacy and the news that the Biden administration is now recommending a booster dose for all Americans. And Dr. Osterholm will answer covid query about what the end of the pandemic might look like. But first, we'll begin, as always, with Dr. Osterholm opening comments and dedication.

Michael Osterholm: [00:02:21] Thank you, Chris. Great to be back with you and great to be back with our podcast family. Thank you for joining us. If this is your first time and for those who have been here before, thank you for your continued participation in these

podcasts and most of all, for your incredibly, incredibly helpful comments, emails, text messages, letters, etc. that you send us. This has become a ritual within our group that sharing these comments and then and then really taking to heart the many wonderful things you say. So I just I want to thank you for being back. I will start my podcast today, though, with the statement that I've been fortunately had to make a few times in the past weeks, and one that may cause you to have some questioning about my credibility in doing this. And that is just how tough they're getting to do because of the confusion around the information that we have to share with you. And it doesn't make it any easier. And I just want to thank the podcast production team for all the work that they do to help make this possible, because it does take a lot of digging, a lot of understanding of what the information means or doesn't mean. And hopefully that work comes through in terms of the messages you take home. I also want to acknowledge the past several weeks have been hard for many of us, including myself. I know people who have been seriously ill with covid and unfortunately several people who have died. This virus does not distinguish between those who may care about it or not care about it. If, in fact, once it infects you, if you're not vaccinated. Another thing I want to emphasize today is that what covid is doing to us individually, to our families, to our communities is really challenging, probably more so than any time in the pandemic, just because psychologically so many people were done with the pandemic earlier this spring and early summer and being, in a sense, whipsawed back and forth by what is happening in our communities has made it even tougher in many instances to try to deal with what's happening. So I just want to acknowledge for you, again, as I did last week, if you're feeling confused, you're feeling sad, you're feeling depressed, you're unsure of yourself. Don't think you're alone. You're not. Many of us are in the very same boat, including myself. So I just want you to understand you're with friends and later in the podcast, that will become more meaningful to you. And I share some additional information with you. Now, the last piece I just want to say before I do the dedication is, again, it becomes more important every week for me just to recognize, remember, and even to the extent that we can celebrate, the fact that these cases we talk about these deaths, we talk about our real people, they are mothers and our fathers, our brothers and our sisters or our cousins or nieces. They are all the people we work with, the people who we celebrate life with on a daily basis, whether it be in our schools or in our churches or where we have neighborhood parties, etc. So we just can never forget the faces and the names and the essence of these people when we talk about these numbers. So in that regard that I make the dedication today, too. And again, I will come back to my point of

reference as a grandfather of five very, very special grandchildren under the age of 12. Therefore, none of them can be vaccinated. School is starting here in Minnesota. It has already started in many parts of the country. It is an incredible challenge. It is in that regard that today I dedicate this podcast to our school board members, our school administrators, our teachers, other staff members, support staff, all those who make it possible for our educational system in this country and around the world to function, to provide those incredible results of educating our youngsters, and knowing that right now you're severely challenged. You're challenged by what some people in the community are promoting with regard to in class education and what can and can't be done at mask mandates and all kinds of things like that. Over the course of the past several weeks I, like all of you, have had an opportunity to see on the news media the kinds of of situations that school board members, school administrators, teachers and others have found themselves in regard to some of the really sad and painful reactions of parents and other members in the community to try to protect our students. So today, this is dedicated to you and thank you, thank you for your persistence in making our children a priority, not just from an educational standpoint, from a safety standpoint. Thank you.

Chris Dall: [00:07:37] Mike, we went back to weekly episodes at the end of July, in part because too much was going on to keep people waiting for two weeks. Now it feels like we could be doing an episode every few days, given how much the situation is changing. Let's start with the international picture. What are you seeing?

Michael Osterholm: [00:07:55] Well, first of all, I agree with your assessment, I feel like on any one given day I'm drowning in information and maybe that wouldn't be bad if that information was somewhat easy to take down. But it's not. It's hard and it's also confusing. So let me just give you again my best shot. What's happening around the world that then has implications for what's happening here in the United States. On a weekly basis, I'm going to sound a bit like a broken record, but the WHO in its last global case count reached 4.5 million cases. That's up from last week's total of nearly 4.4 million cases. This is the eighth consecutive week of increase in cases. The weekly deaths remained steady, with just over 66,500 reported. We're in that period right now or is kind of going up. I think it'll hit a peak, particularly as the US numbers start to come down eventually. But then other parts of the world are going to light up and this is going to be that roller coaster up and down, up and down. If we look at the regional patterns in Episode 62 which we put out on July 29th, just two weeks ago, we mentioned that the

US, South America and Europe were all reporting similar per capita cases for the first time in a long time. At that time, the US was reporting 17 cases per 100,000 population over a seven day average, while both Europe and South America were reporting 18 cases per 100,000. Since that time, these regions have all headed in totally different directions. The US is now at 42 cases per 100,000. Remember, it was at 17. Europe is now sitting at 18 cases per 100,000, identical to what it was two weeks ago. And the overall activity in South America continues to track downward, with the region now reporting 11 cases per 100,000 as opposed to the 18. So this is part of that pattern we talk about. Some parts of the world going up, some parts of the world coming down. But overall, the number of cases is increasing. If you've listened to the last two episodes of this podcast, you know that we've been using Australia and China as examples of just how challenging it can be to control a virus as transmissible as the Delta variant. While the fight for containment continues in those two countries, a new Delta battleground has emerged this past week. Let's take a look at Australia. Cases are still growing there and the country could surpass all their previous peaks in the next week if the current case trends keep up. Most of the Australia's cases are still being reported around Sydney, which is now in its eighth week of lockdowns. Let me remind you again, eight week of lockdowns. Other parts of the country are also seeing cases prompting the government to lock down the entire state of New South Wales, where Sydney is located, and other areas, including the Australian Capital Territory and Melbourne. With just one in five residents fully vaccinated and only a small percentage of the population who might expect immunity from natural infection largely due to their success or containment to this point, Australia has a lot of people that remain susceptible to infection. We'll see if the country sticks to the strategy of moving forward as they race to get more shots into people's arms to help limit the virus impact. What we can say, however, is right now this is at a point in Australia where it's unclear which way it's going to go, get much worse or in fact, is it going to actually be suppressed by these activities that we're talking about? And let's now take a look at China. This is another country attempting to stamp out their Delta outbreak. The variant gained a foothold in the country in mid-July and quickly found its way to at least 48 cities and 18 provinces. Many would have thought after their initial control efforts and what they saw since and some cases talked about getting the virus out of the country would not have imagined this is possible. But this virus did just that spread through these 18 provinces. China's highest priority has been containment of the virus, with some added motivation to get outbreaks under control before schools start opening up this next month, they've again turned to local lockdowns, restrictions on

