

## Episode 63: Ebbs and Flows

**Chris Dall:** [00:00:00] Support for this podcast comes from Give Directly, a non-profit 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](https://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. As the calendar turns to August, the summer that most Americans were anticipating just a few months ago has taken a decided turn for the worse, with covid-19 cases fueled by the highly transmissible Delta variant climbing back to levels seen last summer. On top of that, a CDC report that came out last week is prompting new questions about breakthrough infections in the fully vaccinated. Well, the bulk of the surge is occurring in a handful of states with low vaccination rates, and the vaccines are still providing substantial protection and keeping hospitalizations and deaths lower than they otherwise would be. We are seeing cases rising in all 50 states. And the news over the last week has spurred a nationwide reassessment of where we are in this pandemic, where we're going, and what the goal is. This week on the Osterholm update, we'll discuss the fourth wave of the pandemic in the US, the CDC's report on breakthrough infections and its implications, and what the national strategy should be moving forward. We'll also get an update on the international situation and address covid queries on masks and respiratory protection. And we'll hear about another beautiful place from one of our listeners, but first, we'll begin with Dr. Osterholm's opening comments and dedication.

**Michael Osterholm:** [00:02:32] Thank you, Chris. And welcome back to all of you who are routine listeners to the podcast, and we welcome any new listeners that might be joining us for the first time. This is a podcast that could easily take several hours if we were to get into each and every one of the issues that seems to be front and center today. This is a confusing time. This is a difficult time. And I say that because while we have this critically important tool called a vaccine, there are many of us who are part of this podcast family that are confused, we're frustrated and even to some extent, a little scared. And I say that because psychologically we have been basically coming to that point of saying the pandemic's over, I mean, I knew better. I know that we have so many people yet to have been infected in our communities. And it was just a matter of time before this next wave would occur and before we'd see this activity. And yet even me wanting to be back with my grandchildren, wanted to be with my family and friends, had this sense of, oh, no. Now, what do I do? You know, and I know what I'm supposed to do. So to me, I can only imagine for so many of you out there right now saying putting those masks back on, which we'll talk about at length today or now, how do I get together with people, what's safe and what's not? Am I at risk even though I'm fully vaccinated? Do my grandkids or my kids or do my friends pose a new risk today or me for them? And so today we'll try to cover as much of that as possible in a way that gives you the best sense, there are no perfect answers. There is no magic bullet. I don't have any pixie dust in my back pocket. I'll just give you my most honest and unvarnished view of where I think we're at right now. Most important message to get across, though, and I'm going to repeat this throughout this entire podcast: vaccine vaccine vaccine, that is the answer to our problem. And so we just have to keep hitting home on that and knowing that that's going to be ultimately the solution to getting through this pandemic. I will also emphasize throughout this pandemic that we have to look at this for the long haul. You know, I think it was a period in that April, May, June time where people were just convinced we are we're done, you know, Fourth of July, people wanted to take independence parties from covid, not just as a part of a national celebration about our government. And that was far, far too early. It was premature. And now we have to figure out so what is our expected future? What might it be like? So, in short, the dedication I have this week is to all of us, myself included. To those who are confused, to those that are frustrated, to those that want answers, that they feel like they're not getting, and to those that are even a little bit scared, what does this mean in terms of my risk, their risk, our risk in terms of what this next few weeks to months will bring us?

**Chris Dall:** [00:06:01] Mike, internationally, the peaks and valleys we've seen throughout this pandemic continue, with some improvements in countries that were in bad shape just a few weeks ago and other countries seeing surges. What stands out from your perspective?

**Michael Osterholm:** [00:06:16] Without any doubt, the issue that has been a concern of mine from the very beginning of this pandemic to where we're at now is time. You know, back in those early days of the pandemic and I come back and hearken back to the March 10th 2020 appearance that I had and Joe Rogan's podcast, when I said I thought that there could easily be 480,000 deaths in the next 18 months. And that was at that time, scary, outlandish, irresponsible, but I was already thinking about 18 months. Well, we've had past 18 months from the time I was on Joe Rogan's podcast. And I'm still looking at a time when I don't know where the end date will be, if there will ever be an end date of such. That's really hard, that's really difficult because we all want to believe that one day this problem will be taken care of. It's done. And we are going to do a lot with vaccines around the world eventually to bring this under much more control. But we're not there yet. Just earlier this week, the WHO, in a very sobering statement, said, please put a moratorium on booster dose vaccines for the high income countries until at least September 10th so that hopefully we can get at least 10 percent of the low and middle income populations vaccinated. They're right now, and many of these countries, one or two percent at most. And here we are more than 18 months into this pandemic and we're still trying to talk about getting a few percent of people vaccinated for much of the world. So I think we have to reorient our thinking that this is going to get over with. I also want to come back to just how this pandemic has unfolded with this coronavirus, something we've never had experience with before. And just to remind people of these waves or what some have called surges. And what they mean for where we've been, where we're at, where we're going. On a global basis, if you look, we have seen the case numbers increase relatively constant over the course of the first year of the pandemic. Now, if you think of the United States, there was nothing constant about it. We had ups and downs and ins and outs. But as a global experience, some places were going up and others were coming down all at the same time. But generally the trend was up. And it was on January 4th of this year, a year into the pandemic, we hit a peak of 5,004,171 reported cases. Now, again, I'm not going to get into reporting artifacts and how many are underreported that are absolutely critical issues. But these are relative benchmarks. And then just literally six weeks later, we go from that

five million number down to 2,480,000 cases reported, about half of what had been reported before. But then in two months, on April 19th, we're back up to 5,700,000 cases higher than it was in January. And then we come back down in June and it's 2,544,000 cases, slightly higher than the February date when it was a previous low. And then now where we at July 26th, the week thereof, we're at 4,104,000 cases. The numbers going back up. It's been a whole series of ups and downs and ups and downs and they're not done by a long shot yet. They're not done. And we have so many people in this world that are yet infected with this virus to develop some immunity from that or haven't had access to vaccine. And even if you look in the United States, because we have kind of hung on these surges as well or done. The media focus right now with everything going on in the world, it's covid, covid, covid. And we'll talk more about the US. But just think about this journey we've been on. It's almost kind of a shock absorber kind of experience. In April of last year when we had that first house on fire a moment, we were at 31,000 cases in this country for a seven day average on April 10th. And we thought it can't get worse than this, can it? Well, of course it could, but that's where we were at. And then by May 29th, case numbers had dropped on a seven day average to 20,800, seemed at the time we were in the right direction. We had this thing under control. But then if you look in July, July 22nd, we hit that next peak, 66,600 cases reported on a seven day average per day. If we look at that time period, there is a lot of similarities to what we're seeing right now and I'll come back to that. And then after the July peak, we saw cases dropped precipitously. By September 13th, we were back to 35,074, shifting baseline what the previous baseline was in May at 20,000. Now we're back down to 35,000 people thought "haha" we're on the right track, we're done. And then on November 25th, we hit 176,000 cases per day on a seven day average, and it was a combination of an earlier increase in cases in the upper Midwest, in the East, and dropping cases in many other parts of the country, but then we begin to drop in the upper Midwest and the East. And lo and behold, the numbers dropped to 161,000 in December 1st. So from November 25th, just a little over a week, it dropped from 167,000 to 161,000, a new shifting baseline because that's where it stopped. And then it went back up on December 18th we hit 218,000 cases. So, again, up and down, up and down. By December 30th, it had dropped again to 183,000 cases a day. And everyone thought, well, it's on its way down here to post holiday season we'll be done. And then we saw, of course, on January 8th, we hit 259,000 cases reported per day. That was our all time high. Well, February 21st cases are dropping 66,000, by March 23rd, they dropped further to 54,000. And then we saw that spike bump in April when alpha came

