# Episode 86: The Omicron Crisis

**Chris Dall:** [00:00:06] 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. Over the past month, Dr Osterholm has been talking about how the omicron variant will fuel a viral blizzard, the likes of which we've never seen before in modern times. And while we knew the blizzard was on its way and that no part of the United States is going to be spared, it's really been over the past week or so that the country has started to feel the brunt of it. And boy, are we feeling it. Nationwide, the seven day average of new daily infections is now more than three times the peak of last winter, and though Omicron is believed to cause less severe illness, hospitalizations are at an all time high as well, with many hospital systems across the country starting to crack. Meanwhile, we're also seeing the impact of omicron infections everywhere we look, from schools to public transportation systems, mail delivery and businesses. This week on the podcast, we're going to discuss the impact that Omicron is having here in the United States and elsewhere, and how much worse things might get before they get better. We'll also talk about how the omicron variant is affecting kids, answer COVID queries on testing, and discuss what the national strategy for our new normal of life with COVID should be. But before we get started, as always, we'll begin with Dr. Osterholm's opening comments and dedication.

**Michael Osterholm:** [00:01:55] Thanks, Chris, and welcome to all of you back to the podcast for another update on what is obviously an incredibly challenging and rapidly changing situation. It goes without saying that we all are experiencing this sense of great confusion, whiplash, in some cases, just what is happening. So to me, I have to say that as much as we'll talk about what's unfolding today, I actually take some comfort in the fact that over the past five to six weeks, this virus has actually played out exactly as I anticipated it might this viral blizzard that I talked about where we would see an impact on society far beyond that of just being ill or not ill, hospitalized or not hospitalized, but also the idea that we very well may see light at the end of the tunnel very quickly. We are all right now, have lots of questions about testing, isolation, quarantine, schools, work is Omicron really that bad, in fact, would it be better off just to let it run rampant and get through it. What does it mean in terms of coming to an endemic part of the pandemic? I hear that term often. Well, let me just summarize very quickly that for the next three to four weeks, we can't take our eye off of what is actually happening to us now. This is far more than just people getting sick, being hospitalized and even dying. This is having an impact on our society that is actually much more akin to what was anticipated if we'd had a massive influenza pandemic. We will get through this. We will. And just to give you some sense of what I mean by getting through it, I can't help it, but I go back to my very favorite issue of sunlight. Here today on January 13th here in Minneapolis-St. Paul, the sunrise at 7:48, sunset is at 4:55. We have nine hours and six minutes and 49 seconds of sunlight. Now compare that just to last week at this time. On the 6th of January, sunrise was at 7:50, sunset was at 4:41 for eight hours and 56 minutes and 13 seconds of sunlight. We've gained almost ten minutes of sunlight in the past week, and I just want to remind people that on December 21st, not that long ago, the winter solstice, we had eight hours and 46 minutes of sunlight. We've gained 20 minutes since then, and each week we will gain more and more proportionally to what we gain the week before. So that's the good news. So hold on, stay tuned. And hopefully we can provide some information this week that will help you deal with that confusion, that whiplash, that challenge that we have right now with what's going on with Omicron. As many of you have come to expect, this is the time that I also dedicate the podcast each week to some very special group or individual out there. This week I'm going to hold on that I'm going to wait till the end. It's a treat, I promise you that you will want to hear. So just stay tuned, you'll get that dedication. And with that, dedication will come something very special. So again, thank you for being with us today. We realize you have many other options to get information on the COVID pandemic, and we appreciate you returning. If you're new for the first time, welcome and just know we'll do our very, very best here to try to provide you with information that can be helpful in navigating this next week.

**Chris Dall:** [00:05:15] Mike, looking at the global situation, it's clear at this point that no country is going to be able to avoid Omicron. The WHO's European director said earlier this week that half the continent could get infected in the next six to eight weeks, and that is just one region of the world. But what did the experiences of the countries that are well into their Omicron waves or even past their peaks tell us about how things are going to play out elsewhere?

