# Episode 83: On Viral Time

**Chris Dall:** [00:00:00] Hi, everyone. Before we get started with this week's episode of the Osterholm update, I wanted to let you know that CIDRAP is commemorating its 20th anniversary this year. Since its inception in 2001, our team has created what is now a globally renowned center tackling the world's toughest challenges in infectious disease and public policy, including COVID-19, Ebola virus, Zika, antibiotic resistance, universal flu vaccines, and drug supply shortages. In celebration of this milestone anniversary and to ensure we're able to continue our important work into the future, Christy Walton has pledged a $4 million challenge to complete a $10 million fundraising campaign. A $1 match will be made for every $2 donated, helping to build a solid endowment to support CIDRAP's work. Please visit cidrap.umn.edu/donate and thank you. And now to this week's episode of the Osterholm update. 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. With Christmas and New Year's approaching, and many of our listeners either wrapping up work or school or trying to prepare for the holidays, we've decided that our next two episodes of the podcast are going to be shorter than usual. Our aim for these two episodes is to provide a quick breakdown of the latest research on the Omicron variant, what that research is telling us about the potential trajectory of the pandemic over the next few weeks, and what it all means for you. So without further ado, as always, we'll begin with Dr. Osterholm's opening comments and dedication.

**Michael Osterholm:** [00:02:11] Thanks, Chris, and welcome to all of you back to another edition of the weekly podcast. I must say it's with some regret we're actually recording this one. We had hoped to take off over the holiday season, but there was no way we could right now, given what's happening and the need to get out clear and hopefully helpful information to you. But let me just start this podcast with two notes. One is that, as you may recall, if you've been a listener to these podcasts or since the beginning of the pandemic, I've kept track of sunlight with the idea that it was actually one of those enjoyable things to see the light increasing each day in the northern hemisphere. Sorry to all of our listeners in the southern hemisphere, these comments today will probably not necessarily seem fitting. But today being December 21st literally, within the last hour, we have actually hit the winter solstice, which in fact is the shortest light day of the year. Here in Minneapolis, we will have eight hours and 46 minutes and 11 seconds of sunlight as it from sunrise to sunset. It starts to change quickly. In fact, in just 10 days at the end of the month, we've increased almost four minutes to eight hours and 50 minutes of sunlight. And now we're heading to that June summer solstice, where at that point on June 21st we'll be at 15 hours and 36 minutes and 50 seconds of sunlight, an increase of well over six hours and 50 minutes. So I just want to give you hope if you're in the northern hemisphere, it's going to get better in terms of light. The second thing I want to do today is provide a dedication. We thought in this abbreviated edition we would just skip all those things, but I can't. It's so important today to recognize where we're at, what we're experiencing, and the challenges that we have that Omicron has provided us. Today, I'm dedicating this to all of us who are confused, concerned, worried, feeling as if somehow, how can this be happening. This is dedicated to us and I'm one of them. So I hope today in this context, I can share with you what I'm doing to take care of my own heart and soul that of my family, my friends, my colleagues and you, the very special members of this podcast family. So it's dedicated to all of us.

**Chris Dall:** [00:04:39] Mike, it's nothing less than astonishing how rapidly things have changed over the course of less than a month. We've gone from getting the first reports about a troubling new variant in South Africa on Thanksgiving Day to that variant now accounting for more than 73% of all sequenced COVID-19 cases in the United States. So what have we learned over the past week about the three critical elements of the Omicron variant transmissibility, severity and immune escape? And this viral blizzard you've talked about, how do you see that playing out over the next few weeks here in the United States and the other countries where it's become the dominant variant?

