# Episode 92: Shifting Baselines

**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. Earlier this week, British Prime Minister Boris Johnson announced an end to England's remaining COVID-19 restrictions. While noting in a speech to members of Parliament that the pandemic is not over, Johnson said that the Omicron wave has passed and that the country would no longer need laws to compel people to isolate after infected. Let us learn to live with this virus, Johnson said. England is not the first country to declare that it was moving on from a pandemic mindset, nor will it be the last. With the Omicron wave receding in many parts of the world, other countries are likely to follow in the coming weeks and months. Are we finally entering the era of the new normal? That's what we'll discuss on this February 24th episode of the podcast as we assess the trajectory of the pandemic here in the United States and around the world. We'll also get the latest on the BA.2 variant, review new data on COVID-19 hospitalization in children and adolescents, answer a COVID query about vaccination after infection and share the latest Beautiful Place submission from one of our listeners. But before we get started, as always, we'll begin with Dr. Osterholm's opening comments and dedication.

**Michael Osterholm:** [00:01:51] Thanks, Chris, and welcome to all of you to another episode of the podcast. Thank you for joining us again. If you're a new listener, thank you for taking some time here and trying this out. Let me start out by saying that if there's any theme to today's podcast is this is a time for humility. We're at a point right now where we're trying to understand, where do we go from here? As you just heard in Chris's introduction, the world is passing on this virus. They're done, and we've been talking about that for several weeks that the world is done. But as I pointed out last week in our podcast, when I discussed the paper that Professor Don Burke had written in STAT, laying out the different scenarios for this virus, three of the four of those scenarios were not all that positive. And so today we will try to give a sense of where we're at now, which I do believe there will be blue skies ahead, relatively speaking, in the days ahead. But that in fact, I can't tell you what the weather from a viral transmission standpoint is going to be like in the months ahead. And so we'll need to consider that. Also, I want to share with you a moment that is really very hard for me to talk about, and I'm one of many feeling this. I had the good fortune over the last several decades to call Paul Farmer a friend, a dear friend. I think Paul may be one of those people in the world where millions of people consider themselves in that category, friends, dear friends. I think if some of you know Paul, a physician, anthropologist, humanitarian who clearly was a global resource and a gift with regard to health and providing high quality health to some of the world's poorest people, he died on Monday morning on the grounds of his hospital in Rwanda. Paul was only 62 years of age. He died from an acute cardiac event. Paul was someone who anyone involved with public health and medicine not only knew about, but so often knew of because of Paul's outreach to so many people, whether you were from a low income country or you're a colleague in a high or middle income country. He clearly attracted public renown with the book "Mountains Beyond Mountains, the Quest of Dr. Paul Farmer, A Man Who Would Cure the World." This book, written in 2003 by Tracy Kidder, literally provided an extremely beautiful description of the efforts that Paul would make to care for his patients, sometimes literally walking for hours to ensure that he was taking them the medication that they needed. What an incredible giant. We will miss him. All of us, the world will miss him. So Paul, this is dedicated to you, to your family that remains behind and to all of your colleagues with partners in health who have continued to contribute so mightily to the health around the world. You are a legacy that will not ever be forgotten. So let me end the introduction here, though on a high note, something that we love to talk about clearly every time that we have one of these podcasts, and that's light. This is that time of year where it's easier and easier to get excited. Today, February 23rd in the Twin Cities of Minneapolis and St. Paul, we will have ten hours and 51 minutes and 28 seconds of sunlight. We have gained 21 minutes and one second of sunlight since a week ago on February 16th, and we have gained two hours, five minutes and one second since December 21st that first day of winter, when there was only eight hours and 46 minutes and 11 seconds of sunlight. So everyone in the northern hemisphere take note that the days are going to get brighter. For those of you in the southern hemisphere, we'll do what we can to share our increasing sunlight with you and thank you for sharing yours with us over the past six months. So the good news the world is getting brighter from where I sit.

**Chris Dall:** [00:05:53] Mike, let's start our international update this week in Asia, where Hong Kong and South Korea are experiencing the worst wave of COVID-19 cases they've seen since the beginning of the pandemic. So Mike, is this just Omicron doing what it's done elsewhere or is something else going on?