**Michael Osterholm:** [00:05:40] Well, Chris, your lead into the question was spot on. Just remember there is a blizzard going on, a viral blizzard. No single country will avoid Omicron. None. And when you get down the list of countries that have documented the variant, you'll see that the distinct and dramatic spike in cases repeatedly shows up over and over again. In fact, I've yet to see a country that hasn't experienced a surge in cases after Omicron becomes dominant, even in China. Now, if you think back to when Delta first emerged and started spreading to different countries, we also saw that usual pattern of rising activity when it became dominant. However, in certain locations that detected Delta and watched it take over as the dominant variant. There wasn't always that corresponding uptick in activity, at least not right away. Remember, here in the United States this past summer, we saw Delta become dominant across several regions of the country at around the same time. But for whatever reason, most of the initial delta activity happened in the south. Of course, this set the stage for those rolling geographic surges I've talked about time and time again, and we eventually saw it take off in other regions. However, it seemed to sit dormant for a while before doing so, almost like we saw in Western and Eastern Europe just before Omicron showed up. Yes, these patterns surely give us reason for humility. We don't understand how and why the virus does what it does. In some instances, delta activity didn't seem to take off much at all when it became dominant. Just look at Brazil. After hitting record high case totals in late June, they started to see a decline. A month later, things are still improving there, but delta cases were being picked up with increasing frequency and the variant was spreading. Of course, many thought it was only a matter of time before Brazil would see another surge. Well, we waited and we waited and eventually saw Delta become the dominant variant there. But it didn't seem to lead to any surge. In fact, similar situations played out in a number of other Latin American countries. So it's been this sort of inconsistent relationship between variants and surges, much like we saw with B.1.1.7 or the Alpha variant that has really characterized over the past year, what this pandemic is doing, and it's been one of the bigger lessons in humility this virus has taught me, and it's done it over and over again. Well, with Omicron, I can tell you that humility and caution hasn't gone away. It is here. The last thing I'd do is underestimate this virus, and I still have a lot of questions about how Omicron will fully play out in places all throughout the United States, which I will get to in a bit. But as of right now, it seems like Omicron doesn't have much of a dormant period at all and anywhere. So I think we'll continue to see lots of countries with simultaneous and overlapping Omicron surges throughout the coming weeks. Like, WHO's European director Dr. Hans Kluge, who's comment you mentioned in your question Chris, said during Tuesday's news conference, for the countries not yet hit with the omicron surge, there is a closing window to act now and plan for contingencies. So what does this Omicron blizzard look like? Well, I'm not sure there's a one size fits all description, but the past two months has offered some examples of what countries with earlier starts to their omicron waves have experienced up to this point, and some familiar patterns are appearing. For example, you can see the dramatic rise in cases that accompanies this variant virtually everywhere. There's been a lot of talk about exponential growth since the pandemic began, and Omicron really showcases that. Remember, in South Africa, which was the first example with this variant, cases went from 300 a day in mid-November to more than 11,000 a day by early December, just two weeks later. Two weeks after that, in mid-December, they hit 23,000 cases a day, marking a new all time high for the country. Again, that same rapid uptick has played out in dozens of countries where it's become dominant, often leading to record high case levels. And it's holding true in every region of the world. So it's no surprise that we've seen global cases hit new highs, with nearly 15 and a half million cases reported last week alone. Just three weeks ago, the cases reported were under 5.7 million. And we know that there is a major underreporting of cases internationally. At the same time, these dramatic surges in Omicron cases appear to be relatively short lived. In other words, the variant seems to burn through the population fairly quickly, often causing cases to rise for around four to five weeks before hitting a peak or brief plateau and eventually falling. If you look at South Africa's surge, it was basically four weeks of explosive growth before a sharp peak was reached and cases fell. Recent numbers out of the UK suggest they've also hit a peak in cases and hospital admissions around four to five weeks after Omicron took off. Denmark seems to be another example, with hospital admissions there starting to decline in a similar time frame. Now I recognize that this isn't an exact estimate, and we're still waiting to see how this plays out elsewhere. But the sheer transmissibility of Omicron leads me to believe that these quick hitting surges will be the norm. In fact, this is what I imagined would happen when I talked about a viral blizzard in the podcast five weeks ago. Finally, the data I'm continuing to see from places hit by Omicron surges have supported the notion that the rates of severe disease appear to be lower than the rates we've seen with previous variants like Delta. Again, don't misinterpret this as me saying, it's somehow benign. It is not. It's still causing a significant amount of severe disease, which is challenging hospitals, in some cases leading to an increased number of deaths. And its transmissibility makes it a huge concern since it could offset or drown out this reduction in severity. However, the countries that have experienced Omicron surges haven't seen the same relationship between cases, hospitalizations and deaths that accompanied previous waves. For example, if you look at the number of weekly new hospital admissions with covid in South Africa, this latest wave peaked at just over 9,400 new admissions the week of December 18th. In comparison, peak admissions during their delta wave surpassed 14,700 the week of July and even approached 17,000 during their last surge in January. So as you can see, even from South Africa, the surges were real. They were much shorter and compressed in time. But in some instances comparable to or even slightly less than that we'd seen with Delta. As I mentioned last week, it's clear that vaccines continue to play a major role in reducing the risk of severe disease and death with Omicron. So although we're still seeing cases of the variant grow in countries that have largely successful vaccination programs, we're also seeing fewer instances of severe outcomes. If you look at the U.K., where 71% of the residents are fully vaccinated and 53% of the entire population has received an additional dose, on top of that, daily cases from Omicron tripled their previous record high. As a result, hospitalizations and deaths have also risen. However, hospitalizations are at half the levels they were during the country's alpha surge last January, and according to an article published in the Financial Times this past Tuesday, have started to decline. In addition, even with the rise in hospitalizations, the number of patients on ventilators has remained remarkably steady throughout this surge. On Tuesday, the total stood at 820, a number that's five times lower than the peak reached last January, when it was over 4,000. Finally, the U.K. is reporting a growing number of deaths, but those are also more than five times lower than the January peak. I could go through other examples like Denmark, Ireland, the Netherlands, Portugal, etc. In each of these countries, cases are higher than ever before, and although we're seeing an uptick in hospitalizations and deaths, they're remaining well below levels reached during the previous waves. Now, however, that being said, I don't think we've reached a point where we can just assume the same situation will play out no matter the country. As I've mentioned before, there are so many things that distinguish countries, whether you're talking about differences in population demographics, the frequency of co-morbidities, the type of health care systems, vaccination rates, type of vaccines used, when were the vaccines administered, etcetera, etc, etc.. As of right now, we can really only go off those countries that are basically a month or more into the surge. But at the end of the day, I have little doubt we'll get answers to these questions as soon as Omicron drives transmission up virtually everywhere. That in of itself will bring about many challenges on a societal level. What is the plan if 25 or even 40% of our workforce is either infected or exposed and now in quarantine? I think every country facing a surge with this variant needs to consider that very real possibility. And for those countries that also happen to have large pockets of their population with no protection, things could get far more challenging over the days ahead. So we'll see what happens, which leads me to my last point. I think the next few weeks could provide some major clues as to what China's future with this virus might look like. As I mentioned on last week's episode, they've been sticking with their zero COVID approach. And at that time had locked down two cities that were experiencing outbreaks. Well, this past Saturday, Chinese officials official report of the country's first locally transmitted cases of Omicron, which were first identified in yet another city. Then on Monday, more cases of omicron were reported in a different city. Again, all of this has prompted mass testing, travel restrictions, lockdowns, etc.. And while this approach has worked for Chinese officials in the past, I think that they're facing the biggest challenge they've had to date with this virus, which could have major implications for so many parts of the world.