**Michael Osterholm:** [00:05:17] Well, as I've said many times, Chris, I think I know less about this virus today than I did six months ago. And while I may have said that somewhat jokingly in the past, it honestly feels more accurate now than ever before. Again, I have to preface this episode with the acknowledgment that we're operating on viral time, so we'll still always be a step or two behind. And given that reality, I'm always hesitant to offer up much in the way of absolutes or certainties. I will offer up with great humility, my sense of what's happening, where we're going, what we can expect and what we can do about it. But Chris, with what we're seeing take place in Africa, Europe, Canada and the growing parts of the U.S., I can't envision encountering a more perfect storm or, as I've said, a viral blizzard just before the holidays. Before I do my best to provide some sense of why I believe that's the case, let me start out by saying that I know these are very confusing times. I get that. I feel that. All of my family knows that and feels that. Our colleagues at CIDRAP know and feel that. In the past, I've likened the amount of Covid information that's been coming out on a daily basis for almost two years as the equivalent of trying to drink from a fire hose. It's been my attempt to share with you the information after that fire hose squirt has been somewhat diminished. It hasn't always been easy to keep up with, and for the past month that fire hose has felt more like Niagara Falls. That being said, I promise to give you my best shot at helping cut through some of the confusion. So the way I see it, there are two different realities playing out right now. On one hand, we have the reality that's been unfolding for months now in the form of the Delta variant, and since its emergence, we've learned to understand what Delta is capable of. Now, on the other hand, we have this new emerging reality of Omicron, which appears to be capable of out competing Delta with great ease. Of course, we haven't had nearly as much time to learn about Omicron as we had with Delta, but there already appears to be some consistent and potentially significant differences that distinguish these two variants in locations that are transitioning from Delta to Omicron. We've talked about Delta and its surges since India took off in May. Because it was much more infectious than Alpha, which was the variant it replaced across the globe we'd often see its dominance marked by a tail tail and often dramatic rise in cases. When it hit, it hit hard. And in places without much in the way of protection from vaccines, the rise of delta cases was followed by a significant increase in hospitalizations and deaths. However, if there's any good news from Delta, it's that for whatever reason, it didn't always immediately cause a complete house on fire situation when it took over. For example, many countries in Latin America, like Brazil, have seemed to get by without a national delta surge when it became the dominant variant. Even in Europe and the U.S., we saw what almost seemed like a dormant period of weeks to months before Delta really took off. In addition, when a delta surge did occur, it wasn't always uniform across entire countries. Take, for example, what we've seen with Delta in the U.S. when it first took off this summer, the major surge was largely confined to the southern Sunbelt states. Other regions of the country also experienced some growth at the time, but not nearly on the scale of what we saw in the South. Then, on a rolling regional basis, we saw these major increases occur in other parts of the country. I am not aware of any other respiratory pathogen that has ever performed like this on a geographic regional basis. However, by the time we saw this most recent delta surge really hit large parts of the Southwest, Midwest and the Northeast it had basically been two to three months since things started cooling off in the South. So as bad as Delta has been, and make no mistake about it, it has been bad. The overall national numbers have really been driven by a rolling subset of states in different regions of the country experiencing their delta surges at different times over the span of basically six months. As many of you know, I have categorically rejected the fact that it had to do with seasonality or some predictable geographic event that supported these kinds of surges. This is one of those humble moments where we just don't know why it did what it did and has done. Well, with Omicron, I worry that we're about to encounter a more uniform national situation where we'll see a rapid and dramatic growth in activity across large portions of the U.S. occurring simultaneously in a span of weeks instead of several months. As I noted before, it will be a national viral blizzard for the next what I believe to be two to eight weeks. I hope I'm wrong. Oh my god, I hope I'm wrong. But the speed and relative ease that characterize Omicron's ability to transmit is simply remarkable. I don't know how else to describe it. As I said a moment ago, in my 46 year career, I've never seen anything quite like this. So what's the situation we need to prepare for? If over the next two to eight weeks, Omicron drives up activity from the already high baselines the Delta have left us with, what will be our response? How will we maintain health care systems in the many places in the country where they've already been pushed to the brink and even breaking? Think about the fact that of the 22 million health care workers in this country, of which 9.8 million are doctors and nurses and other technologists, and 5.3 million who are in home health care and other support services also become infected with Omicron. I could see in the next two to eight weeks 20 or 30% of health care workers who are vaccinated, but who will have breakthrough infections becoming infected and be off work at a time when every health care worker is so critical to providing the care that we need in