movement and mass testing of entire cities to prevent further spread. Based on data reported over the past week, these what I guess I would call heavy handed actions, appear to be working. As of the past weekend. 36 of the 48 cities that have detected the variant didn't report any new cases during the previous week. Overall cases in the country have also declined in each of the past several days. We'll see if China can once again contain the virus with these measures. But it gives you a sense also of the kind of extreme measures they had to take to try to contain it. I don't believe this could happen in most other countries around the world. And as I mentioned, finally, Delta has now made its way to New Zealand. One of my most favorite countries in the whole world. This country, which hadn't had a local case of covid in six months, confirmed one case on Tuesday and four additional cases on Wednesday. According to Reuters, all five of the cases have been confirmed as Delta. New Zealand and its five million residents are now in a national lockdown for at least three days, while the city of Auckland, where the original case was found, will be locked down for the next seven days. Only 17 percent of the country's population has been fully vaccinated, but officials there are saying all residents, 16 and older, will be able to book appointments by September. Throughout the entire pandemic, New Zealand has reported less than 3,000 total cases in just 26 deaths. We will all stay tuned to see if New Zealand is successful in eliminating any additional transmission. We can only hope that it will be. But as we've also learned, where you have vulnerable populations, this virus will spread if given given the least chance to do so. Now, let's take a look at some countries with lower vaccination rates and what can we learn from them? First, let's go to Asia and the Middle East. Activity in the region appears to be leveling off following increases throughout July. There are just under 300,000 and 4,250 deaths being reported each day there. However, 13 countries in Asia and the Middle East remain at or near peak levels, including Japan, South Korea, Thailand, the Philippines and Malaysia. Iran, the country we've mentioned the last several episodes, also continues to stay hot. The country's fifth wave reached record high levels one month ago, but has continued to climb, although the growth rate might be slowing down now. Unfortunately, deaths are also shooting past previous peaks, with Iran reporting a new single day high on Monday. In short, the health care system in Iran has been described by some as no longer bending, it is broken. This is an example of a country where early on after the second wave, people assumed that they had hit, quote unquote, herd immunity and yet look where we're at, three surges later with the highest number of cases, not that, in fact, people are getting reinfected necessarily. It's just this virus doesn't end its search for humans until it has found all the

humans that it can infect. We've also touched on Indonesia, mentioning case declines there in the last week's episode following the country's record breaking Delta surge. Cases continue to drop and daily deaths are now also descending. Despite the peak, Indonesia still leads the world in daily deaths, accounting for one in seven reported globally each day, a legacy of the Delta surge that happened several weeks ago. If we move to Africa and per WHO, data for the African region is incomplete due to reporting delays, let's see what we can still understand about what's happening there. The average daily cases and deaths in Africa remain near record high levels as the continent remains in its third wave. While Tunisia is still seeing declines following its Delta surge, decreases have stopped in South Africa, where activity now remains well above the previous baselines. Meanwhile, cases are rising sharply in other African countries like Kenya and Togo. Moving to Latin America, although overall activity in the region continues to decline. Countries like Cuba and Mexico are still experiencing record setting waves that are being attributed to Delta. Around one quarter of the residents in both countries are fully vaccinated. Decreasing activity in previously hard hit countries like Argentina, Brazil, Colombia and Paraguay are driving the regional declines there. However, don't be surprised to see cases start going back up again in some of these places as the Delta prevalence grows. Remember, we've talked about this pattern, steep increase with a surge, relatively steep decrease as the surge drops. However, not going back to baseline, basically staying elevated and then leveling off. And now we're seeing in some countries starting to go up again. This is a pattern that we have to follow carefully as it has real implications for what you might expect to see here in the United States. One of the things that we do know that vaccinations are beginning to ramp up in a number of Latin American countries, which is great news. Story published in The Wall Street Journal on Tuesday reported that around two of three residents in both Chile and Uruguay are now fully vaccinated. Other countries in the regions have vaccination rates that fall below the U.S., but they're quickly gaining ground. For example, Mexico is currently vaccinating at a rate two times faster than the United States. Argentina, Colombia and Peru are administering vaccines at three times that speed. And last week, Panama administered doses at a rate six times faster than we're doing here in the US. It's obvious that more vaccines that get into people's arms, all the better, as this will surely blunt future surges. That's especially true in this region, which is home to just eight percent of the world's population, but now accounts for one out of every three covid deaths worldwide. Now, let's talk a little bit about countries with higher vaccination rates. These are the countries that we look to, in particular for

lessons learned for the United States. Let's go back to the United Kingdom. More than six in 10 U.K. residents are now fully vaccinated, including 77% of adults, far exceeding our vaccination levels. We mentioned last week that the case declines in the UK had stopped after falling from the Delta peak for several weeks ago. At one point, those case numbers were close to 47,000 new cases per day. Last week they reported an average of 28,000 cases a day, but up from 26,000 several days before. Now today, the UK is reporting 29,600 cases a day, and hospitalizations are again on the rise. 6,300 residents are currently admitted to the hospital for covid. As of Tuesday, the UK's average daily death toll from covid was at 93, still about ten fold below that that it was during the peak. What are the lessons again learned from the UK with a Delta variant surge? Case numbers go up quickly and dramatically. They begin to drop quickly, but they don't ever go back to baseline. At one point, just before the Delta surge in the UK, case numbers were running at between one and two thousand per day. Now they're at 29,600 far below that peak, but nonetheless still present. The key message, though, that comes through time and time again. The vaccines have fundamentally changed the number of deaths. We've seen a ten fold reduction in deaths, even with these large numbers of cases, which we attribute largely to the vaccine. Now, let's talk about Israel and we'll be coming back to Israel as we talk more about vaccines later on. All eyes are on Israel, which is now being described as an experiment in real time. Six in ten residents are fully vaccinated, including 78 percent of individuals aged 12 and up. Despite the high vaccination rates, cases in Israel keep climbing, with the seven day average about to surpass last fall's peak and closing in on the record high winter peak. Today, for example 926 individuals are hospitalized. That's up from 662 last week. 559 are considered seriously ill. That's up from 388 last week. Israel is reported an average of 18 deaths a day, up from an average of 11 last week at this time and four deaths a day the week prior. The country's campaign to get third doses into arms continue, with more than 1.1 million already administered. More than half of Israelis aged 60 and older have now received a third dose, with preliminary data suggesting that booster recipients are at less risk of infection. Data on its effectiveness against severe disease is still pending. Again, we'll come back to this situation, but I want to remind people, in the face of such a highly vaccinated population, look at what this virus is still doing, not because the vaccine is failing, but because it continues to find those individuals who are not yet vaccinated. Last week we touched on Iceland in our episode, as it was getting a lot of media attention due to a surge in cases, despite having one of the world's highest vaccination rates. Again, more than seven in 10 residents of Iceland are fully