**Chris Dall:** [00:15:56] Here in the U.S., as I mentioned in the introduction, we're well into the omicron blizzard and we've known for a while the case numbers were going to be high and that hospitalizations should be the real focus. But if you look at some of the states that are really getting hit hard by Omicron, and this gets to some of the differences between countries that you just mentioned, we're not seeing the same level of decoupling of cases and hospitalizations that other countries have seen. So, Mike, is it simply because we don't have enough people who are fully vaccinated or boosted? Is it Omicron on top of Delta or is something else going on?

**Michael Osterholm:** [00:16:32] Well, Chris, as you do so well, you surely come up with excellent questions. There are a number of things that could be contributing to what you just described in your question. I'll do my best to cover all of these. But let me start out by saying that this is what I meant when I mentioned earlier that there is no one size fits all description or cookie cutter model of Omicron surges or of COVID surges in general, allowing us to know exactly what will happen in each country. Based on what we've seen play out elsewhere, it's been no surprise to see Omicron trigger a rapid record breaking surge in cases in the U.S.. As of Tuesday, average daily cases surpassed 761,000 in the United States. Again, I recognize that this number is a major underreporting of cases. We have incomplete reporting from testing. We know many individuals have tested using over the counter rapid antigen test to find themselves positive. Those cases likely will never be reported. We know that there has been a major slowdown in the number of people receiving PCR testing and return of results just because the system has been clogged with so many ill individuals who are either the people taking the swabs or those processing the swabs in the laboratory. And we know that we have local and state health departments that have been overwhelmed with the number of case reports coming in such that they are behind by many, many thousands of cases to be reported. So please, as I've said before, you can look at these numbers but know that there will always be only a small part of what's actually occurring in our communities. At this time, if you look at some of our initial Omicron hotspots like New York City, we're seeing early signs of plateauing activity after that four to five week span of increases, much as we saw in Africa and Europe. However, as you mentioned your question, Chris, we've also been seeing places in the U.S., including New York, where hospitalizations and deaths have appeared to follow case rises more closely than they have in other countries like Denmark and the U.K.. In fact, on Tuesday, COVID hospitalizations in the U.S. approached 146,000, marking an all time new high. And with 24,000 patients currently admitted to the ICU, we're inching closer to the peak of our delta wave just over 26,000 patients in ICU and our record high peak last January, nearly 29,000. So why is that? Well, first of all, if you're concerned that for whatever reason, the vaccines we have in this country don't work as well as they do in other parts of the world, I can assure you that that's not the case. In fact, if you look at the latest data from New York state, which runs through December 27th, unvaccinated individuals were seven times more likely to test positive and twelve and a half times more likely to be admitted to the hospital with COVID than fully vaccinated individuals. In addition, data from a study released on Tuesday looking at cases in Southern California also provided evidence that vaccinated individuals were much less likely to present to an outpatient setting and subsequently test positive for COVID compared to unvaccinated individuals. This study, which was done by a group at Kaiser Permanente Southern California Health Care System, really provides us with very important and new data. The study was conducted from November 30th, 2021 to January 2022. Their analysis included 52,297 cases likely to be Omicron, and 16,982 cases likely to be caused by Delta. What they found was that Omicron cases were 50% less likely to be hospitalized on admission from the E.R. or outpatient than were for Delta, 75% less likely to be admitted to an ICU for Omicron versus Delta, and 70% reduction in the hospital days once admitted. So although we know that Omicron is causing more breakthrough infections, the risk of becoming infected and particularly for becoming severely ill and dying remains higher for unvaccinated individuals. At the same time, it's increasingly clear that a third dose of vaccine can really help further solidify that protection against hospitalization, especially in 65 plus year olds. Last Friday, a study out of the U.K. found that a third dose was 94% effective in preventing hospitalization among adults age 65 and older during the initial two to nine weeks after it was received. 10 or more weeks out from the third dose, effectiveness against hospitalization declined a bit, but was still at 89%. Well, the U.K. has administered a third dose to more than 90% of their population, 50 years of age and older, who are eligible to receive it. In the U.S., we have had just over 50% of eligible 50 plus year olds receive their third dose. The U.K. 90%, we at 50%. So there's a clear gap there. Then when you look at 65 plus year olds who are eligible, we're 61% in this country. Even in the country's nursing homes, just 62% of the fully vaccinated residents have received an additional dose. So the challenge of getting third doses to Americans, even older Americans, has been very challenging. On top of that, we have just over 85 million or about one in four Americans who are still unvaccinated and nearly six million citizens, 65 years of age and older who have yet to receive their second dose. A couple of months ago, I made the point that Delta would eventually take advantage of these gaps in protection, reminding everyone that there was no running out the game clock on this virus. With Omicron, we've seen that pace really pick up and even more now than ever. I am convinced this virus will find you if you are not protected. So I think the stagnation in the U.S. vaccine program, a large chunk of which seems to be due to the apparent lack of interest from the public, hasn't helped us escape a number of those bad outcomes that we could have avoided with more protection at the population level. And when you couple that vulnerability with other risk factors like age and various underlying health conditions, we are bound to see more of these same things happen, which isn't a good omen. When hospitalizations are already at an all time high and an average of more than 1,700 Americans are dying from COVID each day. That being said, I do think it's worth acknowledging the role that Delta is also had in our current situation. I know I've talked about it many times in this podcast, but the impact that's shifting baselines can have is very real. So having Omicron take off when many parts of the country were already neck deep in delta activity hasn't helped. Remember, prior to the first delta wave this summer, hospitalizations had dropped below 17,000 a day. Two months later with Delta, they peaked out at more than 105,000. Again, today we're at 146,000 and rising. That gives you some sense of scale and measure. When Omicron took off, hospitalizations were already heading up from the second delta wave. Instead of 17,000 like we saw this past summer before the Delta wave hit, we were closer to 60,000 hospitalizations. As a result, many of our country's health care systems haven't had any time to even think about recovering from Delta before Omicron took off. So with almost 1,200 of the country's 5,000 hospitals, close to one in four, reporting critical staffing shortages and multiple states and health care systems implementing crisis standards of care, I wouldn't be surprised if some of these outcomes are due to the overwhelmed health care workers being stretched far too thin to provide the same quality of care and the ripple effects of this reality reach far beyond COVID. I fear this will be the U.S. experience. We'll have more to say about this issue later in the podcast. But let me just summarize it. Over the next three to four weeks, cases will increase and then, I believe, start to drop precipitously. But in the meantime, we need to get through this. Today, the CDC estimated that there could be as many as 62,000 deaths in the next four weeks in this country. That is a incredible number. When we talk about Omicron being milder, it's hard to associate that with a number as large as 62,000 deaths. So don't be confused when most people who are infected who are vaccinated have a cold like illness that that means that it's a mild illness for everyone. It is not. We will see a challenge over these weeks ahead. But I also see light at the end of the tunnel with regard to Omicron. And that's what we've got to try to get to.