our health care systems. Before I get into the U.S. response, let me cover what we've learned about Omicron since last week's episode. In particular, I want to focus on those three buckets we've been talking about when it comes to characterizing variants of concern. As you noted Chris, it's transmissibility, immune evasion and disease severity. Well, I know I've said it in the past several episodes, and I just got done saying it again, but Omicron's ability to transmit is frankly stunning. Remember, it was less than one month ago when the news of the variant first broke. Of course, it had emerged and been circulated in weeks leading up to that announcement. But this is clearly the fastest displacement we've seen up to this point in the pandemic as it relates to variants of concern. In mid-November, South Africa was reporting less than 300 cases a day. One month later, daily cases surpassed 23,000 cases a day, making a new all time high for the country. Then there's the UK, which first documented the variant on November 27th. And while we don't know if those first documented cases were merely the tip of a much larger iceberg that it existed there for at least some time period, it certainly didn't take long for Omicron to really make itself known, doubling in frequency every two to three days. It claimed the title as the dominant variant in London early last week. What has that meant for the UK? Well, on November 27th the day they confirmed their first case of Omicron average daily cases there stood at 43,400. Again, this was still part of the heightened activity that they've been experiencing for basically six months following the emergence of Delta there this past summer. Just three weeks later, on December 18th, the UK reported a single day total of more than 90,000 cases. Remember, on November 27th, it was only 43,400. So they've already shattered their previous record, single day high of 68,000 cases documented at the height of the alpha surge that was there this past January. This is the reality I'm talking about when Omicron takes off from that elevated Delta baseline, and we're starting to see this emerge as an increasingly consistent pattern. It's happened in Norway, it's happening in Denmark, it's happening in Canada. Even in African countries like Zimbabwe, Eswatini, Kenya and Nigeria are reporting unmistakable exponential growth. And now with Omicron as the dominant variant in the U.S. as of this Monday, I have no reason to believe it won't happen here. So what makes Omicron so much more transmissible? Well, we're still in the process of figuring that out. I mentioned in last week's episode that there's recent data suggesting the variant can replicate much more efficiently in parts of the respiratory tract, which could be indicative of earlier infectivity that would support the rapid doubling time we're seeing. However, we're also seeing Omicron exploit its heightened ability to evade some of the protection offered by vaccines and previous infection. I've touched on the recent lab based studies we've seen, hinting at Omicron's ability to evade neutralizing antibodies. Well, we now have early data out of the UK suggesting that two doses of vaccine likely doesn't offer much in the way of protection from symptomatic disease with this variant. In particular, researchers there found that two doses of the Pfizer vaccine was only around 30% effective in preventing symptomatic disease. With two doses of AstraZeneca vaccine, the effectiveness was virtually zero. Now, this isn't to say that the vaccines don't offer any protection. Not true at all. Remember, this is symptomatic disease and it doesn't get into disease severity. The expectation is that the cellular immunity provided by these vaccines will still largely prevent most serious outcomes, like hospitalizations and deaths. We're still trying to understand that potential. In addition, the UK data has shown that a third dose of vaccine can actually restore a lot of that effectiveness even against symptomatic disease, with their data showing 70 to 75% effectiveness in the first month after a third dose of Pfizer. So if you needed any more motivation to get your third dose yesterday, this should be it. At the same time, it's not just the one or two doses of vaccine that Omicron is capable of evading. We're seeing a much greater risk of reinfection among individuals that recovered from previous infection and didn't get vaccinated. In the UK, the risk of reinfection is five times higher with Omicron compared to previous variants. And while we still don't have a good sense of what protection recovery from previous infection offers when it comes to severe disease and death, it's being reported that the first individual to die from Omicron in the U.S. was an unvaccinated Texas man with underlying conditions who had already been infected with COVID before. So please don't assume that recovery from a previous infection means you're good to go and don't need to be vaccinated. That being said, I should add that there are still a lot of questions we have yet to answer when it comes to Omicron and its overall ability to cause severe disease and death. Obviously, this is critical information, since it really helps inform what impact we might anticipate this variant will have on our health care systems. Of course, we can look at what happened in South Africa with Omicron, as they appear to have hit a recent peak in cases and have been dealing with this variant for as long as any other country in the world. Despite the record breaking number of cases coinciding with Omicron's emergence as the dominant variant there, hospitalization rates in South Africa have remained well below rates reported during previous surges, in particular with Delta. For example, during the second week of their Delta surge in June, around 19% of cases in South Africa were hospitalized. With Omicron, the second week of their surge came with a hospitalization rate of less than 2%. Other data from the country have