along, something that I thought was going to be much higher. It wasn't. 71,000 cases for a peak, that didn't seem too bad when the previous peaks were over 200,000 cases. And again, with vaccine now flooding the market, we watched case numbers drop. On July 5th, we were down to 10,608 cases reported per day. 10,000. Much lower than even those previous lows and everybody was prepared to be done. But as you heard me on this podcast and multiple times, I recognize that there were at least 100 million Americans who had yet been vaccinated or who had previously had infection, and now where we at? On August 3rd, over 92,000 cases reported per day. And that number is going right up. It's far from done. I go through these many numbers just to give you a sense of we have been in a shock absorber situation with this virus since the very beginning, up and down and up and down. And unfortunately, as I've said before, a lot of people were done with this pandemic by the time that summer rolled around this year. But the virus wasn't done with us and it's not done with us. And this is not going to be our last surge, what we're seeing right now. We'll talk more about this, but it's not going to be our last surge. And globally, it is surely not going to be. So if nothing else, today, you have to help get your head in the right place. We're not done. We're not going to be done yet. You don't want to hear that? I don't want to hear that. I'm tired. I'm frustrated. I don't want to wonder if I should be with my grandkids again. You don't either. But that's how we have to look at today, and I'm going to do my best to share with you, where I think it's going what we can do about it, how you should feel about protection, you know, and and and to give us our best sense of what is tomorrow going to bring and how are we going to all get there together. Let me just address the piece on the international perspective, I've already giving you a sense of this kind of surge of cases, the dropping of cases, where are we at today on a global basis? As of this week, a total of 135 countries have now reported cases that Delta variant. This is up three since last week and we're continuing to see its impact at the international level. As I pointed out a moment ago, if you look at the WHO covid dashboard, there's just over 4 million global cases reported this week, up from 3.9 million last week when we did this podcast. This marks the sixth consecutive week of increase in cases, a trend that has continued since mid-June when, as I pointed out before, we were at 2.5 million cases. A total of 64,200 covid deaths were reported last week, down from nearly 70,000 the previous week. And these this decline was largely due to decrease in deaths in Latin America. However, in other WHO regions, death either grew or remain near levels reported the previous week. As the curve goes back up again, this surge occurs in these other countries. You're going to see deaths coming back up too. And if we look at

the Washington Post coronavirus tracker, during the last week's episode, we mentioned that the US, Europe and South America all had a similar case rates for the first time in a very long time. Well, that's changing. We're now seeing them split apart. With rates in the US rising to 28 per 100,000 population, rates in South America, declining to 14 per 100,000 and Europe remaining largely stable at 16 per 100,000. So we are surely standing out right now as a country, even though we are rich in vaccine. Here we are, watching our numbers go up. Countries in Africa, Latin America, Asia and the Middle East continue to experience some of the highest death rates in the world. Of the world's top countries with the highest death rates, 4 in Africa, 4 in Latin America, 4 are in Asia and the Middle East. So how big of a challenge is Delta right now on a global level? Well, it's clearly a challenge where you don't have vaccine. But let's take a look at a couple of countries that are trying to manage Delta with vaccine, but also a much more comprehensive mitigation approach. And I think this has a lot to say about where we're going in the future in terms of trying to control the virus. Let me focus on a couple of countries specifically to give you a sense of what's happening. Let me take Australia and China. If we look at Australia, last year, the country opted for a zero covid strategy, which was achieved by a very strict lockdown, border closures, travel restrictions, reliance on testing and tracing. And since last October, Australia's had a minimal covid activity, aside from the occasional flare up, which was successfully contained by temporary local lockdowns. For context, let me just add this piece. Australia has a population of just over 25 million people. To date, the country has reported around 35,000 total cases and 925 deaths. Florida, which has a population of 22 million, slightly less, has reported 2.6 million cases and 39,000 deaths. Now, let me again just compare these two similar countries in terms of population: one 35,000 total cases, the other one 2.6 million cases, one with 925 deaths and the other with 39,000. But as good as that may sound in terms of what Australia has done, it is now struggling to contain its latest Delta surge. This one begin mid-June. There are more than 3,500 total Delta cases reported in the country since this most recent outbreak began. Clusters of cases have led to stay at home orders in cities such as Brisbane and Sydney. Despite the implementation of these orders, which have now been in place in Sydney for six weeks, imagine how we in the US would react to that, over 200 cases are now being reported in the country each day, the highest level since August of last year. The country's prime minister has promised that lockdown's will be less likely when 70 percent of individuals over the age of 16 are fully vaccinated, which is expected to be accomplished by the end of this year. However, up to this point, Australia's vaccination program has been