vaccinated, including greater than 90 percent of individuals aged 16 and older. Last week, the country reported 110 cases a day and 24 individuals were hospitalized. Now the average daily cases are down slightly at 97 and 26 individuals are hospitalized. The country has yet to report any deaths from this surge. They given the level of vaccination, we can surely understand why we have so few deaths. But it also points out the ability of this virus to be transmitted even in a country where the levels of vaccination are so high. Let me this week just briefly touch on Canada. Finally, our neighbors to the north are worth that mention. With 64 percent of their population fully vaccinated, however, Delta has now become dominant there. Cases in the country are now five times higher than they were last month. While the currently remain well below previous peaks, it's really too early to see the impact on severe disease in Canada. But I want to remind everyone while we were spared the alpha surge nationwide back in March, April and May. Canada was not. The largest surge of the pandemic occurred back then, so it will be important to understand what this next surge might look like. With that, the bottom line message on countries around the world is this virus is not anywhere close to being done with this. And I know we're all growing very tired of it, but we're seeing country after country after country go through surges, case numbers drop, period of time of lower case numbers, and then another surge. And I think that this is going to continue to be a pattern for some time until we get the majority, if not most of the world vaccinated.

Chris Dall: [00:23:35] So here in the US, the summer surge is still being primarily driven by the southern Sunbelt states, where vaccination rates are low. But we're also now seeing states with higher proportions of vaccinated people like Oregon and Hawaii getting hit hard. So what what's going on? And given that the Johns Hopkins Coronavirus Resource Center this week noted that many states are no longer providing daily data on cases, hospitalizations and deaths, do we really have a clear picture of what's going on?

Michael Osterholm: [00:24:04] Every morning, the first job I have to do when I get up out of bed is to scrape off the three to four inches of mud on my crystal ball. And then I go to work. And, you know, unfortunately, this surge is playing out much as we've been predicting for some time. You know, it's not a surprise to me that the surge is here. We had more than enough human wood to burn for this coronaviruses forest fire. Also, I just want to point out that even as we were talking about increasing number of people getting vaccinated in this country, which is great news. Two things. Number one, we still

have at least 85 to 90 million people who could be vaccinated who are not. That is a lot of wood for this virus to burn. Second of all is the fact that with this surge, even the uptick in vaccinations are going to have limited impact on the actual height and speed of the surge movement. Why? Because it takes four to six weeks to develop immunity even after the two vaccine series. And so from that perspective, it's a please get vaccinated. You don't want to be part of a future surge. You don't want to be part of the cases after the surge basically is over. But for right now, we have to understand that this surge is acting out its destiny, not because of our vaccines being administered. It's basically being impacted on two things. What one, what the virus is going to do when it wants to do it and has been doing this since the beginning of the pandemic and two, what steps we've taken to get vaccinated already or how we're limiting our contact in the public with regard to transmission. That includes not only distancing, but also the masking issue, which we'll talk briefly about in a second. It's very important to understand that just like the international picture and as I've painted for you over the last several weeks, we're an amalgam of different state activities. So the southern Sunbelt states are one example of a group of states that we're seeing very high case numbers, lots of transmission. But now we're starting to see other regions of the country that they, too, are beginning to light up. And as I've pointed out from the beginning, the height and the breadth of this surge will depend completely on not just what happens in the southern Sunbelt states, but will the other areas of the country light up in a similar manner or even in a partial manner? So let me just give you a sense of where we're at. I know for many this seems inconceivable that we could be here. We shouldn't be surprised and we shouldn't be surprised when we have future surges, hopefully not nearly as large as this one. But as I pointed out just a moment ago, we still have a lot of susceptible people. That's why we have to make vaccine and vaccinations job one. The US is now reporting 140,000 new cases a day, more than double the levels recorded during last summer surge. We're conducting over one million tests a day, a number that has nearly doubled in the past month. However, it's very important to understand that we were running 1.6 to 1.8 million tests most days from mid-November to late January when we experienced our winter surge. I can say without any question, we are under testing here in the United States and so we're missing cases. There are currently 88,500 Americans hospitalized for covid. It is stretching our health care system to a number of areas of this country beyond anything that they have seen any time in the pandemic to date. This 88,500 number is up from last week's total of 74,000. The number of current hospitalizations has increased by 64,200 over the past month. Let me

just repeat that. This number has increased by 64,200 over the past month. If the pace continues over the next month, we'll blow well past our peak high of 135,000 hospitalizations during the winter surge. The impact that these cases are having on the US health care system, particularly in certain regions, but even around the country, cannot be overstated. It is surely a challenge, as we're seeing in the southern Sunbelt states. But as you may have seen, the National Guard has been called in Oregon to help provide support care for patients there. And part of the situation is it's not about just hospital beds. We don't have enough staff to go around. The number of nurses right now that are needed in this country to provide this kind of care are far, far below the levels that we should have. And even in a place like the Minneapolis St. Paul metropolitan area, because of the concurrence of covid, which is still relatively lower here in terms of incidence compared to the southern Sunbelt states. But because of that covid and because of respiratory syncytial virus RSV in kids, we've been on divert for a number of our hospitals here, meaning that there are no beds available for these pediatric patients and particularly in the intensive care units. I know at least several times this past week, the pediatric intensive care units in the Minneapolis St. Paul have been often totally full. There are no patient beds available. That gives you a sense of what's happening in our area, which is not yet experiencing fully what we're seeing in other areas of the country. So it just has to be understood that we really have taken our health care system to the very edge. They have bent and bent and bent, and as several health care administrators in the southern states have said they are but now broken. If we look at the number of deaths, this is still good news relative to the past surge, but a challenging number that we have to follow closely. Nearly 700 Americans are now dying each day from covid, up from 600 just last week. It's important to note, however, that the number of deaths is far below what we experienced during the peak in January when we were at about 3,300 deaths a day. So that, like we're seeing in the UK, vaccines have clearly played a major role in reducing the number of deaths relative to the number of cases, the number of hospitalizations. Unfortunately, we do expect the number of deaths to increase well past the seven hundred number and well, I don't think it'll ever hit the 3,300 cases a day we saw in early January. It still is going to be an increased number. However, today we reported 1,100 deaths for just this day. If we look at state trend data, the activity is still increasing in nearly every state, although there are some signals of peaks and states like Arkansas, Missouri and Nevada. The US has 42 cases per 100,000 population. This in comparison to the country of Georgia, which remains the number one with 133 cases per 100,000 population. However, some states would