**Chris Dall:** [00:25:17] So, Mike, one issue that's been raised is that there are many people who are already in the hospital for something else and then test positive for COVID-19. The suggestion is that this is inflating the COVID hospitalization numbers. But as Craig Spencer, an emergency room doctor in New York, wrote this week in the New York Times, entering the hospital with the virus versus for the virus isn't a relevant distinction if the hospital doesn't have the beds or providers needed to care for its patients. So how do you view this with versus for distinction that some are making?

**Michael Osterholm:** [00:25:50] Well, seeing as you've just heard me describe what's been happening in many of the country's hospitals, it obviously shouldn't surprise you to hear me say that I fully agree with Dr. Spencer. And if you haven't read the story from Monday's New York Times, I urge you to do so. You've heard me say it time and time again. But as an epidemiologist, I recognize the importance of data and numbers. Is there a value in knowing whether a patient who's been admitted to the hospital is there for complications from COVID or showed up for an unrelated reason and happened to test positive upon admission? Of course there is. But I get the sense that far too many people are interpreting this distinction as some black and white issue where we can simply look past these so-called incidental admissions. I disagree. So let me do my best to add some context to this discussion. To begin, let me just share with you numbers from a recent New York Times article that, in a sense for many gave them their context. The New York Times reports that anywhere from 50 to 60% of the cases that were admitted to hospitals that ultimately ended up having a positive COVID test were, in fact, those with COVID not hospitalized for COVID. What does that mean? Yes, people who are admitted to the hospital in this country are tested for COVID regardless to whether or not they're experiencing the symptoms. And there's a reason for this. If you're having a procedure done, you've been admitted because of an automobile accident, you've just had a heart attack or a stroke. It's important for hospitals and their staff to know if you're infected with the virus. If you are positive, appropriate steps and precautions have to be taken to protect hospital staff and other patients. This isn't a new concept or policy. It's been a norm for quite some while. We all can understand that when you have widespread virus transmission in the community, the chance of just having been infected and being admitted for another reason is very real. And as I just noted, from an infection control perspective, it is important to know who is infected. We're already hearing about multiple outbreaks in hospitals of COVID related to someone who is unknown to the hospital infected with the COVID virus, who then transmitted to other patients and health care workers. Of course, this being the case, there are instances where COVID infections are detected among patients who don't have typical symptoms from the virus. But as Craig Spencer mentioned in his commentary, regardless of why an individual's hospitalized, the number of patients with COVID can quickly take a large toll on our health care system. First, patients with COVID need to be isolated, which requires having a designated space that's separated from patients who aren't infected. In addition, health care workers need proper personal protective equipment to treat these patients, and taking care of isolated patients can even take more time and are more difficult. Even if they weren't incidental admission and their primary issue has been resolved, they may not be able to discharge back to certain settings like long term care facilities or nursing homes if they're not equipped to accommodate what is now a positive resident. In turn, the hospital and staff must do so, which contributes to the lack of space and the challenge of providing adequate health care. Then there are examples of other situations where it's borderline impossible to determine if a patient is admitted with or for COVID. We know that COVID infections can exacerbate certain underlying conditions, but how can we know whether or not that's the case? There's no easy way to distinguish these situations. Unfortunately, there are no nationally accepted methods or approaches for trying to understand the difference between patients with and for in terms of their COVID infections. Some examples of this were provided in recent articles in both The Washington Post and The Atlantic. There are COVID symptoms that are also symptoms for other conditions, which may cause an individual to be hospitalized. For example, body aches, potentially severe body aches are a symptom of both sickle cell disease and COVID. Say an individual who has sickle cell disease and is hospitalized because of severe body aches, then tests positive for COVID. Were their body aches because of their sickle cell or because of COVID? Covid may increase the risk of certain conditions that would lead to hospitalization, such as a blood clot. So if someone is hospitalized for their blood clot and then test positive for COVID, do we consider them as someone who is hospitalized for a blood clot and therefore with COVID? Or do we assume that their COVID caused the clot? Some patients also, while not hospitalized for COVID symptoms, are being hospitalized for chronic conditions that have been worsened by COVID. If not for having been infected with COVID, these patients would not have been hospitalized for their chronic condition. While they may seem to fit the definition for someone hospitalized with COVID and not for COVID, there is no question that this virus played a role in their hospitalization. Lastly, some incident cases may occur during an individual's hospital stay, and while they may not have been admitted for an unrelated condition to begin with, they remain in the hospital because of the COVID that they were infected with during their stay. This is part of the ever increasing picture of outbreaks that I just mentioned. However, as messy as all this can be, we're seeing various places start collecting and reporting on these numbers. In the latest data from January 4th, the UK reported at about 63% of patients hospitalized with COVID were there for complications from their infection. In Ontario, Canada, patients hospitalized for COVID was around 54%. In New York state, 57% of the patients were admitted for COVID. These numbers are helpful, but the complicated nature of differentiating between hospitalized with and hospitalized for COVID is not straightforward and may take a while to figure out. A recent Washington Post article summarized the numbers by asking how many of the hospitalized patients were given remdesivir. This was a study done by Sara Murray and colleagues at University of California at San Francisco. Well done. They found in a San Francisco hospital a third of the COVID patients were completely incidental. Using the same method to analyze the 2020 wave, about 10 to 15% of hospitalized were incidental. So in a sense, this almost doubled the number of individuals who are likely hospitalized with incidental COVID, not because of COVID. Ultimately, if we can have hospitals and states provide these numbers separately, we will have more clear and valuable insight about what is happening in our hospitals. But what we do know is that regardless of those numbers, these patients are taking an incredible toll on our health care system, and that crisis does not change regardless of why a patient was admitted. In summary, if we look at the studies that have been done looking at Covid with and for hospitalization, I think that the work from the San Francisco group really tells a story as well as any. There, two thirds of those infections that were detected in hospitalized patients were because they were there for their COVID infection. And that's an important point. And let me just say regardless why you're hospitalized with or for COVID, it doesn't mean these patients don't have a COVID related issue. They do.