**Michael Osterholm:** [00:06:10] That's a great question, Chris. If you look at the recent sequencing data coming out of Hong Kong and South Korea, there's no doubt that the surges there are being driven by Omicron. In fact, based on the activity we're seeing in the western Pacific region as a whole, which includes both of these places, this variant's doing what we've seen it do since South Africa lit up some weeks ago. The only real noticeable difference has been the timing. While every other WHO region has reported case declines the past few weeks, the Western Pacific region is still at record high levels. So overall, they seem to be located a little further down the storm track that we have seen for Omicron and the rest of the world. However, there are exceptions in the region. For example, Australia saw cases start to literally explode in mid-December, right as Omicron took over as the dominant variant. It then reached a peak about a month later in mid-January. Since that time, they've been reporting declines, although cases are still well above the levels they were in the country prior to the Omicron surge. In addition, daily deaths in Australia rose from single digits in early December to a record high of 88 in late January. They've declined since that peak, sitting at 44 as of this past Monday. So why was Australia's Omicron surge so much earlier than the other places in the region, like Hong Kong and South Korea? Well, as always, it's difficult to know exactly what caused this, but there are some factors that surely could have played a role. One of the primary reasons could have been different policies related to quarantine, particularly for travelers. For most of the pandemic, Australia relied on a number of rules and requirements that individuals arriving to the country had to follow, including a 14 day quarantine. By the time Omicron started spreading, the country lifted some of these restrictions. For example, Australian residents returning from overseas could do so without quarantining. As Australia started loosening some of its rules for incoming passengers, South Korea was actually tightening theirs, mandating a 10 day quarantine for a vast majority of international arrivals, regardless of their vaccination status, and this began in early December. Earlier this month, the country shortened the quarantine requirements to seven days, but it still remains in place. Hong Kong has relied on similar policies throughout the pandemic, with visitors required to follow a certain quarantine protocols depending on their vaccination status and where they were arriving from. Of course, as we're seeing now, these checks haven't been enough to keep Omicron out of South Korea and Hong Kong, but they could have played a significant role in delaying the surge. Based on sequencing data, Omicron didn't become dominant in South Korea until mid-January, weeks after it became dominant in Australia and the U.S.. A similar situation played out in Hong Kong, where it was well into January until the surge became evident. Now, some might argue that delaying the surge didn't make all that much difference. But if you look at the push to administer vaccinations in these places during that time, particularly in South Korea, you'll notice they just didn't sit around there idly. For example, on December 1st, 80% of South Korea's population was fully vaccinated and less than 7% had received an additional dose. On January 15th, just six weeks later 85% of the country's population was fully vaccinated, an increase of 5%, and now 45% had received protection from that additional dose, up from the 7% on December 1st. However, even with vaccination rates this high, you're not completely shielded from Omicron surges. We've talked about that repeatedly over the course of the last 10 weeks. Remember, we've seen this before in places like Denmark and Portugal. So it shouldn't be a surprise, as you mentioned in your question, Chris cases are at record high levels and only continuing to grow in Hong Kong and South Korea. We're also seeing similar trends in places like Singapore and Vietnam, unfortunately, but not unexpectedly hospitalizations and deaths are also on the rise. As you've heard me say many times on these podcasts, I have heard from a number of people throughout the world that if we just work to control COVID in this country, like they did in Hong Kong or Singapore or South Korea, we wouldn't have a problem. Well, you can see in the face of Omicron, that's not true. They, too now are having a test of the system unlike they've ever had. So now I don't want to downplay or minimize the situation of these places. If you've kept up with the official responses to these surge, you'll know that it's being recognized as a major challenge. At the same time, being from the U.S., I think it's important to highlight how the current situation in places like Hong Kong and South Korea compares to what we've experienced in this country during our own Omicron surge. So how do we stack up? Well, in South Korea the number of patients per capita admitted to an ICU with COVID has nearly doubled since early February. Going from five patients per million population to 9.4 patients as of this past Tuesday. While this number will continue to grow, it remains more than eight times lower. Let me repeat that eight times lower than the U.S. reported during the Omicron Peak. In fact, although the U.S. has reported declines in ICU patients throughout the past month, the current per capita number of Americans in an ICU with COVID is still more than three and a half times greater than being reported out of South Korea. Hong Kong, which has just over two residents in an ICU with COVID per million population, is at a level 16 fold lower than the current U.S. rate. If you look at the number per capita of deaths from Omicron, a similar pattern emerges. During the U.S. surge, average daily COVID deaths peaked at 7.7 per million population. That number has since decreased to 5.6 deaths per million. Meanwhile, deaths in Hong Kong are at about 1.5 per million population, while in South Korea is reporting one death per million population. Again, significantly lower than we see here in the United States. Again, one could argue that the surges are still ongoing in Hong Kong and South Korea. So comparing their current numbers to the U.S. peak or even our current levels is unfair, especially since ICU admissions and deaths are lagging indicators. And I think that's a fair argument. However, the point I want to make is that not all Omicron surges are the same. This is where the impact of vaccines can become quite clear. There's no denying how transmissible the variant is. As we've seen over and over with these case surges, and while the current vaccines alone aren't enough to stamp out transmission, they play a significant role in reducing the number of hospitalizations and deaths. One final point I want to make and I will cover this in more detail shortly, is that there's clearly a lot of variability between countries when it comes to what they, including portions of their population or even their leaders are willing to tolerate or accept with this virus. Now I know there's a lot that goes into this, and it's certainly not as easy as just picking an option and sticking with it. But if you look at the total number of deaths from COVID in each country since the start of the pandemic and adjusted by population, you'll see that the cumulative deaths in the U.S. per capita are more than 19 times higher than they are in South Korea and nearly 74 times higher than they are in Hong Kong. So while I continue to believe that this virus is going to do what it's going to do, which was really showcased by these Omicron surges, I also believe that there's a lot we can do to put ourselves in a much better position without the same levels of pain, suffering and death that accompany these surges.

**Chris Dall:** [00:14:06] So on the other side of the world, you have England, which, as I noted earlier this week announced it will remove its remaining COVID-19 restrictions and starting in April, will no longer offer free testing except for the most vulnerable. Mike, what do you make of this decision?