still rank near the top of that list if they were countries. Florida, at 115 cases per 100,000 today would rank number two. Mississippi at 114 cases per 100,000 population would follow closely behind at number three. And Louisiana, which had been higher, but now at 108 cases per 100,000, would sit at number four. Think of that, three of the top four countries or populations are actually in the United States of America, where vaccines are plentiful. Most of the country's activity is still centered in the southern Sunbelt states, but we're now seeing noteworthy rises in some Western states and continued increases in the Midwest. Cases and hospitalizations in Oregon are at an all time high. As I noted earlier, the National Guard has actually been called in to support the needed care for patients in the state of Oregon. In addition, a similar trend is now playing out in the Washington state area. You noted, Chris, in your introduction to this section about the report from the Johns Hopkins Coronavirus Research Center. This is a very important report and it addresses the growing inconsistencies when it comes to the reporting of covid data by states. Lauren Gardner and Beth Blauer, who authored the report, stated the following, "When we released our first blog on state reporting cadences in June, there were about 100,000 new cases in the United States. Twenty-one states had stopped reporting covid data on the weekends, and only three states were reporting less frequently. Cases have increased, however, ninefold over 900,000 new cases last week, and the states continue to reduce their reporting cadences. As of today, 36 states do not update their dashboard with all data streams every day, 11 states report fewer than five days a week. Six states report certain data only once a week. And Nebraska as a state has even shut down its state dashboard." What this is really telling us is the fact that we are seeing a major surge in activity, but we're not even really sure how big that surge is. If anything, we're having to rely on hospital based data because there is a more constant number in the sense of people are typically do not elect to or not go to a hospital if they're severely ill, they go. But I think it's been really a challenge for us. And as they also noted in this report from the Johns Hopkins Group, as has been the case throughout the pandemic, decision makers at all levels need more public data, not less, to properly assess the state of the outbreak, forecast future conditions and plan response efforts accordingly. Obscuring the reality of this phase of covid-19 is dangerous and could lead to deadly outcomes. I wish more attention was being paid to this, why states are cutting back. I understand the issues around support staff. They basically had broken down these systems that they had in place to collect cases during the height of the early surges of the pandemic and thinking that it was over with the summer. But we need this reinstated as quickly as possible. In

terms of what's happening in the US right now in hot spots, according to the New York Times article from this past Tuesday, hospitals in the US are starting to buckle. As I pointed out earlier, this is a huge challenge. One in five ICUs in the country are now at 95% capacity or greater. Seven states now have had hospitalizations that surpassed levels recorded even during the prior winter or summer peaks. It's clear that patients are receiving less than optimal care. For example, the entire state of Alabama had no ICU beds left on this past Tuesday. At least 11 additional patients in the state needed ICU care, so makeshift beds are being added to hallways or emergency rooms. Mississippi recently requested a military hospital ship and nearly one thousand federal medical personnel to help accommodate the staff shortages. Texas has asked for assistance from out of state health care workers to help alleviate the burdens on the health care system and recently requested five mortuary trailers from the federal government as a precautionary measure in case they need to handle a surge in deaths. In Tennessee and Oregon as I mentioned before, the National Guard has been deployed to help respond to rising hospitalizations and the bed shortages. And it's important to note, as I did before, adults aren't the only ones being impacted either. The pediatric situation continues to get worse, with nearly 300 kids now being admitted to the hospital each day for covid, a record high. And based on the information we're obtaining from these pediatric hospitalizations, these are sicker kids than we've ever seen at any time through the pandemic. Many of these children are requiring ventilators and even a number of them are being treated with ECMO. A total of more than 1,800 kids in the US are now currently hospitalized for the disease. We're already seeing widespread transmission among kids lead to disruption in states where classes have started. For example, in Florida's Hillsborough County, more than 8,400 students are either in quarantine or isolation. Over the past two weeks, the district has detected more than 1,600 total cases among students and staff. In Mississippi, around 20,000 students, or 4.5% of the state's public school population are currently quarantined. Similar situations are playing out in other parts of rural Texas, metro Atlanta and Tennessee. Remember, these are the areas where their schools opened up before they did in other parts of the country. In short, Delta has turned much of the US into a house on fire. And unfortunately, we continue to fight it with a garden hose in terms of trying to stop this transmission in our communities.

Chris Dall: [00:37:25] So let's turn now to the vaccines. We're getting data from around the world, most notably from Israel and the United Kingdom, but now from the CDC on

vaccine efficacy against the Delta variant and on waning immunity. Mike, I think a lot of people are confused right now about the vaccines. They're hearing about breakthrough infections, about waning immunity. What is the picture right now on the efficacy of these vaccines?

Michael Osterholm: [00:37:51] Well, I have to start out with a very critical statement, the most important statement I'll make in this podcast, these vaccines are the most important tool we have in stopping the transmission of this virus in our communities, of preventing people from having serious illnesses and even dying. So make no mistake about it, vaccines are our only truly effective, comprehensive get out of jail card we've got. So what I'm going to share with you again today is exactly what I talked about last week, is that there are two buckets we have to consider when we talk about vaccines. One is the safety issue. The second is how well do they work relative to how we use them? And I want to be perfectly clear that first bucket: available covid vaccines are remarkably safe, even when you take the reports of the very rare adverse events following vaccination, like the myocarditis or the clotting, what we call the risk benefit analysis, meaning looking at if I get vaccinated, what's my chances of having a bad thing happen, if I don't get vaccinated and I get covid, what are the chances of a bad thing happening? And every one of the situations where even one could consider a potential safety issue, the risk benefit favors vaccination over and over and over again. So I want to be really clear. None of this discussion you're going to hear from me today or any of the discussion you should be hearing publicly has to do with safety. The only way I would tell you to reconsider or think twice about getting this vaccine is if I thought safety was an issue. And also, make no mistake about it, the fact that the FDA and the CDC are monitoring, investigating very rare events all the time should give you great confidence that these vaccines are safe. So hopefully my statements are clear and compelling and they're based on the data. You can trust these vaccines as being as safe as we've had of any kind of vaccine in our armamentarium over the years to fight infectious diseases. However, I need to reflect on this journey with these vaccines and consider how our understanding of them have changed over time and will continue to change as we learn more information. Remember that our initial outlook on these vaccines was based on results from clinical trials. These clinical trials were the gold standard for determining vaccine efficacy. They were highly controlled and we have to acknowledge the results don't always translate perfectly to the real world for numerous reasons. Let me lay out several issues that really are important to understanding what's