very slow, with just 33 percent of residents having received at least one dose and only 15 percent fully vaccinated. So here was this model approach that for over a year seemed to work really well. And now it's being challenged. The question is going to be, is it just people got tired and didn't comply or is this a function of the variant and it's increased transmissibility? And I think it's probably a little of both, but it points out that no one today can hold out a model and say this is it. And the best example I can give you is the next country, China. China is also fighting a Delta outbreak that has caused more than 300 cases that have been detected in nearly half of the country's 32 provinces over the last two weeks. 32 provinces. In fact, the cities involved all week ago when we did this podcast, 13 cities in China had cases. Today it's at 31. So you can get a sense that that what's happening here is that even China, with its very what I would call heavy handed strategies, were able to control covid for more than 30 flare ups since the initial outbreak in Wuhan. And yet this latest Delta surge is really challenging officials there. Cases have been detected in several cities that are located hundreds of miles from each other, including Beijing and Wuhan. The Chinese are hoping that the strict lockdowns, mass testing, and tracing and travel restrictions will prevent further spread. It's been reported that more than 60 percent of the country's residents have received at least one dose of the Sinovac or Sinopharm vaccines, although their effectiveness against Delta appears to be lower than the mRNA vaccines. Recently Sinopharm reports that their vaccine is only 68 percent effective against symptomatic disease from Delta. So here are two countries that have been models in terms of containing the virus, and yet now you can see the challenges that they, too, are experiencing. Let's look at delta in countries of low vaccination rates. I think this, again, is a lesson to us of what can or might happen in areas with low vaccination rates. If you look at countries in Asia and in the Middle East, overall cases in the region continue to increase with around 250,000 being reported each day, that's up from 150,000 daily cases last month. Average daily deaths in the region have also increased from nearly 2,000 per day to more than 4,000 over the same time frame. Ten countries are reporting at or near record high levels, Indonesia, as I talked about last week, is experiencing a decline in cases following an overwhelming Delta surge. Prior to Delta's arrival, the country never reported more than 15,000 cases in a single day. But with Delta, average daily cases in Indonesia grew from less than 6,000 in early June to 50,000 in mid-July. Average daily cases are now down to 38,000 since the mid-July peak. But as we can anticipate with lagging indicators, deaths are now soaring. Indonesia's reported nearly 1,800 deaths a day, a toll nearly six times greater than their pre-delta peak. A note here,

cases went up relatively quickly in Indonesia, and with the Delta variant, they dropped rather precipitously. Let's look at Iran. It remains in the middle of its fifth overall surge, that being fueled by the Delta variant and has resulted in record breaking case numbers and sharply rising deaths, with less than four percent of the country's population fully vaccinated. Iran's health minister has called for a national lockdown again, which is now being discussed by government officials. Japan, which has been the focus of our all of our attention due to the Olympics, is now seeing an exponential rise in cases that have reached new highs. Hospitals, particularly those in the host city of Tokyo, are being challenged by the uptick, and the country's medical association, is calling for the declaration of a national emergency. Officials have stated there's no direct link between the uptick in cases and the Olympics, although some medical experts in Japan have speculated that the Olympics sent a confusing message and might be leading to less residents staying home in Japan and increased transmission. We're also keeping an eye on India, where cases have increased slightly over the past week. This is the first increase since the record high peak in early May. And everyone is concerned this might be signaling another potential surge in India. With the daily average of 40,000 cases and just under 1,000 deaths a day, activity in Africa remains near peak high levels. The region has reported slight declines in cases for the past three weeks, mostly due to downward trends in South Africa, Tunisia and Zimbabwe. However, the WHO is reporting that Africa is still experiencing a third wave, with 19 countries still experiencing upticks. Despite substantial underreporting four African countries have death rates that rank among the world's top 12 highest over the past week. Of the four billion covid vaccines administered globally, only 1.6 percent have gone to Africa.

**Chris Dall:** [00:24:47] So, Mike, what are you seeing in the two countries, Israel and the United Kingdom, that have very high vaccination rates?

**Michael Osterholm:** [00:24:54] Well, these countries really, I think, are bellwether countries for us to look at what we can anticipate here in the United States, both in terms of the effectiveness of the vaccines as well as the number of cases that might occur in terms of the susceptible population. Let's just take Israel first. As you know from our previous discussions, they have among the highest vaccination rates in the world. The entire population has 64 percent with one or more doses. 59 percent are fully vaccinated. If we just look at those 60 and older, more than 90 percent are fully vaccinated. The country reported more than 3,800 cases this past Monday, its highest



single day total since March, pushing its daily average to 2,400. And by the way, that's nearly 10 times higher than levels reported just one month ago. 426 individuals are currently hospitalized. That's up from 243 last week. 229 are considered seriously ill. That's up from 147 last week. These are the highest levels seen since mid-April. The unvaccinated are seen noticeably higher rates of severe disease compared to those who have been vaccinated, and nearly 9 out of 10 seriously ill individuals are over the age of 60 and as has been highlighted in the media this past week, Israel is already starting administering third booster doses to individuals 60 years of age and older. It'll be we'll have to wait and see how they respond to the call by the WHO to suspend boosters till September. The average number of daily deaths in the country has risen from one per day last week to four per day now. Israel announced that their green pass system, which requires proof of vaccination, recovery from natural infection, or a recent negative test result before being allowed into certain settings like restaurants. This will be put in place later this month. Masks are also being required during outdoor gatherings, and remote work is being encouraged. Again to put these numbers in context, Israel had a peak of 1,200 individuals in critical care in January, the same month that the country also reported a record high average of 65 deaths per day. So even with this most recent activity, the vaccines have fundamentally changed how the disease is occurring in terms of severity and deaths. If you look at the United Kingdom, the vaccination rates there for the entire population, 70 percent have one or more doses. 58 percent are fully vaccinated. The adult population, 89 percent have one or more doses, 73 percent are fully vaccinated. Just to recap, UK's delta surge, before cases started slowing increasingly in May, the UK had reported around 2,000 cases a day. By early June, around two months ago, the daily cases grew to around 3,500 a day. They picked up speed throughout June and well into July, with the peak average of more than 47,000 daily cases reached on July 21st, let me just repeat that. If you look at the cases in May, it was 2,000 a day. By July 21st it was 47,000 cases a day. Now cases have declined quite dramatically since the peak, which was observed just two days after the UK opted to lift remaining covid restrictions, raising concerns that they'd see further growth. So here it is a situation where the population was basically said no more restrictions and case numbers still have declined. Initially, these case declines were met with skepticism, but they appear to be real, with hospitalizations now starting to slow and even decline. As of August 2nd, average daily cases in the UK are now at 26,000, down from that high at 47,000 cases a day. Just over 6000 residents are currently hospitalized. This is six and a half times lower than the hospitalization levels

recorded during the January peak, when a record high 59,400 were being reported each day. Deaths in the UK have grown during this latest surge, but remain low in comparison to previous surges. Current seven day average of 77, remember the peak seven day average in January was 1,250. So what these two countries are telling us is the vaccines have tremendous impact, not necessarily on the total number of cases, but what we see in terms of severe illness and deaths. And that's the message that we have to keep getting across at this point.

**Chris Dall:** [00:29:26] So, Mike, here in the US, the seven day average of new daily infections is, as you mentioned, over 92,000, which is actually higher than what we saw with last summer's surge. And states like Florida, Louisiana, Mississippi and Alabama are all exploding with new cases. So when you look at this current surge here in the US, which is being driven primarily by infections in unvaccinated people, how do you see this playing out over the next few weeks?