**Michael Osterholm:** [00:14:22] Well, I think this is an example of the very issue I just got done discussing. What's the best course of action? How do we move forward after you've navigated the Omicron Peak? There are those who will say we're done. There are those who will say, we don't know. Needless to say, I fit more in that latter category. Again, I'm not sure there are any easy or correct answers to this question, Chris. In fact, if you asked a thousand different Americans what approach the U.S. should take with COVID moving forward, you'd probably get a thousand different answers. But many of them would tend to focus towards let's move on. And that's not unreasonable. We've seen plenty of examples where things like political beliefs, health status, age, occupation, family status, et cetera, can play a significant role in shaping someone's perspective on the pandemic. And remember, that's just within one country. What's been viewed as tolerable in the U.S. might be totally unaccepted elsewhere. So I always find myself a bit hesitant when it comes to evaluating the approaches or decisions of other countries. Make no mistake about it, I'm just as tired of this pandemic as everybody else. I don't think I've taken an entire day off of work in more than two years. And as some of you have noticed over the past few weeks, I've even been on the verge of losing my voice from hopping on one call to the next to the next to a zoom, to a call. So I can promise you I'd love nothing more than to wake up, realize this was all some crazy, horrible dream and get back to the other issues that kept me plenty busy before COVID showed up. But as an epidemiologist, someone who at this point may also seem as if a broken record. I worry that this growing trend of dropping any and all measures will end up costing us in the long run. Now, this isn't me endorsing any strict measures or specific approaches. As you've heard me say time and time again, I think we really need to think through what certain policies can and can't do. For example, if a mask mandate magically meant that people were properly fitted with N95 respirators and were more than happy to do so, I'd be all for it. But that's not what's realistic in this country. Mask mandates, as they've been established, make little sense to me because they are primarily based on the use of ineffective respiratory protection, whether it be face cloth coverings or surgical masks. At the same time, I think we need to constantly be thinking about steps that need to be taken to improve the situation and to be better prepared overall. Whether it's for the short term in the event of a new variant or even the long term with later variants, that may show up. On a global scale, ehere are we with vaccines? What are we doing to improve genomic surveillance? Can we improve data collection and sharing? Of course, these things take time, but they're still critical and must be acted on now. Even within countries, are there ways to improve the vaccination rates? What's being done to ensure people can have access to cheap, yet reliable tests in a timely manner? Have we addressed surge capacity? Can we improve the supply and one time distribution of treatments? Again, there's always something that can be done and frankly done a lot better. In reality, even in the event that this somehow was the end of the pandemic, and trust me, I'm not saying that's the case. We have lots of things that need to be fixed just to get them back to working shape, and that's going to take a lot of time and work. Just think of our health care system in the U.S.. The UK is dealing with a similar situation, with their national health system still facing a huge backlog of patients needing care for issues that were postponed to help cope with the surges in COVID patients. Plus, we need to deal with the burnt out health care workforce that at this point there is no easy solution for which to solve. And honestly, I'm not sure the countries that are rolling back restrictions have reached that point yet. You mentioned the U.K. in your question, Chris. They fully vaccinated 73% of their entire population and have given additional doses to 57% of the residents. With declines from their Omicron peak, the general sentiment seems to be that the U.K. can proceed as normal. In other words, removal of restrictions that has apparently signaled the start of their journey to live with COVID. Remember, they're coming off the backside of a peak that went up and came down all on its own with only limited amount of impact from anything we did. The seriousness of the illness, the frequency with which people were hospitalized and the number of deaths were all about what we did in terms of vaccination. If you look at the U.K., cases have surely declined in that country from the Omicron current peak, but they're still reporting an average of more than 43,000 cases each day, essentially the same levels they were at when Delta cases were rising there last November. Remember, this is a country that was reporting only 2,000 cases a day last May. Even then, that seemed like a large number, but compared today, it seems like just a small hit. More than 11,000 patients in the U.K. are currently hospitalized with COVID. Again, down from the Omicron peak of nearly 20,000, but still well above the levels they reported last fall with Delta. Last summer, hospitalizations in the U.K. dipped below a thousand. Today again, remember they're at 11,000 now. Fortunately, the number of patients in mechanical ventilation beds has declined for the past month and a half, reaching 324 as of Tuesday. Again, this is certainly an improvement from the average of 900 to 1,100 reported throughout this past fall and winter, but it's nearly twice as high as levels observed this summer. Finally, deaths in the U.K. are at levels more than 10 fold higher than they were in the summer. I don't raise these points to criticize the approach that the Brits are taking. Again, I wish our country's vaccination rates were closer to those of the UK. However, as I've said in the past, how do you unring a bell? What criteria are being used to say, OK, these levels are acceptable? Are there any? Or are these decisions being based on other things? These questions aren't exclusive to the U.K., either. There are growing numbers of countries that are moving on and dropping restrictions, including Ireland, Switzerland, Sweden, Denmark, etc. Even here in the U.S., a country with vaccination rates that rank below the countries I just mentioned, a similar theme is emerging. So it's not that I don't want countries to move on or adjust their approaches, but I have yet to see clear cut metrics that these decisions are being based upon. In Denmark, a country with 81% of its population fully vaccinated and 62% with additional doses, COVID is no longer viewed as a critical threat to society. Yet their vaccination rates are among the world's best, but the disease is still having a real impact there. Cases are on the decline after reaching a record high of 44,000 in Denmark. But the latest average of 33,000 cases remains much higher than levels reached prior to Omicron. Meanwhile, the number of patients hospitalized with COVID in the country is at a record high, 1,600 cases and continuing to grow. Now at the same time, the number of patients in ICU has dropped by half over the past month, which is great news. But again, they had a span of five months last year from June to early November, where patients in the ICU with COVID never surpassed the number they're currently at. And finally, average daily deaths in Denmark are near the levels reported during their previous record high breaking peak last January. Notably, if you look at Denmark's numbers on a per capita basis, they've fared far better than the U.S. and many other countries. There's no denying that. There vaccine efforts have paid off. However, if you're using their own previous experience with the pandemic as a gauge of where they stand, what's telling that now's the time to move forward? I've read reports about the country's interpretation and shifts to the actual COVID versus incidental COVID. And maybe that's what's happening. But some of the data they've shared up to this point surely has not been convincing. So overall, while I'm not surprised that more places, particularly those with higher vaccination rates, are moving away from COVID, I have a lot of questions about what exactly these decisions are based on. Is it just the fact they're done with Omicron? They want to be done with Omicron? Or is there something that they see in these high case numbers that we're not seeing? We've already acknowledged that high levels of vaccinations surely reduce serious illness. Maybe that's all that they're basing it on. So even if it's imperfect, I think laying out what specifically is being looked at and why these approaches are being taken would be helpful. At the very least, it would provide some reassurances that decisions aren't being made on gut feelings alone, and it would provide some roadmap for any potential future variant emergence so that, you know, when do you ring the bell again as opposed to unringing it? Right now, I could not tell you what people would use as a standard for response if we saw another Omicron like variant emerge in September or October with substantial immune evasion. So if things only improve in these places I just talked about, that's great news. On the other hand, if the situation does become a challenge in the future, I'm not sure that some of these places will be able to quickly and effectively reverse course. They surely have no roadmap to consider for how they might have to respond with the resurgence of a new variant.