supported this finding, and it seems to be holding up across all age groups. In the city of Pretoria, which has really been an Omicron hotspot hospitalization rates for individuals 60 years of age and older are reportedly 50% lower than rates reached during the delta surge. Early data out of Denmark is also hinting at lower hospitalization rates in cases of Omicron compared to previous variants. As of Monday, the hospitalization rate for Omicron cases in the country was reportedly at 0.6%, compared to 1.6% with previous variants. However, I want to be clear and emphasize that I by no means believe Omicron is some harmless benign variant, especially considering what it could mean at a population level perspective. We're still seeing hospitalizations for Omicron, particularly in areas with lower vaccination rates and presumably more immunologically naive individuals. For example, in one South African province, less than 33% of the adult population has been fully vaccinated. According to the sentinel surveillance from health care systems in the province, the number of hospitalized patients with COVID has more than quadrupled in the past month, while ICU admissions there has also nearly doubled. A majority of these patients are unvaccinated. Then there's the Gauteng province, which is home to cities like Johannesburg and Pretoria. Around 35% of the adult population there has been fully vaccinated. The province has also had high levels of previous infection, with some seroprevalence estimates suggested up to 70% of residents might have been previously infected. Regardless, hospitalization data available for the province shows that the number of COVID positive patients increased more than six fold in the past month. In addition, the numbers of patients with COVID in the province ICU are five times higher. So again, although hospitalization rates have been lower in South Africa with Omicron, they're still occurring. And we have yet to determine if that's a function of the variant itself being inherently less virulent, the impact of existing protection in the population or a combination of both. Unfortunately, even if these lower hospitalization rates with Omicron hold up over time, it's heightened ability to transmit will make it a clear and compelling threat. Remember, even if the rates of serious illness are reduced by 50 or even 75%, we can still ultimately see just as many, if not more overall cases of serious illness if it's also that much more infectious and transmitted to that many more people. So this is the new reality we found ourselves with Omicron, and its arrival coincides with a time of the year known for a significant amount of travel, countless indoor gatherings and all other kinds of social events. Again, how do we respond? Well, there aren't many easy answers to that question. And some might as well be coming from the Grinch himself. But I'd argue that they beat the alternative options of freezing and simply doing nothing or putting on a pair of nice rose colored glasses and pretending that everything is OK because we even have vaccines. In a number of places on Omicron's emergence has already prompted a response. Just this past week, the Netherlands announced a nationwide lockdown that will last until mid-January. Other places like Denmark, Germany and the UK are also considering further tightening restrictions. Even the Canadian province of Quebec has opted to close schools, bars and gyms amid a record high surge of cases from Omicron. As you can imagine, that news hasn't been warmly welcomed in these countries, and it comes at great cost. But they evidently deemed that the threat that an Omicron surge poses to their health care systems has a far greater expenditure. Well, in the U.S., I think there's about a snowball's chance in hell that we'll see any comparable response from a standpoint of wide scale restrictions. The U.S. public is over with this pandemic, they're done despite the fact the virus is not done with them. And as we now know with Monday's news, Omicron is now the dominant variant in this country, accounting for an estimated 73% of new cases in the country just 20 days after it was first detected. I really worry about what's in store for us in those weeks ahead. So where are we now that Omicron has taken the torch from Delta? Well, as of Tuesday, the average seven day daily case in the country sits at about 143,000 cases, up from 122,000 cases reported at the time of last week's episode. But of note, yesterday, 268,000 cases were reported. So as you can anticipate, the seven day moving average is going to start going up substantially. Hospitalizations have also continued to grow, with nearly 69,000 Americans currently admitted with COVID. And finally, we're still seeing an average of 1,300 Americans die from the virus each day. While a growing number of these cases are Omicron, a vast majority of the hospitalizations and deaths are the baselines driven by delta hotspots, primarily those states in the Upper Midwest and the Northeast. Well, now we're seeing Omicron's impact in places like New York City, where cases have risen by 277% in the past two weeks, propelling the state to record high levels. What will this mean for health care systems in New York? We don't know. Remember, upstate New York has already been struggling with the delta surge. What will happen in places like Rhode Island, which leads the country in cases per capita despite having one of the highest vaccination rates in the U.S., with 75% of its entire population fully vaccinated? Recently, a group of emergency doctors in the state already warned that their health care systems are currently collapsing. Even in the Midwest, will we see a resurgence in Michigan and Minnesota? Our health care systems are still in disarray from Delta. And finally, there are the signs of upticks in the south, with Florida reporting a 300% increase in cases over the past two weeks and Georgia reporting a 100% increase. I worry desperately about what the next