**Michael Osterholm:** [00:29:52] First of all, the same trends we've been describing the last several episodes continue to play out in the U.S.. And again, I want at this point to inject a moment of consideration to say as I talk about these numbers, please remember, these are someone's loved ones. These are fathers and mothers and grandpa and grandmas and brothers and sisters and cousins and colleagues, and it's almost every week just a need to realize that so easy to talk about numbers until you realize what they represent. Our national cases in the US have surpassed levels recorded even during last summer's surge. Those numbers I talked about earlier. Hospitalizations continue to rise. We're also starting to see a sharper uptick in deaths, not to be unexpected as part of a lagging indicator. Unlike what I talked about with Israel and the U.K., our rates, well better than most of the world, still are much lower than those. For all ages, we have 58 percent with one or more doses, 50 percent fully vaccinated. If you look at those 18 and older, 70 percent have one dose or more. The goal that the president had originally set to meet on July 4th. 61 percent are fully vaccinated. And for those 65 and older, 90 percent have one or more dose, 80 percent fully vaccinated. Just to remind you how that compares to England, if you look at the entire population they have 70 percent with one or more doses, 58 percent fully vaccinated. We again are at a situation of 58 percent have one dose, 50 percent fully vaccinated. If you look at our latest US activity, as you noted, we are now reporting more than 92,000 cases a day, up nearly 140 percent in the last two weeks. The seven

day average reported in last week's episode was 63,250. In our episode, two weeks ago it was 38,000. Just to give comparison how steep this rise has been. We're now conducting about 770,000 tests a day in this country, which is up from over 500,000 in early July, but it remains well below levels recorded one year ago, raising some question as to how many cases we are still even detecting. A total of 55,800 Americans are now hospitalized for covid, up from last week's total of 39,500 and last month's total of 17,000 hospitalizations. It's just a matter of days we will likely surpass peak highs recorded during last spring and last summer's waves. Deaths, a lagging indicator have increased by 50 percent over the last two weeks, with an average of 371 Americans dying from covid each day. To put that into comparison, if you look at the number of people who are killed in automobile accidents, are killed by violence or who have died from influenza, it is about 300 Americans per day. So it gives you a sense this is still taking a toll on our population. And we look at trends from states over the last two weeks, every state in the country continues to see an uptick in cases. 42 states, including the District of Columbia, are reporting increases of greater than one hundred percent. 48 states have experienced the increase in hospitalizations over the last 14 days, with 28 states reporting rises of at least 50 percent. Although activity is up across the country, we're still seeing the most dramatic growth in the select areas of the country, particularly in the southern Sunbelt states. Let me just briefly share with you what's happening there. In Louisiana, just 37 percent of the residents are fully vaccinated. This is 13 percent below the national average. Cases are up 10 fold over the past month and have reached record highs. If Louisiana was its own country, it would have the highest case rate in the world. Right now, Botswana, Cuba and the country of Georgia are the hottest countries in the world, with 81 cases per 100,000 residents. Louisiana is currently at 93 cases per 100,000 population. Hospitalizations in the state have reached new all time highs, with 2,100 reported as of August 3rd. On July 3rd, just one month ago, the state reported 260 hospitalizations compared to today's 2,100. On Monday, the governor gave a covid update and announced a new statewide mask mandate. During the update, a chief medical officer working for a hospital in Baton Rouge said, "You have people with chest pain sitting in an E.R. right now while their families sit in the waiting room and they are wringing their hands and they are calling everybody they know to get into an ICU. We can no longer think we're giving adequate care to anybody because these are the darkest days of the pandemic," such a painful statement. In Florida, 49 percent of the residents are fully vaccinated. That's actually just one percent lower than the national average. Cases in the state have

risen nearly eight fold over the past month, reaching a new peak high. Nearly one in five cases reported in the US each day are from Florida. With 82 cases per 100,000, Florida's case rate is also higher than the world's hottest countries. Hospitalizations are also at an all time high in the state, reaching levels recorded last summer when there was no vaccines available and less natural immunity. According to the Florida Hospital Association, as of Monday, 50 percent of the individuals hospitalized are between the ages of 25 and 55. 96 percent were unvaccinated. Some health systems in the state have moved to cancel all non-emergency surgeries to help deal with the surge. So what's going to happen in the United States? We are seeing these same eight to nine states that contributed largely to the surge last summer on fire again. It's not just Louisiana and Florida, it's also Mississippi, it's Alabama, it's Arkansas, even as high as Missouri, we're also seeing big increases in cases in Oklahoma and Nevada. Our challenge now is understanding what's going to happen in the other 40 some states and the District of Columbia. We're seeing these increases in cases, but nowhere near the same level as we're seeing in these hotspots. And I think the message is loud and clear in Delta cases will go up quickly and likely come down quickly and as humans, we're having very limited impact on that beyond vaccine. So the challenge is, will we see these other states, such as where we're seeing the hottest spots of Delta activity right now, like in the upper Midwest, will those translate to on fire like case situations as we're seeing in the South? If not, it will be much like the surge we saw last summer in those southern states. If, in fact, we do see Delta increasing substantially the case numbers in these other states, we could see our numbers really go up, far beyond what we've seen in previous surges. Now, that may seem unrealistic to others, but remember what's happening in Florida, Louisiana, states like that. There are still a lot of people who are susceptible to this virus for which it will find them and infect them. So this is not implausible. Now, if, in fact, these other states don't light up, I think by early September we're going to see case numbers plummet, drop quickly for reasons again, we don't know why. This is what I've been talking about in the duration of this pandemic. For those who are doing the modeling, for those who are doing the predicting, good luck. I don't know what you're basing it on. I'm basing my opinion based on what I'm seeing happen around the world. I'm learning. I'm observing, and I think that's what's going to happen here now, if these other states light up, this could extend the period of time well into mid-September or more where we see this big peak. So that's the unknown. Each week we're going to be looking carefully at what's happening outside of these hot hot spots and to see whether or not activity levels off, whether it continues to increase. But

remember, once it starts increasing, as we've seen in these states, we've seen in other countries with Delta, it goes fast. The only good news is it tends to come down fast, too, for which we don't know why. So that's really where we're at. And all I can say is stay tuned. One last thing I would say is this is now the time to get vaccinated because we still have as many as 90 million people in this country who have not been vaccinated who are at risk of this infection. So we're going to have future surges. This isn't the last one. We're not done. We can have a fall surge. We could have a winter surge. And again, anybody who tells you they know we're going to have one, forget it. They don't know. Could happen, don't know. But I can tell you, we're in this one right now. So the challenge is going to be following up on this. Over the course of the next two weeks, we'll have a much better sense. Are we on a trajectory to see a rapid reduction in cases in early September, or are we going to have an extended and frankly, much, much higher peak than we have now? And no one can tell you that with any certainty.

**Chris Dall:** [00:39:20] So I want to talk now about the CDC report that came out last Friday on breakthrough infections, one of the major criticisms of the CDC's messaging and the media's coverage of the report, has been that too much emphasis was placed on the fact that vaccinated people with breakthrough infections can transmit the Delta variant just as easily as unvaccinated people and not enough on the fact that the vaccines are still highly protective against infection, hospitalization and death. Mike, what was your take away from that report?