happening with our current vaccines and preventing covid-19. There are really three different factors that come to play about how well the vaccine works in protecting us. Number one is, of course, the infectious agent, the variant itself. Is this one that will escape the immune protection afforded by a vaccine? And I have to say, with as much information as we have today, we don't have any evidence necessarily that the Delta variant means that the vaccines are less effective. That could be the case. I've seen one limited study that might suggest that, but there are still a lot of aspects of that study that need to be understood. But on a whole, it doesn't matter if you're getting infected, you're getting sick, severely ill or dying. The question is, does in fact the vaccine protect you? So I'm going to put the variant aside other than to say that this is a highly, highly transmissible virus and it's all the more reason why to get vaccinated. But we don't know yet that it's impacting how well vaccines work. The second thing, though, is underlying risk factors for severe disease. As you've heard me discuss on this podcast numerous times, we understand that for some vaccines, such as influenza vaccines among the elderly population, the level of protection drops precipitously due to what we call immunosenescence, just a less capable immune response. So we would expect to see no less with this vaccine. Remember that we didn't include many, many of the frail elderly in any of the studies that were done. And so when we had those early really eye popping results suggesting 95 percent or more protection, you know, we left out those people not because we didn't want to study them, but because we were trying to get a better handle on from a safety standpoint and from an effectiveness standpoint, how well did it work in most people in society who were not at increased risk of having serious disease? So in this situation, if we look at the issue of underlying risk factors such as age, we look at immunocompetency overall, am I immune deficient because of some clinical condition I have like a cancer? Am I on certain drugs that suppress my immune system so that I don't have a condition caused by that overactive immune response? All of these issues can surely make for reduced protection with a vaccine. Finally, we have to look at the dose itself, how much is in the dosage, how many micrograms of antigen or the material that we're trying to basically develop the antibody against and the t cell reaction against? And also when is multiple doses given? And as you know, with the Pfizer vaccine, dose two is given three weeks after the first dose. With Moderna was given at four weeks. Now, I have to tell you that, you know, if you also remember, I was one of those back in March very concerned about the potential for alpha to spread through the United States. And at the time, we had enough data from England to say a single dose at that point would have substantially reduced the serious

illness associated with Alpha. And we urged that in a time of vaccine shortages, to get as many people, particularly those 65 years of age and older, vaccinated with even a single dose. And we heard this outcry from some of the immunologists and people in infectious diseases. No, no, no. You have to stick with the schedule three or four weeks as somehow if that was the only way in which these doses could be administered. And now we're beginning to reconsider that whole approach, not because of getting single doses. We've got plenty of vaccine now for that, but it's because did we give the immune system of that vaccine recipient time to respond to the first dose in such a way as to maximize how well the second dose works? Look how many immunizations we give a series with. And we also delay the time period for the second or third dose to many months. That is all about getting the maximum response out of your immune system with the subsequent dose. And one of the challenges I think we're having right now is the three and four week second dose surely maximized on the chance to have early protection, but did it really leave us in a shortfall for long term protection? And I think we're going to see over the course of the next weeks to months research demonstrating that we may do much better with our vaccines if we space them out. One of the areas we're learning about is in the U.K. and Canada. Both countries that had vaccine shortages, so they did approach their programs with that one dose now and get the second dose 10 weeks later. And so when we talk about the dosing issue, even with these studies, we need to be clear and compelling. How were the vaccines delivered? And therefore, let's compare the data from that. So I'll talk more in a moment about specific vaccines and now. But know that underlying the challenges about understanding how all these vaccines work, is all about how much dosage of the vaccine, Moderna had twice as much as Pfizer, when was it given relative to dose one and dose two, and what are the underlying risk factors for the people who have received these vaccines? And I'll make the assumption that Delta is basically a static issue. It's either there, or it's not. And I want to be very careful about that because some of the studies we're talking about were done before Delta ever showed up. And that may be a real problem in terms of interpreting those data. So at this point, I will just say I think it's really unclear what we need to do with our vaccines. And what I mean by that is, is that first of all, keep doing what we're doing. Don't stop that. But in terms of what's been found and the CDC studies that were just released yesterday, the new studies from the Mayo Clinic, the new studies from Israel, the studies from England, study from Qatar, I think the themes are as follows. One is that these vaccines are still very, very effective across the board in preventing serious illness and hospitalizations. There may be some

downward creep on that, but in fact, they still are very effective at doing that. And remember, if that's from a standpoint of an outcome, that's still a very, very critical outcome to have. If so, I don't want to minimize the people who are now having breakthrough infections who are much milder, but in the end preventing stress on our health care system, preventing people from getting seriously ill and dying. And at this point, really, there's only one study that suggests that that may not be the case where people are actually having more serious illness. And I think we're going to need to get more information on that before we move forward. Second of all, what we're looking at right now is time. Time, meaning that from the time I got vaccinated till now, is six or seven months. Am I experiencing waning immunity over that time period? So I can't compare the response of people at two or four months to people at six, eight or 10 months. And so these studies have to be standardized on that. What does that mean? Are we seeing many more breakthrough infections at six to seven months as surely seems to be the case with health care workers? We're also seeing some of this in long term care. So when will I see these breakthroughs and what will they mean? And one thing we're all trying to understand, is if people do have breakthrough infections which are occurring much more frequently than we have previously stated, not because we misstated it or we intentionally tried to cover anything up, it's because we're now just understanding how many milder infections are likely to occur. But the question is, are they infectious? And if they're infectious, what does that do to the overall transmission in the community? So as you may have heard, but yesterday the White House came out with a statement basically indicating that they were now going to be recommending booster doses for all those who have received the previous mRNA vaccines. They did not comment specifically on what to do about J&J vaccines, which is unfortunate, but because of the lack of clear information, they have decided that, in fact, that they could not make a comment on that yet. That's supposed to be a stay tuned moment. What the administration has decided, based on the data that I mentioned from these studies outside the United States and these three recent studies from the CDC is that they're now recommending that with approval by the FDA and the ACIP, that they are prepared to offer covid-19 booster shots to fully vaccinated adults beginning the week of September 20th and starting eight months after an individual's second dose. So assuming this waning immunity has occurred, we'll pick up people each month at their eighth month anniversary of having been vaccinated. The plan that they're promoting ensures that the people who are fully vaccinated earliest in the vaccination will likely be eligible for the booster first. These are the people who were in that first rollout, the most