**Chris Dall:** [00:33:11] Last week, in a press briefing, CDC Director Rochelle Walensky noted that kids in the U.S. are being hospitalized at the highest rate seen in the pandemic so far, but that they haven't yet seen a signal of increased severity in children. Mike, what do you make of the child hospitalization numbers right now?

**Michael Osterholm:** [00:33:28] Well, Chris, as we have seen infections and hospitalizations rising in the general population in the past few weeks, we have seen similar trends in the pediatric population. On January 9th, 1.2 new COVID-19 hospital admissions were reported in children ages zero to 17 per 100,000 population. That is over two and a half times more daily admissions in this age group than during the peak of the Delta surge and over four times higher than what we saw in last year's winter surge for this group. The most recent data from COVID-NET, a surveillance system that collects data on COVID-19 associated hospitalizations, suggests that the zero to four age group is being hit particularly hard compared to older children and adolescents. In the week ending on January 1st, the most recent data available, among zero to four year olds, 5.3 children per 100,000 population were hospitalized from COVID-19. This is 1.8 times higher than what we saw in this group during the delta peak and 2.7 times higher than what we saw in this age group during last winter's peak. The data also show that of all the hospitalizations among children under 18 years of age, the majority, nearly 60% were among children less than five. In contrast, the rate of hospitalization among five to 11 year olds has been relatively consistent over time and has not increased in recent weeks. For the first time in the pandemic, we are actually seeing that children zero to four are currently being hospitalized for COVID-19 at a higher rate than 18 to 49 year olds. So what does this mean? Does this mean that Omicron itself is causing more severe disease in children, particularly young children? Not necessarily. There are a few different things that could be contributing to this increase in hospitalizations relative to other age groups, including older children and other surges in the pandemic. If we look at deaths, the rates in kids are still very low, which is very important news. But with increasing cases and hospitalizations, we don't know what that means. Right now, the zero to four year olds have about 0.03 deaths per 100,000 children. This is similar to what we're seeing across all kids right up through the ages of 17. And it compares to deaths in those 65 to 74 years of age of 0.65 and those 75 years of age and older of 1.89. So again, we're seeing about 0.03 deaths per 100,000 population. So good news. The number of deaths has not yet increased. So let's look at trying to understand what is happening in these kids. The first issue is really vaccination or really a lack of vaccinations in children. About 74% of the overall population in the U.S. and 80% of those five years of age and older have received at least one dose of COVID vaccine. In children ages 12 to 17, only 60% have received one dose. For children ages five to 11, less than 25% have received a dose. And of course, with vaccines not available for the zero to four age group, no children in that group have received a dose of vaccine. We know that these vaccines are effective tools in preventing hospitalizations, so it's not surprising to see higher rates of hospitalization in unvaccinated and under vaccinated age groups. A second possible explanation, proportional increases in hospitalization with increasing number of cases. Pediatric cases themselves are 2.3 to 2.7 times higher than we saw in the Delta surge and last winter's peak. So it's not surprising that hospitalizations have increased as well. The rate of hospitalizations, however, for the zero to four year old age group, while concerningly high, is proportional to the increase in cases, meaning that the increase in hospitalizations is very likely explained in part, if not most by the increase in cases, not an increase in disease severity due to the omicron variant. And there is a third factor that maybe Omicron does contribute to increased severity in children. If one looks at Omicron infections there, they appear to be more concentrated in the upper airway than in other variants. Since very young children have smaller upper airways, it is a possibility that Omicron could cause more prolonged or severe disease in this group. For the same reasons, this age group struggles more with other viruses like RSV and parainfluenza. The current data do not necessarily reflect this, but since we know that hospitalizations tend to lag behind surges in cases and the most recent hospitalization data for that group is from the week of December 26th to January 1st. We shouldn't rule it out yet. So far, there does not appear to be an increase in multisystem inflammatory syndrome in children. As you know, this is MIS-C. This is a severe complication of COVID-19. During other surgeries, there has been an uptick in MIS-C cases, but this has not been observed yet with the Omicron surge. In fact, for the first time since April 2020, the CDC has reported a seven day moving average of zero MIS-C cases since December 19th. Though this data is also lagging, with the most recent numbers reported on January 3rd. In the coming weeks, as more age specific hospitalization data becomes available, we hope we will get a better sense of if these pediatric hospitalization rates continue to rise at the same pace as case rates. This will be the best indicator we have of if Omicron is really causing more severe illness in these children, particularly in those age groups zero to four, or if this surge were seeing is simply a reflection of a surge in cases. As a grandfather of a beautiful four year old granddaughter who has not yet been able to get vaccinated, I want to know the answer.

**Chris Dall:** [00:39:13] So now to our COVID query, as you might expect, we have really been inundated lately with questions about testing. So this week we're going to take two questions and the first is from Katie, who asks "for someone wishing to quarantine until they are no longer contagious, is a rapid antigen test a useful indicator specifically if someone is still testing positive via rapid antigen test at day 10, is it a science based, cautious approach to determine that they are still contagious? Then we have this question from Melissa, who writes, "I get tested once a month using the wonderful testing sites at Arizona State University. Some friends tell me that I should not be testing if I'm asymptomatic. I disagree because I have two children in school, and masking in Arizona is lax. Do you recommend people without symptoms get tested even if they aren't considered a close contact, but feel they have likely been exposed?"