month or two could mean for our country's health care systems. In many states, they are already broken. As I mentioned earlier, imagine if 10 to 30% of the health care workers in this country become infected and were expected to isolate for up to 10 days. It's a realistic possibility. In parts of South Africa, around 20% of the health care workers were infected with Omicron. We're hearing of similar reports out of the UK. What will this mean for our ability over the next three to eight weeks to provide health care in this country? Meanwhile, we have a public that is largely done with this pandemic. A recent poll showed that more than half the country has moved on from taking any precautions and much like we saw during Thanksgiving, travel in this country during the holidays is projected to be at or near pre-pandemic levels. What will make a difference? Well, if you haven't gotten your first or second dose, you should do so as soon as possible. But I understand that people who are in those categories are probably not people listening to this podcast. Also, I want to remind everyone that one or two doses of vaccine at this point may offer only very limited if any protection at all in terms of even serious disease. Remember, it's that third dose right now that is going to be so important, but you need to get it right now. Here we have only 30% of U.S. residents who are fully vaccinated by the old definition of two doses who have then gone on when eligible is six months to get their third dose. I hate calling those booster doses. I believe that the three dose series should be considered just that, a series. It's not a booster dose, it's the third dose. We should make that a national standard as soon as possible. But even if you're waiting to get your third dose and you get it today, you're still talking about seven to 14 days before you see that additional new protection kick in. That's well into the next year. That's well past the holiday season. It still may help you with this viral blizzard that's going to occur throughout the month of January. But please get it now. Don't think that you can go in and get a booster dose on Christmas Eve morning and feel perfectly safe going to a family event on Christmas Eve night. It won't work that way, so you need to get those three doses. Any dose right now, take it. It may offer protection, but know that it should be the three dose approach. So at this point, clearly vaccination is going to be a critical part of what we each can do to protect ourselves. If you don't have the luxury of having a third dose of vaccine on board at least 14 days ago, there still are other things you can do to better protect yourself. First of all, you understand that distancing is important, very important. I know people hate the term lockdown. I understand that. I know it'll never happen again. So all of you who might think that I don't get it, I do. But the bottom line is, is that did play a role in the earlier part of the pandemic in reducing transmission. If you're not in large social circles, if you're not in the public, you can't get exposed to this. If in fact, no one else in your household are also in those same settings. Now the reality is that's not going to happen for many situations because you have to work. People who are essential workers have to go out into the public. People travel. So what we have to keep reminding people is, is that in fact, just know that even being fully vaccinated and using my definition of three doses, you still may be at risk of having a breakthrough infection. In terms of testing, I wish I could say to you right now that the rapid tests are the answer, but we're waiting to get clarification on what we call these lateral flow tests because we're getting a number of reports of what appear to be false negative results in the early days of people's illness, meaning that they do show up positive on PCR testing, but not on lateral flow. I will try to give you more information on that next week. So, yes, use them. Yes, you know, at this point, consider them, particularly if you're ill. But at the same time, don't make that your absolute answer as to why you do what you do and don't do, because we do have concerns with their potential for false negative results. Another thing again is the issue of respiratory protection. I've spoken to this issue so many times. Good quality respiratory protection, use an N95 or a KN95. Make sure it's fitted as tight as it can be to your face. There are adequate supplies of these right now, and in fact, we do not have to worry about whether they will be available for health care workers. There are enough of these, so you can do a lot to protect yourself when you're in public settings to use a N95 respirator. I don't believe it'll happen in most cases in family settings, people just don't feel comfortable in houses with family and wearing their N95, so be it. But the bottom line is another element of protection. We will have more information soon on what the actual impact will be for Omicron in our communities, what happens to health care, what happens to everyday life as we know it? In fact, will it be over with in eight weeks? I think it surely could rise and fall that quickly. Doesn't mean it'll go away at the end of eight weeks, but this major thrust of cases we're seeing now may be well over. So I hope this gives you a sense that we still have a lot to learn about this variant. But everything we learn leaves me in a sense of awe of what it is doing, how it is doing it. And in addition to not only the physical damage, but the psychological damage coming after two years, coming at a time of the holiday season, coming when people are tired, believing that they have gone through the worst of it. And for some locations in this country, you can't imagine after having just been through a three to four month surge of Delta that now you have to deal with this. So we will keep you posted in the days ahead. And just know that we're all in this together.