vulnerable population like health care providers, nursing home residents and other seniors. Booster shots will also begin to be delivered directly to residents of long term care facilities again. First of all, you have turnover where you surely have people who weren't there when the vaccines were first administered. Plus, again, waning immunity. The White House was very clear they are not recommending anyone go out and get a booster dose today. Instead, starting the week of September 20th, fully vaccinated adults could begin getting booster shots eight months after their second shot of mRNA vaccine. How that will happen, how those people will be recalled or how they will be able to document that these people are at eight months, I don't know. That's going to be a challenge. But that's the approach. The J&J vaccine was not administered in the US until March of 2021. Therefore, we expect more data in J&J in the next few weeks and then before it hits that eight month period, which will be later. So we'll have to wait and see on that. Our group has looked at this data carefully. I've talked to many of my colleagues about this in the course of the last 24 to 48 hours. And I think we all remain a bit confused. Do the data support that we need a booster dose to prevent serious illness, hospitalization and deaths, or is it to reduce the number of breakthrough infections of a much milder illness? There's no question that there is an increasing number of milder cases in vaccines. And does that warrant a booster dose? That's the question we're going to be trying to better answer over the course of the next several weeks. Meanwhile, this recommendation is now going into place. I think it's fair to say that a number of my colleagues do not agree with the need now for a booster. So where does that leave the public? I'm sorry. I wish we were doing a better job for you. I think at this point, I have every reason to believe that the administration, much like the governments of Israel, some of the other European countries which are recommending boosters, only want to protect the public. I don't see any political implications here. I don't see any, you know, financial issues. All I see are really dedicated people trying to do their best to protect the public. Others disagree on the nature of the science and say it's not necessary yet. And so please understand, as you see this go back and forth and you see confusion in the ranks, do not confuse this with the need to get vaccinated. One of the things the administration has assured us is that they will make certain that there's more than plenty first and second doses for those who have not yet been vaccinated and that they will also have vaccine for those who are individuals who are immune compromised and who were covered last week in the recommendation to get a third dose. And I'll talk more about that in a moment. But at this point, I'll ask you to stay tuned. We'll do our best job of working through the data in terms of what your risk is or

not. There's nothing to panic about right now. There's no emergency situation. That's why, in fact, you'll see that when they made a recommendation to start this in late September, it wasn't done because of the fact that they sensed it was emergency, but they couldn't get it together by then. There wasn't a sense of emergency. So at this point, I just, I'm sorry. I'm sorry. We don't have more clear information for you. We need to be. It's a really difficult time to be making major public health recommendations on such incomplete information. At the same time, those who are making it would argue you don't want to wait until the problem's right on top of you before you make it, because it would take a while for that program to be put into place. And that means then we would have people who would surely go off the protection cliff and they very well could be at a much higher vulnerability for a serious illness, hospitalizations or deaths. So stay tuned. Bottom line messages. Vaccines are safe. Please help us get people vaccinated. Number two, this is corrected science. Remember what I talked about over the past podcast, we're trying to figure out as new scientific information becomes available, how the best way to use these vaccines. That's what's happening right now. It's not a question, can they make an impact on the public health crisis called covid? I've already pointed out in this podcast on multiple occasions, the number of deaths have been dramatically reduced in those countries where, in fact, we see high rates of vaccination. But let me just close on one last piece. Another thing that came up was the global equity. And I think that a quote from Dr. Mike Ryan, who heads up the emergency response team at the World Health Organization, an internationally respected infectious disease public health expert, said today after the initial announcement by the US and I quote, "Giving covid booster shots in wealthy countries is the equivalent of giving extra life jackets to people who already have life jackets while leaving people who have no life jackets to drown." Wow. Pretty straightforward. Well, some would disagree with him on that, saying that, in fact, this is important or these people who are needing these booster doses would themselves be at increased risk of having serious illness down the road and dying. Remember, here you are in the United States of America where we have, you know, some of the highest rates of transmission in the world. This is going to continue to play out. The administration made it very clear, they will continue to expand efforts to increase the supply of vaccines to other countries, building on the over 600 million doses they've already committed to donate globally, that this will not slow that down. I think we have to wait and see. This is a huge challenge. Ethically, morally and just practically. We know that to control this pandemic, we have to control it worldwide. We know that the real risk of variant development is not just in the

United States. It's anywhere where we see transmission of this virus. And so it truly is humanitarian in nature to want to try to prevent infections throughout the low and middle income countries, where less than 2% of those people in those countries have had any access to this vaccine. At the same time, we also know that it's more than humanitarian it's strategic. If you want to prevent new variants from developing and being transmitted throughout the world and then potentially threatening the integrity of our vaccines, you want to stop transmission everywhere. And for much of the world that has little to no vaccine. That's what we're going to continue to see over time, the greatest number of new infections. So there is a real tension here between how do you take care of those people who are in your country to maximize the prevention of them experiencing an infection or even a serious illness or a death. And how do you then allocate getting those vaccine doses to the rest of the world that have seen none? I wish I had a Solomon-like answer for you. I don't. I see both sides of the issue. And I can say at this point, as we get more data, if we are not seeing the increases in deaths, hospitalizations etc. associated with potential waning immunity, then I think we got to rethink this. If we are, then we will have made the right decision to try to protect lives in high income countries. And ultimately, every country will want to have that kind of a three dose series to protect themselves. Finally, for those of you who are J&J recipients, I'm sorry. I'm so sorry. I think it's really unfortunate we don't have more data in this country to support whether or not you need a booster dose. And I think at this point it's likely you will. It's just a challenge of getting the information so that it can be done based on some science as opposed to just somebody like me saying, I think so. So stay tuned. There's more to come. Nothing urgently needed out of anyone right now. And I think that's the important message.

Chris Dall: [00:59:29] Mike, as you just mentioned, the FDA and CDC last week signed off on a third dose of vaccine for moderately and severely immunocompromised adults. What did you make of that decision?