**Chris Dall:** [00:23:55] Here in the U.S., we are now back down below 100,000 daily COVID-19 cases, a number that we haven't seen since the beginning of December. Hospitalizations are continuing to decline and now deaths are declining as well. So, Mike, acknowledging the shifting baselines you've talked about previously, how do you assess where the country is right now?

**Michael Osterholm:** [00:24:16] Well, Chris it's clear, we are continuing to see improvements here in the U.S.. Cases, hospitalizations, ICU numbers and deaths are all decreasing. Cases peaked at around 807,000 daily cases on January 14th, and as of Tuesday, the average number of daily cases was down 65% in the last two weeks to 89,000. Now, I don't believe for a moment that 807,000 cases reported in January 24th was inclusive of all cases out there and may actually have been a serious underrepresentation of the actual infection levels in our community. So the actual decline may even be substantially greater than 65%. Current hospitalizations are down 43% over the last two weeks, a number that we can count on. And from the 158,000 record high that we saw a month ago, we are now just at 66,000. I say just, that's still a lot of hospitalizations. There are currently 12,500 patients in ICUs. It's good news that hospitalizations are declining, but keep in mind that this is about the same number we're at today that we saw just before the Omicron surge, but down from the peak of 25,500 that we saw a month ago. While new daily deaths are down from the peak of 2,650 earlier this month. We are still experiencing over 2,000 deaths per day. So while it's a relative decline, this is right around the peak number we saw with the first surge in 2020, as well as the Delta Peak in October of 2021. While numbers are decreasing and seem to be much lower than they were a month ago, we're still a long ways from the numbers we saw last summer in the U.S.. Cases are still nine times higher than the lowest daily cases of just over 11,000 in late June of 2021. Deaths are currently 10 times higher than the lowest we saw in July of 2021. And hospitalizations are four times higher in ICU numbers, or 3.6 times higher than the previous lows also in June and July of 2021. As we are seeing average cases, hospitalizations and death numbers decline, we are seeing the same trend with the number of new vaccine doses being administered in the U.S.. The seven day daily average is decreasing and nearing the lowest number seen since the earliest days of vaccine availability. There are just under 500,000 new doses being administered daily on average, which is the lowest seven day average since the first week of January 2021. This does not bode well for preparing us for any future of surge activity that could occur with a new variant. To sum up where we're at, I come back to that common Minnesota experience that I've talked about before. Imagine we've just gone through seven consecutive days of minus 20 degrees Fahrenheit days with highs that never even got close to zero Fahrenheit. And then all of a sudden we have a warming spell and we get to 25 degrees Fahrenheit above zero. People are outside with their coats unzipped, feeling tremendously enhanced by this new warm wave of weather. On the other hand, if we're in the middle of June, after a number of 70 to 80 degree Fahrenheit days and all of a sudden the temperatures got down to 20 degrees, we would be freezing. That same temperature, which seems like a great warmth in January now seems like a very, very cold June day. Well, that's what's happening with COVID cases. We are now feeling as if somehow this is really, really good because we've just come through those minus 40 degree days of COVID with the Omicron surge. And so we have to be careful here and how we look at this because people are ready to move on. And we're not quite done with this surge yet, and I think this is an important point. Now that doesn't mean that I'm sitting here telling you that we need to restrict schools or we need to, you know, mask mandates, anything like that. But I just find it of note that we have to remember all about baselines. And it's particularly important as we look at the future, what would trigger any kind of unique public health recommendations or action? If we saw numbers double from where they are now? Would that do it? If we saw numbers three times or four times higher than they are now, not the big peak I talked about a moment ago? This is a discussion we have to have because we do not know what will happen in these days and weeks and months ahead. And right now, we just have to constantly remember, we live in a world of shifting baselines.

**Chris Dall:** [00:29:05] So, Mike, even with things looking better here and in other parts of the world, you and many others are keeping an eye on the Omicron sub variant BA.2. What is the latest on BA.2?