**Michael Osterholm:** [00:39:51] Let me just again summarize where we're at with vaccinations in this country, because that's the message we should be leading with day in and day out. What are these vaccines doing? Not getting caught up into what's happening with breakthroughs and so forth, while that's important. I don't want to minimize it contextually leading with that automatically, in a sense, shoot yourself in the foot with these vaccines. So if there's any silver lining to the US covid situation over the last month is news that the vaccine doses are starting to get into arms at a faster pace. The countries administering an average right now, 681,000 doses a day, up from just 500,000 in July. Now, the current pace remains far below the average of 3.4 million doses administered in April. If Delta's impact is causing the increase in vaccinations, it's a hard earned lesson. The people choosing to get vaccinated now, especially those living in hotspots, need to understand, as I pointed out, that they won't have immediate protection from the vaccine well into five or six weeks after they start the process of

getting vaccinated. But it's never too late because again, they're going to be vulnerable in future days, even with the uptick in vaccinations, as I have said several times in this podcast, we still have around 90 million Americans who are eligible to receive a vaccine but haven't done so. If we look at what's likely to happen that will support additional vaccination is the fact that the FDA announced this week it is planning on completing the process for full approval of the Pfizer vaccine for adults by early September. What impact this will have, I don't know. Hopefully it'll allow for more mandates because private sector entities will find the level of comfort that they need to actually make the mandate with a fully licensed vaccine. Will some of the vaccine hesitant view this as more evidence of safety and effectiveness and get vaccinated? I hope. More places are going to move to require vaccines. I'm convinced that we've already heard from Tyson Foods, Microsoft and Google, they'll do that. Even if you look at cities, New York City is requiring proof at least one covid vaccine dose for workers and customers in certain settings, such as restaurants, gyms and live performances. In terms of the vaccines and Delta, please understand these vaccines are the best tool we have for preventing severe disease and death. While the vaccines and particularly the mRNA vaccines are highly effective, they're not perfect and they can't always prevent disease. This gets us to the point of the breakthrough cases. Well, one of the things that people keep harping on is the percent of people hospitalized who are vaccinated or not vaccinated. And as an epidemiologist, I realize they're missing a major point here. That number is relative and you say relative, what do you mean? Well, let's just say what's been happening, for example, in in the U.K. or in Israel, where they're seeing an increasing proportion of the patients who are hospitalized, who are vaccinated, making it seem like the vaccine is failing. That's not true. This is one of those epidemiologic phenomena where how the vaccine looks in part is how many people have been vaccinated. Let me give you an example. I'm going to take two theoretical populations, both one million people, both the same ages, underlying health conditions, etc. in one of them. Ninety two percent are fully vaccinated and the other only 70 percent are fully vaccinated. If I take the ninety two percent fully vaccinated crowd and I look at that in terms of what the likelihood is of them, the chances of them being a case and being hospitalized, I would find in the ninety two percent fully vaccinated group that of 270 admissions, which would flow from the incidence of disease in that population for a million people. That 160 would be admitted to the hospital who are fully vaccinated. And 110 would be admitted to the hospital who had not been vaccinated. That would mean that 60 percent of your cases would be vaccine failures and you'd say, oh my gosh, this is so different than 99 or 98

percent. But then take that population where 70 percent are fully vaccinated. So now you're going to have more infections in those who are not basically vaccinated and there if I do the same math, I look at the chance of getting covid at two percent, I get the chance of having a case, being hospitalized at 10 percent, etc cetera. Now, if I look at how many are hospitalized. Overall, if I look at the number of fully vaccinated, it's 12 percent of the hospitalizations are fully vaccinated and eighty eight percent or not. Same vaccine, same population, it's a function of how many people in the population are vaccinated. So if everybody was vaccinated, you would expect 100 percent of the hospitalization breakthroughs would be vaccinated. If very few are vaccinated, you expect to see a much smaller number. And yet it's the same vaccine, the same performance. And so I want to point out, please don't get hung up on this number about what the percent of the population are that are vaccinated that are hospitalized because that is misleading. It is totally a function of the background population that's vaccinated. So what you should look at right now with breakthroughs are three things. One is what is the time period between when the person was vaccinated and when they might get infected? And this is the point that the Israelis are looking at right now. Does at six month, seven months post vaccination, you start to see waning immunity, which then gets us to the second piece is the host. What is your underlying immunological response to the vaccine look like? Are you an elderly individual in long term care and experience immunosenescence, reduction in your immune response? Are you someone who is one of those individuals who's immune compromised? So we need to look at that to understand breakthroughs. And then finally, we need to look at the variant. Is Delta itself more likely to cause a challenge with vaccine, either from a dosing standpoint, higher virus levels in the air you're breathing in, is it has some other escape mechanism for evading immunity? We don't have any evidence of that at this point. So when we look at breakthroughs, we have to look at all of those. And if you look right now at the breakthroughs, the recent data from Public Health England, which I think has given us the best data along with the Israelis of anywhere in the world, surely better we're getting in this country. You can see that they've shown that for AstraZeneca and Pfizer, vaccines are highly effective against severe disease and death from the Delta variant. Effectiveness against hospitalizations is running 80 percent effective for one dose. If you have both doses, it's 96 percent effective. However, the vaccines are slightly less effective in preventing symptomatic disease from Delta compared to alpha, the earlier variant. Delta is clearly a worse bug to encounter. There if we look at Delta with one dose it's 35 percent, two doses, it's 79 percent again at preventing symptomatic