**Michael Osterholm:** [00:40:03] Well, thank you to both Katie and Melissa for these very thoughtful questions. The first one is an ongoing challenge question, as any regular listener to the podcast knows, I covered the issue of lateral flow test or the rapid antigen test obtained over the counter last week. And I must say that since that time, additional information only in my mind makes it more confusing, not less. We still have challenges understanding what the relationship is between these antigen tests and the status of being infected and infectious. Big difference. We don't yet understand the infectious part and even with the infected part, there's a question as to how well does it pick up that infected part? There have been several studies that have recently come out smaller, limited studies that have conflicting information. A recent one that came from California this week suggests that when you have very high levels of virus, the rapid antigen test is very good at picking up the positive. But remember, as I talked about before with PCR testing, that too can pick up a very small amount of virus activity, but that over time it picks up basically viral debris. It doesn't pick up the infectious virus. So once somebody has progressed through their infection status, they may test positive for some time to come. We don't have information about that with regard to the lateral flow tests. And so at this point, I would just say I would believe that day 10, particularly if you are not symptomatic, there's no reason to believe that you are also infected and infectious. So for you, Katie, I would say, you know, I don't think that you are contagious based on what these data may tell us. What it really calls out, though, is the fact that we need much more clarification on what do lateral flow tests mean? How do they relate to infection and to infectiousness, as well as how do they correlate with PCR testing? And what does that mean? And I will continue on this bandwagon, you know, saying that the FDA has really let us down here. They have let us down. We could have been collecting these data for months and we haven't been. We could have been analyzing this for months. And today, as I record this podcast, if you go to the FDA website, it just still says that the current lateral flow tests are less sensitive in detecting Omicron. What does that mean? So to me, I feel like I could do a lot better job answering this question if we had better science based data. So in the meantime, I would say go for it. And I also today want to just again voice my support for the CDC and what they were attempting to do with changing the time period for isolation and quarantine down to five days with someone using a respiratory protective device and trying to prioritize them to working in areas where in fact they are critically needed. This, I think, has been missed by many that this is not a great recommendation. It is an imperfect response to a very, very imperfect problem. But right now, we have hospitals in this country that I said really are hanging on by the skin of their teeth. And if they can't get workers who agree to come in, who are working, who may have minor symptoms or no symptoms, who are willing to, you know, use an N95 respirator and be cohorted with virus infected patients, you know, why would you keep them out? And if you are going to put a test requirement in place at five days, can you guarantee they'll get a test and they'll get it quickly? They can't. So why would you make a recommendation that for many areas of the country right now is almost impossible to comply with? So I think this whole area in lateral flow testing what it means, how is being used, the political sense that it's engendered. We just need better science to understand that. And I hope that happens. As far as your question, Melissa, this is one that I must say is kind of nails on a chalkboard for me. I do not understand why anyone would be offering testing to someone who is otherwise well and with no known exposures. I know that people feel confident. It's like getting a checkup, getting your oil changed where basically, if I can get tested once a week or once a month, I'm negative. That tells you nothing, really, other than the fact that at that moment you weren't positive. The equivalency of that would be if I had a smoke alarm in my house, but it only worked on the 15th of each month, that was. It didn't work one through 14, it didn't work on 16 through 31. What good would that smoke alarm be? Well, that's the same problem you have here. So to me, it's a waste of testing. If you have exposures or are symptomatic, those are very different issues. But so I don't think that you are helping protect yourself or your kids. It's what else you do in your life. It's how are you exposed to others? Is what kind of respiratory protection do you use? It's are you vaccinated and fully vaccinated? Those are the things that really make a difference. So as you've heard me say in recent podcasts, last week I talked about schools. This kind of just testing to be tested is a waste of resources. We should be focusing these tests on people, for example, who are symptomatic, who need to be tested quickly, people for which we are concerned that they may transmit the virus to others if in fact they're infected in a close setting like a hospital. So I'm sorry, I couldn't be more supportive, Melissa. I hope actually you don't get tested. You feel good about it. Use the time to do something kind instead of going and getting tested. And that, I think, would be a great response.

**Chris Dall:** [00:45:53] Mike, last week you published an article in JAMA, along with doctors Ezekiel Emanuel and Celine Gounder on what the national strategy for the new normal of life with COVID-19 should look like. Can you talk about what prompted that article, why we need a new strategy going forward, and what that strategy would look like?