**Michael Osterholm:** [00:29:17] Well, we've continued to monitor BA.2 Again, as you mentioned, Chris, this is the sublineage of Omicron that has a number of mutations distinguishing it from BA.1. While work is still being done to determine what exactly BA.2's constellation of mutations means for the virus, we're still seeing evidence that this sublineage is outcompeting its sibling, BA.1. According to the World Health Organization's most recent weekly EPI report, cases of BA.2 have now been detected in at least 85 countries. In fact, in 18 of these countries, BA.2 is now dominant. However, it's still unclear what this means for the trajectory of activity in these places. We have yet to see a major spike in cases explicitly prompted by BA.2s dominance, although it might have played some role in Denmark's fairly prolonged surge. Otherwise, the general sense is that the growth of BA.2 will most likely lead to those longer tails with declines that we've talked about before. Places like India and South Africa, where BA.2 outcompeted BA.1 to become the dominant sublineage are still seeing declines, but the activity is still much higher than it was pre Omicron. At this point, I think it's too early to know exactly what to expect with BA.2. But the good news is that it's not leading to clear upticks we saw associated with the sibling BA.1. According to the latest CDC data, which has recently separated out the Omicron sublineages, cases of BA.2 are growing in the U.S., but the latest estimated national prevalence was still in single digits. However, there are signs that it has been doubling somewhat quickly, although not as quickly as we saw BA.1 take off. So we'll have a better sense of where the U.S. stands in the coming weeks. Ideally, if BA.2 does become the dominant variant here, activity will be quite low by that time and we won't see any sudden reversal. Otherwise, although there was a recent preprint showing signs in animal models that the BA.2 might have a different clinical picture of disease compared to BA.1, the real world data and reports I've seen out of places like Denmark and South Africa have all continued to suggest that disease severity isn't noticeably different between the two variants. Finally, another preprint out of Denmark provided some preliminary data on the risk of subsequent reinfection with BA.2 following an initial infection with BA.1. Although they did find some potential examples of BA.1 cases becoming infected with BA.2 just weeks later, they noted that this appeared to be quite rare. So stay tuned. We'll have to see how BA.1 and BA.2 play out and what it means for us as humans in this whole pandemic.

**Chris Dall:** [00:32:05] As you all know, the impact of the coronavirus on children has been a big topic of debate in this country and in other countries. And last week, the CDC released new data in Morbidity and Mortality Weekly Reports on hospitalization of children and adolescents with COVID-19. What's your takeaway from that report?

**Michael Osterholm:** [00:32:23] Hospitalizations in children during the Omicron surge were far higher than we've seen any time during the pandemic to date. That includes the Delta surge. In that report that you noted Chris, published in last week's MMWR, hospitalizations in children during the Omicron surge peaked at 7.1 per 100,000 children on January 8th, a rate four times higher than the peak during the Delta surge of 1.8 per 100,000 on September 11th. The largest increase was seen in the zero to four year old age group, which had hospitalization rates over five times higher during the Omicron surge compared to the Delta Surge. But let's look at this relative to the number of overall cases. With an increase in cases, we'd expect to see an increase in hospitalizations. At the time of the Delta hospitalization peak, there were 154 weekly cases per 100,000 population in zero to four year olds. At the time of the Omicron hospitalization peak, there were five times as many weekly cases in this group, at 846 cases per 100,000. So what we're really seeing here is that both cases and hospitalizations in the zero to four year old age group were collectively five times higher during the Omicron peak than during the Delta Peak. This means that the high hospitalization in children that we are seeing with Omicron is much more likely a reflection of just the higher number of cases, rather than a disproportionately more severe disease in children. There is a common misconception that since these hospitalizations are a reflection of high numbers of cases, that it must mean that these children are hospitalized for unrelated reasons and just happen to test positive for COVID. But the MMWR report specifically addresses the fact that over 80% of these children had COVID symptoms or complications as their primary reason for admission. And this was true for both before and during the Omicron surge, meaning that these were children that were hospitalized for COVID, not just with COVID. An additional 6% of children had COVID symptoms at the time of their admission, but the symptoms were not the primary reason for hospitalization. It is possible that for these children, COVID may have played a role in their hospitalization, even though it was not the primary reason. This is particularly true for children who have asthma and diabetes. So even though the proportion of hospitalizations to cases and the percentage of children admitted primarily due to COVID and admitted with COVID symptoms did not change much before and during the Omicron surge, we did see some difference with Omicron. A smaller percentage of children hospitalized during the Omicron surge required ICU care, with 26% of the children hospitalized with a COVID infection being admitted to the ICU before Omicron. And only 20% being admitted to the ICU during the Omicron surge. Similarly, a small percentage of hospitalized children are requiring mechanical ventilation, 6% before Omicron and compared to only 2% during Omicron. We are also seeing racial disparities in pediatric hospitalizations, just as we saw with adults. 36% of the hospitalized children in the MMWR report were black, even though only 14% of the children in the U.S. are black. Again, 36% versus 14%. This disparity was especially large during the Omicron surge, with black children making up 47% of the hospitalized children during the Omicron surge. Pediatric deaths have remained relatively low during both peaks, at 0.5 per 100,000 at the Delta hospitalization peak and 0.06 per 100,000 during the Omicron hospital peak. As of this past Tuesday, there have been 1,346 COVID deaths in children in the U.S. This is throughout the entire pandemic, not only during the Omicron surge. When I referenced this number last week on Joe Rogan's podcast, some thought it was a reference to only Omicron deaths in children. But this is the total number of pediatric COVID deaths both before and during the Omicron surge.