disease. For Alpha it was 49 percent with one dose compared to the delta of 35 percent and for two doses it was 89 percent. So in this case this data would support the variant itself is a challenge. A most recent study out of the Imperial College in the UK with 98,000 participants, found that the effectiveness of the AstraZeneca and Pfizer vaccines in preventing symptomatic disease from Delta was 59 percent. However, when including asymptomatic breakthrough cases, effectiveness for both AstraZeneca and Pfizer dropped to 49 percent. Now, the data from the Public Health England wouldn't include as many asymptomatic cases that might be picked up if we're only doing routine testing. So just there how much testing is done and how many people you're missing as asymptomatic infections can play an important role. This study found that the prevalence in unvaccinated people was three times higher than the prevalence in fully vaccinated people and reported that viral loads were lower in those were fully vaccinated, although there was some wide variation. So these are data that would give us reason to be concerned. But at this point, again, remember those high effectiveness levels I just talked about. In Israel, the rates of infection, severe disease and death are higher among those who are unvaccinated, clearly. Vaccines are largely effective there in preventing severe disease and death, however, again, based on the latest data, their effectiveness against infection with Delta is 41 percent. Again, this number is likely impacted by Israel's widespread testing, which can pick up asymptomatic breakthrough cases. So what are we trying to do, prevent symptomatic severe disease, all infections? And I think this is an important consideration. Israel is also reporting some preliminary data that the effectiveness appears lower in individuals who are fully vaccinated earlier in the outbreak such by January of this year versus those who were fully vaccinated later, i.e. after March, according to the Health Ministry, effectiveness against severe disease for individuals aged 60 and up has dropped from 97 percent to 81 percent. Let me repeat this. According to the Health Ministry in Israel effectiveness against severe disease for individuals age 60 and up has dropped from 97 percent to 81 percent. And that is with the Pfizer vaccine. Based on these data, that's why Israel's begun administering third booster doses for 60 year olds and older. Overall, breakthrough cases must be expected. Delta appears to be more capable of infecting fully vaccinated individuals compared to previous variants, Delta's increased transmissibility is driving up cases and leading to more community spread, making exposure more common. The combination of these things make breakthroughs more common. But again, I can't emphasize enough, fully vaccinated individuals still have protection against disease and remain much less likely to be hospitalized or die from covid. However, when



breakthrough cases do occur, we have to ask, how likely are they to transmit the disease to others? Israel is reporting that fully vaccinated people appear 50 percent less likely to transmit the disease compared to those who are unvaccinated, but we still need more information on this, age compromised vaccine type variance, waning immunity. So a lot of questions still remain and we have to answer those questions. It's going to be important. I think ultimately the data are surely supporting that we will likely be giving booster doses and to an increasing part of our population. But remember, in a podcast two weeks ago, I talked about corrected science and the importance of understanding that as we go on, we're going to learn more. And as we learn more, we're going to be changed in what we think, what we know, what we say. Now, none of this suggests that we're going to say don't get vaccinated. Everything says yes. It's just how often we use the vaccines. Where we use them may potentially change. And I think this is the key message to get across to people right now, even in the United States, when we look at what's happening with the breakthroughs and what is occurring, it's very similar to what we're seeing in the U.K. and in Israel. It's just that they have more data and better data than ours. That's one message that we need to do a better job of getting more data. The final piece I would just add is that we need to study clusters. And when we see situations where one person appears to infect a number of vaccinated people in a limited setting kind of environment, what's going on? And we are hearing about more and more of those. I don't at this moment say that we should do anything different, that it means that there is a greater challenge with the vaccines. But I've been struck by groups where 13 of 15 or seven of nine people who are all vaccinated with mRNA vaccines get infected in a single experience. So so the bottom line message is get vaccinated. That's the most important thing we can do. And in the meantime, be prepared for additional advice to come forward about what we need, boosters or not, what we can expect to see in terms of the reduction in severe disease, hospitalizations, any disease, and know that these are not going to be static numbers. And finally, please do not get caught up in numbers as they relate to the percentage of people hospitalized with vaccine failures. We will expect to see almost all the cases be vaccine failures among those hospitalized as we fully vaccinate the population. And that would be highly erroneous to conclude that the vaccines aren't working.

**Chris Dall:** [00:53:28] So weeks ago on the podcast, you said that vaccine passports were coming, and it looks like we're starting to see them in some parts of the country. As you just noted, New York City has announced that people are going to restaurants,

gyms and performances will be required to show proof of vaccinations starting in September. So this movement is accelerating. Mike, do you expect we'll see more of this in the coming weeks?

**Michael Osterholm:** [00:53:48] Well, as I noted a number of weeks ago, I didn't see any way that we would not pursue, immune passports of some kind. It was a natural. And while some have, from an administration standpoint, have indicated lack of support for passports, it's just inevitable all of these activities are now turning up, whether it be the work in New York or California, certain private companies, we all want to find a way where we can be in a world feeling safe about covid. And whether it's the workplace, whether it's eating at a restaurant or a bar, going to an entertainment venue, and it's unfortunate that the private sector has really had to carry the brunt of this issue. I think it's time for our government and I say this to my friends and dear colleagues in the White House, please help coordinate this activity because it's going to happen. And even if a group of people don't like it, don't want it, politically it's going to be very charged. It's going to happen. And you see the leadership this now occurring in places like New York or in California or elsewhere where these passports are starting to take place. What we need are the kinds of assurances that from a security standpoint, from a validation standpoint, these are real. I've already made the point multiple times on this podcast. I gave away my eyeballs and my fingerprints to a private company so I can get on and off a plane faster. That's going to happen here. And I think that all of us will feel like if we're going to an entertainment venue, we're going to eat, we're going to be on a plane, we're going to be in crowds with people, whether it's at work or for pleasure. And we know that everyone has had a vaccine. While I've just pointed out they're not perfect, they're the very best tools we have. Think how that would fundamentally change motivation to get vaccinated. And it would also at the same time assure me a sense of safety that I want. Now, people have tried to use incentives to get people to get vaccinated. I never was a big fan of incentives. And I'm still not. I don't think it's the primary mechanism to motivate people. It's rather taking something away from them saying, OK, you can't get into this place or you can't do that. And that may seem as if somehow it's draconian, perverse, whatever. But you know what? It moves people then to say, well, you know, I don't want to get left behind here. I'll get this. And then that's the kind of norm that we set where it's just expected we're doing this to protect people, protect ourselves. So I do think passports are coming. I'm a big supporter of them. And I just they have to be done well, they have to be done right. They have critical questions.

What does it mean to be to have such a passport? Two doses of a certain vaccine, three doses, a booster? If I have previously been infected, do I have to have evidence of immune protection from my antibody? What kind of antibody? How much? All these things have to be answered. But, you know, we can do that. It's not like we can't. We just need to get on with it. So I'm really hoping we see national and international coordination to really bring these passports around. And I would say where people cannot get access to passport information, such as I can't get a vaccine, I can't get an antibody test, whatever, then we have to make accommodations. This should not be an effort that discriminates. Everyone should have access to a passport type of environment, just like a driver's license. So we'll see. But I'm convinced the movement of the last several weeks surely support that this is going to happen. And very similar to, as I laid out weeks ago, I just am certain that this is going to occur.

**Chris Dall:** [00:57:49] 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. Our covid queries this week are about masks and respiratory protection, which there is renewed interest in with the Delta variant. But before we get to the questions, Mike, was there anything you want to say on the topic of masks and respiratory protection?