**Chris Dall:** [00:31:32] So, Mike, we're recording this podcast at the same time that President Joe Biden is outlining his administration's strategy for dealing with the coming wave of infections in the U.S., but we do know the details of that plan. It includes distributing 500 million free at home tests to Americans, setting up new federal testing sites, expanding the booster shot campaign and sending teams of military doctors and nurses and other federal health care personnel to overwhelmed hospitals around the country. Your thoughts?

**Michael Osterholm:** [00:32:03] Well, Chris, we don't have the advantage of actually hearing the president address us, but we have seen a release prior to his announcement as to what will be contained in that announcement. So let me just respond to that. I think most people on this podcast know that I was a member of the Biden transition team for COVID from November of 2020 until January 2021. I spent my time in that transition team impressed with the fact that I believe this administration wanted to do whatever it could to bring COVID under control. Surely they've been throwing a lot of curveballs. These 210 mile curveballs I keep talking about have landed multiple times. So let me just from that perspective, share with you my initial response to what I'm seeing come forward as the new plan. First of all, it's divided in areas, increased support for hospitals, robust access to free testing and expanding capacity to get shots in arms. Let me put this all in the context of what we need right now is a plan to help us get through the next two to eight weeks a time period, and we're going to see this viral blizzard. Now we surely need long term plans beyond eight weeks, but this is the crisis. Right now is when we are going to be severely challenged in ways that I don't think we have been since the beginning of the pandemic. The president has announced several steps to ensure states and health care systems across the country have the personnel, beds and supplies that they need. First of all, they are deploying additional medical personnel. They've announced that there will be an additional 1,000 military troops to deploy to COVID burdened hospitals throughout the country. This will include military doctors, nurses and paramedics. They will also deploy federal medical personnel that are currently available to states immediately. At this time, there are over a hundred clinical personnel and paramedics deployed to six different states working on Delta. And then they're going to activate the FEMA response teams to help states and hospitals add capacity at a local and regional level. There also are going to provide ongoing financial support to states to help hospitals create and license more beds. And finally deploying hundreds of ambulances and emergency medical teams to transport patients to open beds. Now, I welcome any support we can get, but this really is going to have very limited impact in the next three to eight weeks. Why? Because a thousand troops, basically over a 50 state area in this country is a dilution factor second to none. Remember, I already pointed out that we have 22 million health care workers in this country. 9.8 million MDs, RNs, and other highly skilled technologists, as well as 5.3 million nurses aides, home health care aides, etc.. Well, in this situation, if you look at the troops, if you look at the federal personnel, if you look at FEMA teams, which often actually use local people who have signed up to be on these teams, who are right now currently being needed where they're at. The fact that FEMA is going to provide several hundred millions of dollars to expand hospital capacity is not going to happen in three to eight weeks and even deploying the ambulances and emergency medical teams are going to be a challenge because they too again are often needed in the location they come from. In terms of providing critical supplies, it's surely a positive thing that the U.S. government can take from the Strategic National Stockpile, things like N95 respirators and ventilators and make them readily available. Finally, they plan to provide robust access to free testing is it itself also a challenge. As was announced today, the administration is going to mail about 500 million free tests to Americans around the country. Well, there's 332 million Americans. That's a little over one and a half tests per person. That's not really going to make any material difference in terms of getting testing out. Again, what are we going to do in the next three to eight weeks? Surely they're going to make an effort to stand up more free testing, but this is not going to happen in this short period of time. It's just simply not. And so from that perspective, I think the most important thing is to engage local health care systems with state and local governments to say, OK, you've been handed this horrible mess. It's like the tornado came through your town. What are you going to do now? And things such as how will we get health care workers who have been infected back to work as quickly as possible? Can we cut short their quarantine times? I would much rather have a COVID infected health care worker with an N95 on who is not feeling terribly ill at my bedside. Then having no one at all for eight hours. We have to start understanding under these crisis care conditions, what kind of decisions are we going to make. That should be planned for now. That is not part of this. Finally, we all want people to get vaccinated. You know, anyone listening to this podcast you've heard me say time and time again how critical is to get vaccinated. But let's be real, folks. Let's be real. I've heard so many of my colleagues say, well, you know, things are a lot better now. We're not where we were at in 2020. We have vaccines. Well, how many times do we have to say a vaccine is just a vaccine until it turns into a vaccination? How can we in this country be in a situation right now where 70% of the people who have already gotten two doses of vaccine, they are vaccine willing. Yet they have not gotten that third dose, which is going to be critical in dealing with Omicron and as well as dealing with Delta. We won't in the next two weeks suddenly see a big increase in the number of immune people because they just got their vaccines. Remember, it takes at least 14 days before you have a notable increase in the protection you get from that third dose. And if you only have one dose, the data would support right now that you're probably going to have very limited protection against potentially even serious disease. So don't keep reporting out the data, well how many Americans have one dose? I want to know right now how many Americans are fully vaccinated and using the definition of the three dose approach. That's what we're going to need to know going into this surge and knowing full well that even those individuals may very well likely break with infection, but much, much less likely to have severe disease. So I'm frankly disappointed in this response, not because I don't want to give the administration credit for coming up with all these things, but they are not addressing at all the upfront and critical aspect of the next three to eight weeks. I feel like we're planning for some event two years from now, and I'm sitting here saying no the tornado is only about 20 minutes away. It's coming. What are you going to do? Don't tell me how you're going to plan to plant a new garden next summer. That's what I worry we're doing here right now, so I say to health care systems around this country, I say to state and local leaders, you're not going to have a lot of assistance dealing with those issues in the next two to eight weeks. And for that, I just wish you the very best.