**Chris Dall:** [00:36:33] Mike, there was an interesting article this past weekend in the New York Times that reported that the CDC has only published a fraction of the data that's collected on COVID-19 over the last two years. An agency spokesperson said some of the data was "not ready for prime time," and that there was concern that it could be misinterpreted. Others quoted in the article said that sharing the data is better than having a data vacuum. So what are your thoughts on this? Is it better to have more data out there, even if it is unvetted?

**Michael Osterholm:** [00:37:03] Well, let me say that as somebody who, as an epidemiologist believes the data is the ultimate four letter word in our science, I want all the data I can get. I can never have enough. But at the same time, it is critical that those data be vetted in such a way as to make sure that it's just not what we call garbage in and garbage out kinds of issues so that in fact, we do have erroneous conclusions made because of the incomplete nature of the data or qualifications which otherwise have not been provided. A good example is if I take the death rates and I say this is a rate of deaths for COVID in a population and I don't age adjust that population where in one population, 50% of the individuals are 50 years of age and older, and in another population only 10% are 50 years of age and older. And we see that, for example, when we look at Africa versus the United States, if I didn't know that, I could show that the one country was disproportionately impacted because there's a higher percentage of deaths in that older population. But when you adjust on age, suddenly the numbers are the same. So missing those data, for example, for age, could be a very, very important reason why you come up with erroneous conclusions about the data. So I'm very sensitive to this, and I think that the CDC has a legitimate point about that and not necessarily the age, but just using that as an example. But at the same time, I think that we have to address the issue of how does CDC collect and process data with states? The states are at the very heart of all the data collection that occurs in this country. Yes, there are large cities that collect data. In fact, we've been working with L.A. County on some of the data that they're working on, looking at the impact of third doses, and it has been incredible what they've done. I have nothing but the highest regard for L.A. County's public health efforts there. But in the end, it's all about the states. Most people do not realize that when the Constitution was written, if in fact something was not covered in the Constitution as a federally responsible action or activity, it reverted to the states. Public health was never mentioned. Public health by its very nature is a state's rights issue, meaning that the states are in charge of public health and the federal agency surely can have impact, particularly interstate issues. But on a whole, theoretically, CDC has to get permission to come into a state to actually work on a project or an effort, an outbreak investigation, whatever, because of states rights. Now, that is not the sole problem here, but I think what we have to do is as we hopefully will have some breathing room after the Omicron surge, we need to begin a very careful process of looking at what were the deficiencies in data, how it was obtained, how it was analyzed, how it was acted upon throughout this country and what role did the local health departments, medical care delivery systems, state health departments and the CDC play in how those data were collected, analyzed and conclusions drawn? And I think right now there's problems at all levels. We have largely a lack of support for state and local data collection that then could be brought to the CDC and then collectively combined and allow us then to look at those data as such. So I do think there are concerns with the CDC data issues. I would be the first to say that, but it's not somehow that this is an agency that's withholding data. I don't believe. You've already heard time and time again on this podcast, I do have real concerns about positions that the CDC has taken using that term just following the science. One, of course, is the effectiveness of masking is a challenged area for me because I think the CDC has tried to find studies that would support their position that N95 respirators are not necessary, aerosols are not the only way for transmission or a primary way. So I do have concerns about what CDC does, but I think this particular article actually didn't really draw down to the point of why are we having data issues? What needs to be done to correct them? And again, I come back and just say, I hope, I hope you've heard me say hope. It's not a strategy. I hope that we can address this in the months ahead in a comprehensive and thoughtful way to understand how to better collect and use data. We need look no further than places like the United Kingdom or Israel, or countries like that where we have had the time and time again count on their data to give us the kind of information that we needed to make decisions about vaccines and, you know, public health measures in general. And so I look forward to this. I think this can be a very positive and hopefully very, very productive kind of effort.

**Chris Dall:** [00:42:08] This brings us to our COVID query segment. This week we have a question about vaccination after infection from Danny, who asked "Is there any evidence that getting vaccinated after a COVID infection is harmful? Can it damage or overload your immune system?"

**Michael Osterholm:** [00:42:24] Thank you, Danny, for this very thoughtful question. And let me say that, in fact, I'm going to turn this question on its head and say that if you look at five recent studies that have become available, they have all found that some of the highest levels of protection occur when you've been infected and then have a subsequent dose of vaccine after that infection. This is incredible. The duration of protection, the breadth of protection looks to be better. And this is why I go back time and time again to the need to reevaluate and redefine what it means to be fully vaccinated. I think the longer the CDC waits to deal with this issue, the more problematic it's going to become. So I do think that a an infection with one dose of vaccine afterwards is the ideal. Now, I don't want anybody to get an infection or leave it said that I'm suggesting this is the right thing to do is get infected because there's always that risk that that could be the infection that kills you. But if you have been infected and get that dose, we have no evidence that people who have had prior infection and get vaccinated are at greater risk of having something happen relative to, as you pointed out, overloading their immune system. So if you've been previously infected, we now recommend that you get vaccinated as soon as you can after symptoms resolve and you've met the criteria to end isolation. If you receive monoclonal antibodies as part of your COVID-19 treatment, it's recommended that you wait 90 days to be vaccinated because the antibodies in the treatment might impede the ability of your body to develop a robust immune response. So this is important news. There have been many of you who have been infected through the Omicron surge. If there was ever a time to get your dose of vaccine, get it now. And if you were previously vaccinated and got COVID, I would still go ahead and get that additional dose. And we have to look at these in my mind as being fully vaccinated people.