**Michael Osterholm:** [00:58:15] Well, I can assure you that my inbox has been filling rapidly with people that are quite upset with my comments this past week about masking, made in the media. And ironically, they are the very same comments that I made way back in podcast episodes in April of 2020 about respiratory protection. Let me first of all, just be really clear here. We have seen a fundamental change in the established public health community's understanding of transmission of this virus over the course of the past 18 months. People now accept even the CDC and the WHO that aerosols play a very key role, these very tiny, fine particles that float in the air. And I have continued to emphasize how critical it is that whatever we use for respiratory protection has to account for and protect us against these aerosols. I remind people that if you want to understand aerosols, just remember what it's like if you're in a room with somebody who is smoking or you're walking down a street and somebody is 15 feet in front of you smoking. Smoke, in a sense, is a classic aerosol model. And it's ironic that the past two weeks that I've also had lots of email from people talking about their form

of respiratory protection, whatever they were using to put over their face and all the smoke that we're experiencing in the upper Midwest as the result of the forest fires. And we've had days here in the Twin Cities in the last two weeks where you could hardly see a block because of the smoke. And people are commenting on, oh, my, I wore my face cloth covering and or my mask and the smoke almost choked me. And that's a clear and compelling sign that your face cloth covering or whatever, your mask is not effectively protecting your own wouldn't against an aerosol. Now, I have been characterized as being against masking. Well, this is terminology. I am all for respiratory protection. And if you want to call it masking, fine. But I have emphasized over and over again the importance of using N95 what we call respirators. I'll call them masks for the sake of it. So if that helps people understand, yes, mask but use adequate protection. Face cloth coverings leak substantially. We've shared that information with you before. We've given you the data from the industrial hygienist professional organization showing the relative lack of time that you can spend in an environment where the virus is present, such as if you were in a room with somebody smoking, would you smell it in your device that you're using? And this is why tight face-fitting N95s are so important. So I just want to come back to the fact that, yeah, I'm all for masking, but I am for the kind of masking that I would call only equivalent to these N95 respirators. The final piece I would say is that please, when you wear something, wear correctly. We continue to do our surveys of media related video shots where we freeze frames and count the people in various venues, what they have on and how they're wearing it. And consistently we see 25 percent of the population wear their mask under their nose, which, as I've pointed out before, is like fixing three of the five screen doors in your submarine. That's it. OK, you haven't really covered yourself. So I think this is the important message to get across. If you want to protect yourself right now, that's what you need to do. And and, you know, it's not an anti mask comment at all. It's a comment that says this is the science we have today when recommendations were first put out about what to use, what to wear. Basically, it was before many of the public health agencies understood and appreciated the role that aerosols play. We know that today.

**Chris Dall:** [01:02:21] All right, so we have two questions here on N95 respirators, the first one is from April who wrote, "Most of us can't get fitted for an N95. I'm assuming that even without the fit test, we're better off wearing N95 respirator than cloth or a surgical mask. How many times, if any, can we rewear an N95 respirator for everyday settings like the grocery store? Or do we have to throw it out even after wearing it for

only 10 to 30 minutes? And are there any reusable cloth masks that might work nearly as well?" And then we have a related question here from Rocco, who asked "you said that N95 respirators can provide protection for up to twenty five hours. Does that mean we should only wear one for twenty five hours and then dispose of it and wear a new one?" And then the second part is, "you said that child K95 respirators are now available. What are reputable sources for those sorts of respirators, as I worry about counterfeit masks?"

**Michael Osterholm:** [01:03:17] Well, thank you to both April and Rocco for these really very, very helpful questions, and I'll even add a third one in that will come from a number of people who sent me emails in the past several weeks asking for more clarification on this. First of all, you don't have to do a fit test for an N95 respirator. It'll still be far better than a surgical or cloth mask, particularly it's important to note you can't have facial hair. So for men with beards, you have to understand if you want protection that beard's got to go. If you just take an N95 and basically put it fitted to your face tight with one strap behind the head and one towards the top of the ball of the head, you will have substantially increased protection than you would if you were using a face cloth covering or a surgical procedure mask. And the reason I can say this is because today we have more than an adequate supply to meet all the health care delivery system needs as well as industrial needs for these N95 respirators. They're also easy to get. I've heard people say, well, how do I get them in my location? And they're relatively cheap. I don't endorse any one company. I have no ties to this. But one of the companies that I know sells all of the approved in N95 respirators is a company called Grainger. G-r-a-i-n-g-e-r they are an industrial supply company. You can go online there, order them. As I said, they're relatively cheap and you can actually look at sizing. So if you're a woman, you want to wear a smaller one, potentially a younger child, and they come in multiple sizes there. And so I would say there is an example where you can get them and you can actually use them from that. In terms of how long can you wear them, you can rewear an N95 respirator many, many times. If you're treat it carefully, it's your friend. Just don't fold it up and stick it in your pocket, protect it from being crushed. It can be worn many, many times. Try to find one that fits well on the face and wear both straps as I just said. One other piece, make sure you take the formed nose clip and get that down tight on your nose. And if you do that, you can just keep using it over and over again. If it becomes difficult to breathe through it because it's dirty or it's crushed, then get another one. And I personally have used mine many,

many times and it still works very well for me. Rocco asked a question about the twenty five hours. What I was sharing with you were data that had been generated by this internationally recognized group of industrial hygienists that have actually looked carefully at the protection that occurs with regard to the different types of devices you might use, a face cloth covering, a surgical mask, a procedure mask, or an N95. And what I was indicating to you that is, is that if you wear an N95 respirator as I pointed out, tight to the face, you can actually be in a room where that smoke is occurring for twenty five hours and not actually get an infectious dose inhaled in. It would protect you for that long, whereas a face cloth covering would give you 20 minutes of protection. So it doesn't mean that it ends at twenty five hours of protection. It's just means in that setting man, imagine you're going to the grocery store, imagine you're going to a shopping center or imagine you're going to be in a crowd and you know, you get, you know, potentially a good 25 hours worth of protection here before you would inhale through that N95, an infectious dose. So that doesn't mean that's the limit of how well these are protecting. In terms of kids, this is a tough one. People have reported using these KN95 respirators for kids and talking to the industrial hygienists that we really respect and admire, the people who really are the experts in airborne diseases and how they actually are able to be prevented through respiratory protection, the general sense is that unfortunately for most kids, these respirators, these these tight face fitting devices just don't work well for kids. And this is really a huge hole in our system of protection. Face cloth coverings on kids. You can use them, but, you know, they leak. They leak a lot. And being a kid, it's very hard to get them not to, you know, want to touch it, move it and so forth. So I wish I had a better answer, but I have to be honest with you and say there's nothing really that great for kids. The KN95s, which actually attach behind the ear may be the best you can get for kids that that are there. But I just want to be clear that they're not going to provide the same level of protection that you're going to get as an adult or for that matter, even a teenager. Teenagers can wear N95s quite well. So I just want to lay this out as a function for better protection, use an N95, for the best protection in fact. Number two is if you treat it well, you can wear it for quite some time. Number three is, is that kids are always going to be a problem. If you can, there are KN95s that are available, the various places you might buy them will have some sizing for them, but know that these are going to be challenges. But I think the most important thing to come away from this is you can do something to protect yourself here above and beyond vaccination. Vaccination is number one, still the most important, but by using N95s, you can basically protect yourself. And again, they're readily available,

they're not cost prohibitive, and I can only say that, you know, this is the perfect adjunct to use with your vaccine. And please, you can tell the public I am not anti masking. I just want to make sure that you're using the device will really protect you.