**Chris Dall:** [00:40:03] Before we close on a lighter note, I just want to let our listeners know that we'll have a link on the episode description page this week to last year's special holiday episode, which, as you may remember, featured Dr. Osterholm reading Polar Express to his grandchildren. So if you'd like to go back and listen to that, we've made it easy for you to find. Mike, and as we close, I think this is an unnerving moment for a lot of our listeners, even if you've been fully vaccinated and have received your booster shot and may feel individually protected whether you have young children or older parents or loved ones with compromised immune systems. It feels like we're on the precipice of some challenging weeks here, and we know our audience turns to you for both clarity and comfort. So not to put too much pressure on you, but what are your closing thoughts for today?

**Michael Osterholm:** [00:40:56] Well, thank you, Chris. I have two items I'd like to cover here as we close, try to bring this podcast to a holiday conclusion. The first thing I wanted to share with the audience is an email that I received from a young lady from Virginia. It touched me immensely and as well all of our staff. And I want to share this because of the act of kindness, I think that is clearly demonstrated in this email and something that should remind all of us during this holiday season of what's really important in life. So I received a beautiful email from a young lady 13 years old from Virginia named Ada. And she shared with us some very wonderful things about her mother. And I'm not going to go into the details about that, other than to say she did let us know that she thought it would really make her mother's holiday season much brighter if we could just acknowledge her in this podcast and happy holidays, Merry Christmas, and just know you have a very, very special daughter, in Ada. And I hope you and your family have a wonderful holiday season. Next, I'd like to just close out here with the words that I shared with you a year ago, they seem more appropriate now than ever. I closed episode 37 on December 23rd of last year. "Now is the Time" with the story, a very personal story, a story about a moment in my life and what it meant. So let me retell that story, some of you know about this story, if you've read my book as I shared it in that book. I'm the oldest of six kids, I was born and raised in a small town in Iowa to a family with a father who was a photographer at the local newspaper and who is seriously troubled from a mental health standpoint and his alcoholism. He was a very violent man. I spent the better part of my childhood as the oldest of six kids trying to protect my siblings and my mom from him. In October of my senior year of high school, I came home from a football game that night. We had won. I got to play and did OK. And I found my mother lying on the kitchen floor bleeding. Bleeding profusely from a broken beer bottle, my father had taken to her. He had a terrible habit of when he got drunk. He would use his fists as a matter of communication. In fact, I used to always worry when I'd fall asleep at night because one of the things he would do when he was drunk is come up to my bedroom and I would wake up to the pounding of his fist on my head. I often hated the night. On this particular October, when I came home, this was it. We could do it no more. I literally took my father that night and physically threw him out of our house, and he knew he was never welcomed back. He left town within a day and her family never saw him again. From that October to that Christmas, it was tough, it was really tough. Financially, my father was largely the sole breadwinner, even though he drank away a lot of his weekly paycheck. My mother worked as a nursing assistant at a long term care facility in our small town, working the 11 to seven shift just to try to help make the budget meet. In fact, I remember so well, the two of my sibs who because of the size of their feet, didn't work out real well with the boots we had now had to go to school, not with snow boots on, but bread bags held up by rubber bands. Having to send my sibs to school with those bread sacks over their feet in the snow with such a painful and embarrassing acknowledgment of where we were. Frankly, we were just trying so hard to have enough food on the table. We hadn't even considered the possibility of a Christmas tree. A very tough time emotionally in ways that I can't even begin to explain. I know that some of you understand exactly what I'm talking about, you've been there, you felt that you know that pain. But as some of you also who read my book, know that I was very blessed to be adopted in a way by the wife of the owner of the