**Chris Dall:** [00:44:23] Mike, as some of our listeners know you were on Joe Rogan's podcast last week. It's the second time that you've been on the show, but the first time in almost two years. As is well known, Joe Rogan has been widely criticized for his interviews with COVID-19 vaccine skeptics. Can you talk about how this second appearance came about and why you thought it was important to go on his show?

**Michael Osterholm:** [00:44:47] Well, Chris, I do welcome the opportunity to lay out some of the thinking behind this appearance. As many of you know, I did appear on the Joe Rogan podcast back in March of 2020. In fact, March 10th, specifically just before the world realized what we were up against, and it was in that podcast that I laid out these dire predictions that I thought would happen over the next 12 to 18 months, which at the time were seen as sensational, scaremongering, etc. And unfortunately, as we now know, they've all come true. It was a reach into an audience that, because of his extensive podcast audience network, really allows us to talk to people that many times public health doesn't get a chance to talk to. It's been a difficult two years watching Mr. Rogan's show unfold with a number of individuals who frankly were providing disinformation, misinformation and not having the kind of response back that would provide that balance of the science. I also became very aware of the kind of racial slurs that he has used and the kind of language he's used about race issues. And these are all reasons why, you know, to say, No, I won't participate, I'm not going to provide cover for that. But in public health, we don't have the option of giving message to some people and not others. And you've got to find people where they're at. And this remains a major venue to address people. So when I was asked in an email a week ago last Monday night to appear on his show on Thursday in Austin, Texas, the first thing I did is just took a step back and said, I really need advice. So I contacted executives in the music industry who have been involved with the issues around taking their music off the Spotify, the source for his podcast today. I talked to individuals in the public health community, particularly among black leaders in the public health community, who I so respect and admire people who have been my mentors and continue to be my mentors about the implications of getting the message out on racial disparities and the challenges with that versus what that would mean to support a podcast that had had the kind of language that it did. I talked to colleagues who had been on the podcast before, who really I would put more in the yoke of public health like me. I talked to a number of different people from public relations etc to really get their input. What should I do? Because I, first of all, did not relish the idea of sitting in the hot seat for several hours, getting grilled as I knew I would. At the same time, you know, Mr. Rogan could just say to the world, Well, we invited Dr. Osterholm on and he wouldn't come, and it's not so much that that's the challenge. But I don't want it left that his messages to date have been a true reflection of the science of COVID. So after consulting with all these people, the general consensus was do it. Do a good job. Be prepared to take hard questions and, you know, just do what I do, you know, and number one is be humble. You know, when you know something lay out the data, why you know it. If you don't say it, I don't know. In fact, I summarized the program at the end by saying this was probably the most important three words that I said repeatedly throughout the program is, I don't know. But this is what we do know. I was able to get in information about how well the vaccines are working and the critical importance that they were in preventing serious illness, hospitalizations and deaths. I was able to address the issues about drug therapies like ivermectin with the fact that we have these new randomized controlled trials and that we needed to trust them to provide us with the what I call definitive information. We now know that one of the studies was subsequently released since I was on the show, which did not show any benefit for ivermectin use. And the other four will be releasing data either soon or in the near term. I was also able to address issues like the lab in Wuhan, trying to dispel the kind of theories that are out there, the mystery and intrigue and say, you know, we don't know if this could have happened where someone at a laboratory in Wuhan became infected and introduced it to the community. But the data so far do not support that, and I'm again agnostic on this. I will go wherever the data supports it. We were able to talk about why variants coming down the road are still going to be very important. In particularly how the animal population now that has become a really another reservoir for this virus could share with us new variants. It could be very challenging. So it was really an opportunity to get that information out. I hope that it has provided the kind of information that's actionable for people that they can address this. I understand that earlier this week, at least this was the number two podcast episode in all of a Spotify right now, meaning some people are listening to it. And so I hope I never have to do this kind of thing again. You know, being on the hot seat for two hours and 40 minutes is a challenge. But you know, again, in public health, we don't have a choice of picking our audience in the sense of it's everybody. You know, it's everybody that's there is the audience that I need to address and will address. And I hope that for those who feel otherwise, you understand that we put a lot of thought, effort, consultation and concern into this and hopefully the discussion that we had will support that kind of approach.

**Chris Dall:** [00:50:42] Mike, where is our latest beautiful place submission?

**Michael Osterholm:** [00:50:46] Well, I have to say, this particular beautiful place, which occurs in Wyoming, is a beautiful and yet very heart tugging situation, and the combination of the two, I think, is everything about what this pandemic has been about. This is from Michael, and he writes, "My brother, Tom, fought a rare brain cancer for almost a decade. When he acquired COVID in March, we didn't immediately realize that this infection was a threshold signaling precipitous declines in his overall condition. He passed in October in our parents' small mountain home in Wyoming with all of us around him. During the days leading up to his passing, two long eared owls would perch for a time outside of our dining room in the evening, calling to each other. On the evening of his passing, a red tailed hawk replaced them, calling out his screech as it left the branch. Later in the dark, the Aspens that surrounded our parents home seemed like an aberration, sentinels against the night sky waiting to gather his spirit. I employed them to take good care of my brother. We must keep our eyes open to the beauty around us. The beauty that we encounter in everyday life, in the light, in the sky, in the faces of people we see. For me, any time from here forward that I have the good fortune to find myself in an Aspen grove, I'll look to the shimmering light and the chatter of those leaves to the slender limbs that reach skyward and think of my brother. Grateful for my time with him. Many, many thanks. Be well, Michael." Wow. Thank you, Michael, for sharing that. Again, our condolences to you and your family on the loss of your brother. Thank you. You did share a picture with us that is on our website that you can take a look at that shows those beautiful Aspen. Such a beautiful place. Such a beautiful, beautiful moment in an otherwise very difficult pandemic. Thank you, Michael.