**Michael Osterholm:** [00:46:13] Well, hopefully it's no surprise to everyone that I actually do believe we will move through this pandemic one day it'll be behind us, but this virus is not going to be. This virus is going to continue to be here. And what we need to do is understand what is our strategy to move beyond from crisis and control to living with this virus every day. As you heard me say, for months and months and months, I always am concerned about what the next variant might be, what it could do, how it could impact our society. We've watched that with Delta and Omicron. And I will say here again today, I don't know that another variant couldn't emerge four or five months from now that actually has the ability to evade the immune protection of our current vaccines, evade the natural immunity that occurs with infection to Omicron or Delta, is highly transmissible and causes severe disease. We don't know. And so we have to be prepared for that eventuality. But that's like being prepared for a sudden crisis. You don't use it every day. We will need to also understand how do we just live with this virus on an everyday basis? What does that mean? In our article, we lay out what the new normal must look like. It, first of all, recognizes that SARS-CoV-2 is but one of several circulating respiratory viruses that includes influenza and respiratory syncytial virus. Both of these have added substantially to the burden of disease requirement for hospitalizations and deaths. So to me, we can't have just an isolated COVID policy because in years ahead, we could see concurrent challenges with each of these. So we need to look at our health care systems. We need to look at the capacity we have to respond to these events and not each one be a complete crisis. We also need to look at what do we need to do in terms of the issue of additional new vaccines? The vaccines we have right now frankly, are remarkable tools. But as you've heard me say, time and time again, they're not perfect. The issue around the need for booster doses has been stated. How often do you need to be vaccinated? If we have a vaccine that's going to require a dose every six to 12 months, that's going to be an absolute challenge to vaccinate the world. It won't happen. We need new and better vaccines, and that's why our group at CIDRAP is working right now with a number of individuals throughout the world to develop what we call a coronavirus vaccine roadmap to try to develop what it will take to get a vaccine that might actually be able to work against a number of different variants that may have more durable immunity. That will be part of the new normal. Also, we have to restore and rebuild our public health system. Our public health system today is just hanging on by a thread. We need a major investment, basically one that looks at deploying real time information systems across the country, a public health implementation workforce that can quickly come into a situation just as we do seasonally with forest firefighters, we need to be able to bring them in when we need them. We don't have the ability to collect data very effectively at all in this country. We still have health departments getting information submitted to them on fax machines. Can you believe that? That's what's happening. So one of the things we laid out in this plan was what could be done to improve on information so that we can answer questions more quickly. And finally, let me just say one of the things that I am very optimistic about with regard to responding to COVID, whether we see a new variant or it just becomes this is what it is, the post-Omicron period, is what's going to happen with our drug therapies. You know, I look back and I remember so painfully, so painfully what it was like in the early 1980s where a diagnosis of HIV was a death sentence, just that it was a death sentence. Today we have the ability with our therapeutic drugs to make HIV a long term chronic illness, one that's easily manageable. And I am convinced that we can have a very similar impact on COVID with the new drugs we're getting, if we can develop a system of rapid testing for the world where people can go in quickly and find out if they're infected, then have a immediate dispensing of these drugs so that the individuals take them and aborts a serious illness and never needs hospitalization. I think that's a reality. Wouldn't that be something? Even if you did get COVID, you could still feel confident that with very quickly knowing that you have COVID and getting these drugs, you could avoid serious illness. So I want to leave you all with the sense that this paper that we developed on a national strategy for the new normal of life with COVID is actually one that is very positive. It actually does give us constructive steps and it gives us a roadmap to a future I think that'll be very different than the moments we're experiencing right now.

**Chris Dall:** [00:51:28] So, Mike, I know we have a surprise closing today, but before we get to that, what are your take-home messages?

**Michael Osterholm:** [00:51:38] Well Chris, the first take-home message is if you're tired, if you're feeling worn out, if you're feeling confused, you're feeling whiplash out there, welcome to the club. I'm there. Okay, I promise you, I'm there, but I won't give up. I'll be damned if I'll give up. We are close to the end of this Omicron surge. We've got some really tough ground to go, but in the next three to four weeks, we will see it peak and we just need to get through. We will continue to see, unfortunately, major major challenges to our health care system in this country. We will see challenges keeping food in the grocery store shelves. We will see challenges in making certain that we have adequate numbers of fire and police on the streets. I could go through the laundry list of areas that will be a real challenge. But we will get through it, and we have to remember that. If there was ever a time to be patient and kind, it's now. Help us get through it. So three to four more weeks, keep your eye on the ball. But when the surge is over, it is absolutely critical that we make every effort to learn from what has happened so that we can be better prepared for the future, whether it be just living day in and day out with an omicron-like variant or one where a new surge hits us. That's something that if we don't do and I worry that we'll all be tired, we'll all say, Oh, we're done. I'm don't want to hear about this anymore. We will regret not using that time to better prepare us for the future. There will be a new normal. There will be. We'll get there. I believe that. And if there was ever a time right now for what I call the ultimate Four-Letter words, we need them. Hope, kind, love, care. That's the kind of four letter words we really need right now to get through. And it's in this regard that I have today's dedication and today's closing. As you know, normally I provide the dedication at the beginning of the podcast, and I think most of you know who have been listening with some regularity, these dedications made a great deal to me, as do they do to the rest of the podcast team. And so we think long and hard about how we can recognize or accentuate some particular wonderful thing in our community, individuals, organizations, whatever. I have had the incredible opportunity through this entire pandemic to watch a group of individuals who frankly astound me. They so impress me. I don't have the adequate words in this heart of mine to express who and what they are and how they do it. But these are the group I will call the Minnesota physician moms. They're mothers who are full time mothers, who are physicians with amazing responsibilities, who are full time physicians. And yet they have taken the time through all of this with their energy, their efforts, their schedules, and they are the ones that have attended the school board meetings. They're the ones that have attended community meetings. They're the ones that have organized community wide search engines for vaccine locations. I could go through the list of all the things they've done, and they do it tirelessly day after day after day. And to me, I can't imagine a more giving group than this group of physician moms, when their lives are otherwise already so busy. Now I'll start out by saying today I'm going to identify five of them. I know I'm missing some, and they should be part of this dedication too. But it starts out right at the top with somebody I happen to be quite familiar with my daughter, Erin, who is the director of the neonatal intensive care unit at the University of Minnesota. Whether it's vaccine clinics, going to school board meetings, you know, being the incredible mother to my three grandsons, she has been an amazing force in this community. And then there's Jena Wert, who you know, as Dr. Jena, who in Episode 66: "Thank you, Dr. Jena" on August 26th, shared with us in a very emotional moment what it's like to be an intensive care doctor at this time in the pandemic. She, too, organizing vaccine clinics and doing all kinds of presentations and follow up. I don't know how she does it as a mother, as a physician and as somebody who has been an amazing community leader. There's Abby Houts, who specializes in geriatric care, a classmate and dear friend of Erin's, and someone who has been so involved with organizing vaccine efforts in so many parts of our community. Again, the school-based issues mother, I don't know how she does it. Amy Cho, an emergency room physician here in the Twin Cities who also has been so involved in getting people vaccinated, interfacing with the school based activities, etc. I don't know how you do it. And then the fifth one, Sarah Cross. Sarah's all about the closing today. Sarah's, an assistant professor in the Department of Obstetrics and Gynecology and Women's Health at the University of Minnesota. She's the medical director of the Birth Place, the Pregnancy Special Care Unit, and the Newborn Family Center at the University of Minnesota Fairview Masonic Children's Hospital. I got to know Sarah through Erin, and Sarah has become my guide in pregnancy and COVID-19. She is an amazing mother, someone again who has been leading on the medical issues around COVID and has donated so much time and effort to this community. I had a situation one weekend not long ago, where there was a pregnant woman who was in great distress with COVID, had not gotten the kind of care and the access to the monoclonals that could have and should have happened, I got a hold of Sarah, even though this was not her patient, was not even her health system, within an hour she had made all these arrangements and gotten it done. I don't know how she does it, but that's not why I'm talking about Sarah today. Those are all true. It's true for all of the physician moms I just talked about. I want you to hear her words from her lips. An opinion piece that she published in The Washington Post on January 5th entitled "Hospitals Are Running Low and Yet Another Resource: Hope," and so I've invited her to give the closing today again. Again only the second time that we've had somebody in this podcast actually provide input in the spoken word. And I want to thank Sarah for her words. I will promise you when you listen to her, you will understand with real clarity the situation we have today in our health care facilities around the country, for that matter, around the world. And with that, I introduce to you, Dr. Sarah Cross "Hospital is Running Low on yet Another Resource: Hope."