**Chris Dall:** [01:09:36] And to our listeners, please keep those questions coming, you can email us at [osterholmupdate@umn.edu](mailto:osterholmupdate@umn.edu). Mike, where is this week's Beautiful Place?

**Michael Osterholm:** [01:09:47] Well, Chris, I always love this part of the podcast. First of all, I have an announcement to make that we've had a number of requests for us to post the picture that was part of the previous podcast from Christian in which we talked about his photograph, looking at the night sky in the Uintas mountains. And we are going to put that on our podcast site for last week. So if you want to click on that, you'll be able to see his his wonderful skylight. Today, we have an international submission. This is the pandemic happy place open swimming outside of Melbourne, Australia. This is from Eugene. And given my interest in swimming, needless to say, this is something near and dear to my heart, too. And we'll add their picture, that as a group of them, that they sent along with their beautiful place. And so here's from Eugene. "This photo will be close to your heart, as you have mentioned, open water swimming many times on your podcast. This photo was taken in Edithvale, Melbourne, Australia. Edithvale is a suburb of Melbourne. We particularly like swimming in Edithvale as there are frequent sightings of its regular residents, the banjo sharks, stingrays and Toadfish. My partner, Free and I are open water swimmers and in fact met in the water. You could say it was a match made in water, not heaven. Although any swimmer will tell you they are both the same thing. Being in the water is our pandemic happy place. Nothing makes us feel closer to nature than being immersed in water. One also appreciates the vulnerability of being human as when Mother Nature decides to be rough. One is nothing but a speck tossed and turned by the waves. Sadly, Melbourne is in its fifth lockdown at the moment. We are unable to travel more than five kilometers or three miles from our residence. Free and I are fortunate that we live close to the water. But for some in that photo, the water is beyond their reach. Our thoughts go out to those who find the water therapeutic but cannot get into it. We're thinking of you wherever you are and hope to see you all back in the water again. Regards Eugene." Well, thank you, Eugene. Melbourne is a city near and dear to my heart. I love that part of Australia. I can only imagine your time in the water. And it's a wonderful feeling for those that can't believe that such a thing would feel so good as to just to be in these waters with these beautiful

animals is a remarkable place. So, Eugene, thank you for this. And we'll post your picture also.

**Chris Dall:** [01:12:33] Your closing thoughts today, Mike.

**Michael Osterholm:** [01:12:37] Well, this is a tough one, this is a tough podcast, it's one that makes every effort to share what we know about what's happening with this pandemic, what we know about the vaccines. And yet I've left you in an unsatisfactory place. I wish I could have given you much more definitive information. It's one where we recognize that we're not done. We're not even close to done. But at the same time, we will get through this. And we have to remember that. We have to remember that right now there shouldn't be one of our loved ones, one of our friends or our colleagues, one of our neighbors who become seriously ill or dies from covid. That shouldn't happen. And I think that it's a time to remember again how important we all are to each other. I've tried in this podcast to remind you that the numbers that I so often cite are just so much more than numbers, oh my there's so much more than numbers. And so today I'd like to go back to something that takes all of this well beyond the numbers and takes it to a very, very special place. This closing is one that I've used before, in fact, I've used it twice from episode 25 on September 10th, in episode 45th on February 24th. Is one that is very near and dear to my heart for many reasons, even a most recent reason. This is the song "You've Got a Friend," a 1971 song written by Carole King, first recorded by King and included in her album Tapestry. But another well known version is by James Taylor from his album Mudslide Slim and the Blue Horizon. His was released as a single in 1971, reaching number one on the Billboard Hot 100 and number four in the U.K. singles chart. The two versions were actually recorded simultaneously in 1971 with shared musicians. This song has been described as an expression of a universal sisterly, brotherly agape type love of one human being for another, regardless of gender. I think the reassuring lyrics have long made the song popular with lonely people needing a boost of self-confidence. The song's messages of friendship, having no boundaries, and a friend being there when you are in need of a universal appeal. So to me, I just need this right now. I need to know I have my friends and I want you to know you have your friends. And we are together on this podcast, friends. So here it is. "You've Got a Friend," written by Carole King and this version sung by James Taylor. "When you're down and troubled and you need a helping hand and nothing, oh nothing is going right, close your eyes and think of me and soon I will be there to brighten up



even your darkest night. You just call out my name and, you know, wherever I am, I'll come running. Oh, yeah, baby. To see you again. Winter, spring, summer or fall, all you've got to do is call and I'll be there. Yeah, yeah, yeah. You've got a friend. If the sky above you should turn dark and full of clouds and that old north wind should begin to blow. Keep your head together and call my name out loud. And soon I'll be knocking upon your door. You just call out my name and you know, wherever I am, I'll come running to see you again. Oh, yes, I will. To see you again. Winter, spring, summer or fall. And all you got to do is call and I'll be there. Yeah, yeah, yeah. Hey, ain't it good to know you've got a friend? People can be so cold, they'll hurt you and desert you. Well, they'll take your soul if you let them. Oh yeah. Don't let them. You just call out my name and, you know, wherever I am, I'll come running to see you again. Oh, babe, don't you know that winter, spring, summer, fall. Hey, now all you got to do is call. Lord, I'll be there. Yes, I will. You've got a friend. You've got a friend. Yeah. Ain't it good to know you've got a friend? Ain't it good to know you've got a friend? Oh, yeah, yeah, you've got a friend." Thank you again for being with us this week. I hope that some of this information makes sense to you. I hope it helps you understand where we're at. It helps you understand the challenges we have ahead of us. But it also reminds us of we're all bound together in this journey with this virus and we've got to hang together and there is much we can do. Please get your friends, your neighbors, your family, your colleagues vaccinated. If they're not already vaccinated, help them. And just remember to take care of yourself. And if you're feeling confused, you're feeling frustrated or even feeling a little scared right now. Just know you're not alone. You are not alone. I'm there right with you. And I just can't wait for the day when we can move beyond this. And that feeling that so many people had several weeks ago is a reality for the future. It is what we should expect. There will be more surprises coming. And so with that, I tell you, please have a good week, be safe, be kind, and just know you've got a friend.

**Chris Dall:** [01:18:42] 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](http://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](http://CIDRAP.umn.edu/donate-now). The Osterholm update is produced by Maya Peters, Cory Anderson, and Angela Ulrich.