Michael Osterholm: [00:59:43] This is an important decision and let me distinguish why it doesn't fall into the category of what I just talked about with booster doses. As I mentioned, many of the childhood immunizations have multiple dose requirements before you really are fully vaccinated, three and four different doses. And what the situation is here is we had anywhere from seven to nine million individuals in this country who, because of underlying immune deficiencies, immunosuppression, basically

are at risk of infection because they never responded well to the first two doses of the vaccine. Now we have data supporting that however, third doses can actually override that immunosuppression and give you a very good response. So the recommendation last week to cover these seven to nine million people was really all about finishing the prime series. It's not a booster dose. It really is taking three doses to get to the point of being protected. I fully support that, completely support that. And that should not be seen as part of this booster dose issue for anyone worldwide who has any one of these immune suppressing conditions has to understand that they, too, will need likely three doses of the vaccine. So I commend the FDA and ACIP for moving forward. However, I did have a problem with how the ACIP handled access to the vaccines for these people. What they did is put together a list of these are the conditions upon which you would qualify for getting an additional dose, but they made it so it's an honor system. Anybody can go to a pharmacy or a doctor's office and get vaccinated and just say, I have this immune suppressing condition. Well, we've already seen over a million people who wanted the third dose anyway, who have come forward and somehow been able to get through the system and get a third dose. I worry that we're going to see a big increase in people, particularly in light of this discussion I just had, where people are now talking about getting a third dose and say, I'm not going to wait till September I'm going to get it now. And I don't understand why we couldn't put in place a doctor's order, a standing order for people to actually get vaccinated. If you're if you have one of these conditions or on a drug that suppresses your immune response, we know who you are. I mean, we can look at what we call ICD codes, the codes, and for you for what kind of conditions would qualify for getting the vaccine as a third dose. And I think it's going to be a free for all. I think it should have been where you have to have proof of the need for the vaccine and why they didn't do that, I don't know. I think they surely can say, well, we want to cut down on paperwork, whatever. I think what they're going to do is for that inconvenience, they're going to create a major challenge in terms of who really qualifies and who doesn't. So great, great news to get this recommendation for a dose. However, I believe this is being rolled out right now is going to be a very substantial challenge.

Chris Dall: [01:03:05] Mike, going back to your dedication, when we look at the big picture in the US right now, the surge in cases, the contagiousness of the Delta variant, very little mitigation, what does this all mean for schools?

Michael Osterholm: [01:03:20] Unfortunately, the school environment right now is going to be a severe challenge. And in a sense, we have this experiment going on and our kids are the ones who are being experimented upon and I have a real problem with this, a real problem. You know, I've been talking about this for months. The recommendations have come out about education in person, education. Again, I remind you of my five grandchildren, aged 11 and younger. I think about their needs for in-class education, the in-person contact. And I think, oh, boy, they need that. They need that so much. But I also think about what are the safety issues and what I've seen happen in this country, just as it's been with so many other issues. We've seen two camps develop. You got to do in-class learning, the kids are going to hell in a handbasket if they don't, all the economic issues of parents having to stay home. All true, by the way, about the the parents and so forth, but no matter what we're going to do in-person learning. And then there are those who said, you know, not on my watch, my kids are at risk, I don't want this to happen or if it's going to happen, they have these kind of conditions upon how they will be protected in the schools, masking all this kind of thing. Meanwhile, in this great debate, the in-class education people, in a sense, won. And what I mean by that is they basically came up with recommendations which the CDC have put forward, which I think absolutely are not based on science. They're based on a type of analysis of what happened in our schools in those first nine months of the pandemic when we had no major issues with variance like alpha and Delta and came up with the conclusion that we could have kids three feet apart and they're just fine. They can put anything on their face, a Hankey, on their face and it's fine. Well we know today, that's not true. We know kids can transmit this virus readily. Kids can get infected with this virus readily and well as a percentage of those who get infected, it's a lower percentage of people experiencing severe illness, we have seen across the country I've just shared with you the challenges we're seeing with pediatric cases. It's at an all time high throughout the entire pandemic, the number of kids hospitalized right now in serious condition. Look at I already share with you the data on the number of kids that are quarantined or isolated right now because of infection in these early weeks of school in the southern states. To think that you can stop a virus like this now being three feet apart from somebody is beyond pixie dust, wishful thinking. And this is coming from a guy that wants my kids in school. I want my grandkids to be able to experience that, but we have to be real about the risk. And to deny that right now, I think is a real challenge. Many of the schools have done very little to change the ventilation in the schools. Fortunately, we are seeing more teachers, support staff and others vaccinated.

But we also have large segments of our communities that parents aren't getting vaccinated, so they're going to be sources of transmission to their kids or their kids back to them either way. But then once it happens, it gets into the school and once it's in the school, it's like lighting one match in a very, very small pile of wood that ultimately becomes a forest fire. I think the surge is a real challenge. I think sending kids to school is just an invitation for this virus to transmit readily by, through, and with them. And at this point, my recommendations continue to be you can't put kids in a room where you have them three feet apart. And respiratory protection, I'm so frustrated. We talk about masking, masking, masking and we never talk about the quality of the masking. You know, you can put anything in front of your face, if you're masked now you're fine. That's not true. We know that. You've heard me say this so many times in this podcast. You can't call me an anti-mask person. I am a very strong supporter of masking but effective masking. And if you want more information that go back to the previous two podcasts, I went into detail on those where you can get the kind of best quality protective kinds of masks, the KN95s etc. that fit kids, etc.. So I think that school is going to be a real challenge. And I worry that there's not an objective view on this. And as long as CDC has a recommendation in their books saying you can be three feet apart, that to me just reeks of anti science. And that's wrong. And I know it sounds really strident for some of you to hear me talk about this. I am, as you know, a very strong supporter of CDC. This is just wrong. You know, I learned a long time ago as a kid, you know. Right is right even if nobody's right and wrong is wrong even if everybody is wrong. And this is wrong, so we need to understand that we are going to have real challenges. We need to do much more in our schools before we can put kids back in there safely, including ventilation. We need extensive testing programs. We need better respiratory protection. This is really critical. And we don't have it.

Chris Dall: [01:09:09] Now to our covid query segment. This is where we try to answer questions about the decisions that you, our listeners are trying to make, the situations you're trying to navigate, and the risks you're assessing on a daily basis in this post-vaccination covid world. This week's question is a broader, more philosophical question. And it comes from Yvonne who writes, "I listen to your weekly podcast and you've often said that the pandemic will end. Could you describe the scenarios you see as how this will end? I see so many news articles or interviews that say covid will be with us forever, which includes lots of different descriptions of what that means. What are your thoughts

on how this will all end?" And Mike, I think I think that's the question that everyone has right now.

Michael Osterholm: [01:09:51] Well, I am confident this pandemic will eventually end. Remember, first of all, a pandemic is a worldwide epidemic, so it won't end in one or two countries. It's going to have to end everywhere in the world. Now, end doesn't mean that the virus disappears, it means that it comes into some kind of steady state relationship with us, meaning that over time either you were vaccinated and protected or you had an infection and developed some protection from that, hopefully long term protection. But the point being is, is that we will have this ongoing tug of war with this virus forever. But if we see like influenza, for example, where after a pandemic, these huge waves, it eventually becomes a seasonal virus, I think that's very likely what will happen here. I don't know when that'll happen. It could be some time. Vaccinating the world will surely help. But at this point, we're not going to continue to see, I think, these big, big surges that occur every three to six months. Once we get closer to 100% protection. And you've heard me talk in previous podcasts about why I think the concept of herd immunity is not realistic, but at some point we will see enough infection that it will slow it way down. It may become one where, you know, we have two or three percent of the population that gets infected every year and then develops protection. So I wish I could tell you that it's going to be a one day event where suddenly someone comes on the TV and says, ha ha, we just hit the end of the pandemic. That won't happen. What'll happen is you get more and more and more time like you expect in the period of April, May and June, where you feel like it's a different world that will happen. But it's got a ways to go. Yet there's a lot of human wood left for this virus to burn. And it's not until we get almost all that wood cleared, meaning that you've been vaccinated or you've been infected and protected before we see that kind of May-June time period feeling again.