**Sarah Cross:** [00:58:40] This is not the spring of 2020. I no longer receive daily emails warning how low my hospital is on personal protective equipment. We have enough PPE that we can discard items as intended. And I am less afraid that I will die of COVID-19 or bring it home to my three young kids. We now have more knowledge about how to prevent and treat infections. But there's a new scarcity in our health care system. We're running dangerously short on hope, and it's even more crushing than the shortages we faced at the beginning of the pandemic. Consider, for example, that we continue to have a critical shortage of blood. Early on, this was because people were afraid to venture out. But what's causing the shortage now? Are we using more blood because we have so many sick patients or are donations down? What has happened to the donors? Have they died? Are they sick? Are they exhausted and overwhelmed or no longer impelled to help? I fear we are losing our capacity to persevere. And that is something harder to replace than masks. Even before the pandemic, physicians had twice the risk of burnout of the general population and had an estimated 40% rate of depression and suicidality. Now, 60% to 75% of clinicians experience symptoms related to depression, sleep disorders, and post-traumatic stress disorder. The numbers are likely higher in nurses. Some sources estimate that 30% of health care workers have either quit or been laid off since February 2020. Thousands of us have died. The health care employment sector has decreased by 450,000 workers since February 2020. While medical school applications are at an all time high, our first year intern cannot replace a physician with 30 years of experience. The only solution left is for those of us who remain behind to work longer and harder. Indeed, the Center for Disease Control and Prevention recently issued guidance to mitigate worker shortages, allowing us to work even if we are infected and symptomatic. There is such a thing as being too essential. Instead of those daily emails about PPE shortages, I now get emails on hospital capacity. My health system has reopened its command center as if we were at war and not a hospital. A patient in labor recently called seven hospitals to find a place she could safely deliver. Meanwhile, the executives of all the major Minnesota health care systems, including arguably the most prestigious hospital in the world, took out full page ads in newspapers begging the general public to get vaccinated. But do they do any good? Physicians promise to love their patients as much as they love themselves. We go to the hospital instead of the gym, to the operating room instead of to sleep, to the bedside of a dying patient instead of the bathroom. We skip meals, kids' birthdays, anniversaries, soccer games and holidays. It has been an honor and a privilege to walk alongside my patients during their high risk pregnancies. On my best days, it is precisely the drive to help my pregnant patients avoid and survive COVID-19 that keeps me going. But other days, I wonder how we will all make it through. At night, only the most essential people are at the hospital. The outpatient clinics have closed. The administrators have gone home. I have always loved the relative peace and quiet of the hospital at night. So many births happen then, so much joy and hope. Recently, I was walking the quiet hallways and passed by a closed office door. There was a poster with a Desmond Tutu quote, "hope is being able to see that there is light despite all of the darkness." I look for a kernel of hope to bring into every patient encounter, our ability to persevere depends on that sense of optimism. Many of us have survived the past 23 months precisely because we have been able to hold onto the promise that things will get better. As we enter a third year of COVID-19, that hope is slipping. It can be seen everywhere, but especially in the hospital. Medicine is not a one way street. It is a relationship, a give and take. Health care workers cannot keep showing up if our patients do not have faith in us. If that faith disappears, we will continue to lose doctors and nurses and everyone will suffer as a result.

**Michael Osterholm:** [01:03:48] Wow. What amazing words. You can just feel those words. Thank you so much, Sarah. Thank you to all the physician moms for what you do. You are the silver lining, if there ever was one in this pandemic, I'm so proud of you. I realize that as an old man looking down at the next generation coming up through the ranks, I'm so, so impressed and so comforted by knowing that you are coming up as the leaders of tomorrow with not only your experience, but also your heart, your compassion, your thoughtfulness, your kindness. And that's what I leave you with today in this podcast. Again, we're in tough times. The next two or three weeks are going to be tough. They're going to be real tough. Now's the time for us to use all those four-letter words kind, hope, love, care. That's what we need right now. We'll get through this. We are going to get through this through the help of a lot of us. And in particular, I want to thank the physician moms of Minnesota, who have done so much to help get us through. Be kind, be safe this week. Don't take any chances. If you feel like you have to go into a large crowd of people, be sure and wear that N95 respirator. Wear it tight. Wear it tight. Make sure you're fully vaccinated. Thank you so much for listening today. We are very honored that you're with us. Hope the information was helpful and we'll be back again next week. Thank you.

**Chris Dall:** [01:05:20] 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.