**Chris Dall:** [00:52:57] Mike, what are your take home messages and closing thoughts for today?

**Michael Osterholm:** [00:53:03] Well, Chris, I have three specific summary points, I think that sum up our discussion today. Number one is the fact that we are all about new baselines. We're trying to understand what that means. And every time you kind of try to get your arms around, what does a baseline mean? Think of that example I gave you about temperature. It's all relative, and the very same experience can feel two totally different ways, depending on how you look at it as baseline. And we're going to be going through that for the days ahead. That part, I'm confident you know, we will get through and we will see a day when the numbers actually do drop even further to the point of hopefully what we saw last summer. But I want to be very, very clear and this is point number two, this virus is not done with us. And so we have to plan accordingly. Now, as I pointed out in last week's episode and probably many episodes before that, we sit between two guardrails. On the left guard rail, we have the situation where this virus will in fact begin to act more like seasonal influenza with surely surges of cases like seasonal flu that can be troublesome, can challenge us, can see some increase in deaths. But we have not, over the course of recent decades, changed our lives for influenza. We've learned to live with it. On the right guardrail is the potential for a new variant to emerge. And going back to that paper that I discussed last week of Don Burke's that there are at least three out of four different scenarios of what this virus could do that are not pretty. And I know people say here he goes again, Dr. Doom, No. Again, I feel like a deja vu moment right now. It was a year ago right now that there are a number of you that were not happy with me, frankly dismissive of me. When I said I thought that the darkest days of the pandemic could still be ahead of us because of the variants. Well, we've made a lot of progress since then. We have a population that has a lot higher levels of immunity, but again, we don't yet understand fully what waning immunity means, and we don't understand what immune evasion means. We surely saw what Omicron could do with immune evasion. What might be the next variant? So the second part of this is we have got to prepare now for how would we want a system to look like if we had another big surge? What recommendations would we make to the public? What would they follow? What are we going to do to increase vaccination? How will we in fact distribute drugs, how will we get testing done so that people can have ready access to drugs? You know, I talked last week about a story in our CIDRAP News where here in the state like Minnesota, we had ample monoclonal antibody and drugs available for people during a large part of this omicron surge. And yet, you know what? They didn't use them. Why? So I think the second part is we have got to prepare for that right guardrail and hope for the left guardrail, knowing that hope's not a strategy. Finally, we will look to Asia and China, I think is still going to be a wild card in the next several months. When you look at Hong Kong, when you look at Singapore, when you look at Tokyo, when you look at Seoul, you say to yourself, can the Chinese really stop this ongoing Omicron transmission in China? And while we've heard very little about it during the Olympics, it has got to be a much greater challenge there right now with zero COVID policy. And if you look at every other country in the world, zero COVID policy has not been successful. So we'll keep looking to China because so many of our critical supply chains originate out of China. So to me, that is the third and final piece that we'll continue to focus on is trying to understand what will happen in China over the upcoming weeks and what impact that will have on the world. Well, let me leave you today with some words of wisdom, not a song, you know, I typically picked on songs for my closing comments over the recent weeks, and I surely find a great deal of comfort and insightful ideas in these songs. But today I wanted to take a quote from someone that most of us have known and many of us have loved. It's the late Maya Angelou. As you know, she died in 2014, was an American poet, a memoirist, and a civil rights activist. She published seven autobiographies, three books of essays and several books of poetry. And she's credited with a list of plays, movies and television shows spanning over 50 years. She was clearly a very special, special part of our lives. She became a poet and a writer after a string of odd jobs during her young childhood. These included a fry cook, she was a sex worker, a nightclub performer, Porgy and Bess cast member, Southern Christian Leadership Conference coordinator and even a correspondent in Egypt and Ghana during the decolonization of Africa. She was remarkable. Her book, "I Know Why the Caged Bird Sings," published in 1969, tells her life up to the age of 17 and brought her international recognition and acclaim. I have a quote that she shared with us in her lifetime, one that stays with me day in and day out, and I like to think of it as one of my personal North stars, and I think right now it has some applicability to all of us in the world we live in. Maya Angelou once said, "I've learned that people will forget what you said. People will forget what you did, but people will never forget how you made them feel." When I think of Paul Farmer, when I think of what we all in public health the medical care delivery system have been trying to deal with COVID, we have to continue to remember that what we tell people, what they remember we tell them, how we try to tell them, they will largely forget a lot of it, but they will never forget how we made them feel. And I hope all of you in this podcast and the podcast family can today take a step back and think to yourself, not just what did I say to people or how did I act, but in the end, how did I make them feel? And you know what, I think in a world today of such turmoil, if we could all just make people feel better, how much better it would make ourselves feel. So I share this with you today from Maya Angelou, and I will never forget how you have made me feel in this podcast and our podcast team. Thank you for that. So let me just close by again, reminding everyone that the cases of COVID we talked about today a lot of numbers. They are our moms and our dads, our brothers and our sisters, our grandmas and our grandpas, our grandkids, and we can never forget that. We never can forget that. Thank you so very much for spending your time with us. We appreciate it. We'll be back again next week. I'm hoping every week the news can get better and better. In the meantime, be safe. Be kind. Think about how you make people feel and act accordingly. And thank you so much for being with us. Thank you.

**Chris Dall:** [01:00:53] 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.