newspaper or my father worked. Nana, her family name and who I dedicated my book to in 2017 was a renaissance person in every way. She was the one that got me into this business because it was her that provided me with the copies of the New Yorker magazine that I read so often as a junior high student. Reading the Annals of Medicine articles by Bertrand Roget, who was writing the most amazing medical detective stories you could imagine. After reading those stories, I knew I wanted to be a medical detective. Three days before Christmas, a letter arrived, I knew who it had come from because I could tell by the typewriter it was from Nana. Although she did not sign her name. All it said was Merry Christmas and that special typewriter type in an envelope that had $50 in it. Probably the most important $50 I will ever know in my lifetime. My two sibs got boots that day. We bought the last Christmas tree at the local grocery store. It was pretty scraggly, but it was the most beautiful Christmas tree I ever owned. And we each got a very cheap, but absolutely incredible, meaningful present for each other. And Christmas took on a complete turn, all with that one letter. But I was still very troubled by what we were experiencing. I was still pained by all that was happening. I was angry at my father for what he had done to us and how he had done it. And then on Christmas Eve, another letter came. This one from Nana too, but she signed this one. It was to me. The many, many letters she used to send me talking about the future and how this Christmas would not have to be like this again. And now I want to share with you what Nana shared with me. She sent me a poem from a book that was yet unpublished by McKinley Kantor. He was the poet laureate of Iowa, and Nana has struck up a relationship with them as they exchanged repeated letters. He actually shared with her a part of a book that was forthcoming called "I Love You, Irene." It was kind of an autobiographical yet novel written about his relationship with his wife, Irene, and he talked about an experience that they had had, which was tough. In this book, he wrote the following, and Nana shared it with me. Today, I want to share this with you in the spirit of understanding where we're at and where we're going. Mckinley Kantor. "My child, you will see many strange things. You will watch holly berries wither and freeze well, the nettles are pressed tenderly. The good deer will starve in icy thickets when the rat grows portly amid his corn. You will see the inspire creator neglected and his smug imitators extolled. Heroes ignored and a presumptuous coward defeated richly, the shyster shall dwell long in luxury. The diligent and dependable will fall early and on the dole a kindly nation may shiver in the terror of the iron harshness adopted by its neighbors. Bright universe eclipsed black tarn jilted by a prominent sun. You see your future soul. And yet in the season, the candles will be lighted again. The cone smelled pungent. Men may sing with the throats of angels amid the St. Louis frost. There is time now for consideration of the noblest fairy tale of all, if one, be willing to believe God rest ye Mary in the midnight clear," Mckinley Kantor. Now, it's time for all of us who've had such a horrible, painful year. Now it's our time, it's our time to believe it's our time for the consideration of a wonderful part of life. So I know this has been a challenging holiday season, it's been a challenging year, it's been a challenging almost two years. But I leave you with this podcast today. We're here, we're together. We're a family. We're here. What a gift. I thank you for that. I thank you on behalf of all the people at CIDRAP that make this podcast possible. I thank all those who have been such kind friends, I thank all of those who have shared so kindly with us here at CIDRAP. So thank you. And remember again, please a lot of numbers today, a lot of concepts. But in each instance, these are people, these are grandpa and grandmas, moms and dads, brothers and sisters, sons and daughters, some who will not be with us for Christmas this year because of COVID. Now is our time to look at each other, hold each other and say thank you. So with this, be kind, be good. We'll be back next week reminding ourselves of that important lesson as well as giving you the next update. So thank you. Happy holidays! And be safe.

**Chris Dall:** [00:50:52] Thanks for listening to this week's episode of the Osterholm update. If you're enjoying the podcast, please subscribe, rate, and review, and be sure to keep up with the latest COVID-19 news by visiting our website CIDRAP.umn.edu. 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, Angela Ulrich, Meredith Arpey, and Sydney Redepenning.