Chris Dall: [01:12:03] And to our listeners, thank you for all the great questions you've been sending, I'm sorry that we can't get to all of them, but please keep them coming. You can email us at osterholmupdate@umn.edu. Mike, where is this week's Beautiful Place?

Michael Osterholm: [01:12:18] Well, I'm happy to report that we have another international beautiful place, this very wonderful email and a video which is now posted

on the site, came in from Rune, from Norway. He wrote, "Dear Dr. Osterholm, I'd like to thank you by sharing a video I created this summer of a truly beautiful place, Lofoten in northern Norway. I feel a strong gratitude towards all the people in the vaccine industry that have worked day and night to bring us covid-19 vaccines. The vaccines made this travel possible. We all long for the day we can safely visit the beautiful places in our lives again. Here's the story behind this beautiful place. My mother is 89 years old and in good health. She travels on her own to see her children and her grandchildren. But every year with good health at her age is a treasure, and we do not know how long it will last. The pandemic has severely reduced her freedom to move around. Contact with children and grandchildren have been limited by pandemic restrictions. The uncertainty, if she would handle a covid infection, was a constant worry. It would be truly sad if such precious years should be spent in isolation. She wanted to revisit the region in northern Norway where she was born. She wanted to see the place out in the remote and beautiful Lofoten, where her ancestors had lived as fishermen through out the centuries. However, with the pandemic, such travel would be associated with great risk for her. We were uncertain if we would ever do the trip. But we were fortunate to benefit from extremely rapid development of effective vaccines and the tremendous logistical effort to vaccinate the vulnerable in our country. This summer, my mother was fully vaccinated and all others in the family above 18 had got their first shot of vaccine. So we decided it was safe enough to take a flight to northern Norway and drive out to visit the destinations. When you see the video, you immediately understand why my mother wanted to visit her region of birth again. I'd never seen the place where my mother's ancestors had lived in Lofoten. I was unprepared for the beauty and serenity of the place. It was an emotional experience for me. If possible, I recommend you to watch this video on a 4K screen and with access to good internet bandwidth. Whatever equipment you have, I do hope you will spend four minutes with this little video in slow music, enjoy the beauty of the landscape, and think of the people that have made such journeys possible. Kind regards, Rune." Oh Rune, thank you. This video you shared is moving. I watched it multiple times, as have our staff and your message of weaving in the care and support and opportunity for your mother with this beautiful, beautiful location and connecting back with our roots is such an important message. You cover a number of issues with this. So we are so honored that you shared this with us. Thank you so very, very much. And I want all the audience to please go and look at this. You'll find it really, truly mesmerizing and so well done. Thank you, Rune.

Chris Dall: [01:15:38] Your closing thoughts today, Mike.

Michael Osterholm: [01:15:42] Well, number one, I start off by apologizing to you for not doing a better job of covering the issue of vaccines, you wanted specific answers and I couldn't give them to you. We will continue to do whatever we can to better understand this issue, to share the science, the practical aspects of this vaccine recommendation, what it means, doesn't mean. What does it mean for a vaccine for the rest of the world? It frustrates me that I can't do a better job of helping you, but that's the state of the art, as I see it. So at this point, hang on, we'll we'll get there. And just know that I understand both personally and professionally, these are very, very tough times. Every week as I report these new numbers out to you, and they just get more and more depressing. It's hard, it's really hard, it's hard for me, it's hard for you, it's hard for all of us. And all I can say is, is that we must hang together. And this is where the issue of friends come in. Friends are everything, having friends, even new friends, and it's the reason why I picked the closing today as I did. Because it's about how to get us by, how to get us through, how to get us across the finish line of this pandemic, I've chosen the song "Friends," sung by Elton John and the lyrics by his long time collaborator, Bernie Taupin. It was Elton John's third US hit and his second to reach the top 40. "Friends" was not the follow up single to "Your Song," which was his first big hit, but was rather the title, track and theme song from the movie Friends starring Sean Burry and was included on the soundtrack. It was the only hit single from that LP. The song rose to number 34 in the US Billboard Hot 100 and number 17 on the Cash Box Top 100. On the Canadian singles chart "Friends" peaked at number 13. As you listen to the words of these lyrics and you hear about the issue of childhood, think of it in this way, we all in a sense are in our childhood with regard to this pandemic, we're all learning as if it's brand new. So here it is, "Friends" sung by Elton John, written by Bernie Taupin. "I hope the day will be a lighter highway for friends are found on every road, can you ever think of any better way for the lost and weary travelers to go? Making friends for the world to see, let the people know you got what you need. With a friend at hand, you will see the light. If your friends are there, then everything's all right. It seems to me a crime that we should age these fragile times should never slip us by. A time you never can or shall erase. As friends together watch their childhood fly, making friends for the world to see. Let the people know you got what you need. With a friend at hand you will see the light. If your friends are there, then everything's all right. Making friends for the world to see. Let the people know you got what you need. With a friend at hand, you will see the light.

If your friends are there, then everything's all right." We all need friends right now. We promise to be your friend as best as we can possibly do it. And thank you. Thank you. Thank you for your friendship. But go out and find new friends. Tough times, friends can help us along that highway, they can help us erase the pain of this pandemic. I don't know what I would do without my friends. All of you, I don't know what we would do, so thank you, thanks for another week. And again, please be kind, be thoughtful. It's hard sometimes oh my, it's hard, but be kind. I promise you, one day this pandemic will be behind us, we will be together, and what I want us all to remember, are our friends, all who made it through the pandemic, by the way, because they got vaccinated. And while these vaccines may not be perfect in terms of everything we want right now, they are incredible and we're working to even get them to be almost perfect. So thank you. Have a good week. We'll talk to you next week. And I can't tell you how much you mean to us. You are our friends. We are yours. Thank you.

Chris Dall: [01:20:43] 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. This podcast is supported in part by you, our listeners. If you would like to donate, please go to CIDRAP.umn.edu/donate-now. The Osterholm update is produced by Maya Peters, Cory Anderson, and Angela Ulrich.