Episode 70: Corrected Science

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, the United States surpassed 675,000 COVID-19 deaths since the beginning of the pandemic, a number roughly equivalent to the death toll from the 1918-1919 flu pandemic. And although the surge in cases that began in July looks like it's finally starting to decline, we may be far from done. The country has already reported more COVID-19 deaths this month than in all of August, and September is shaping up to be the deadliest month of the pandemic since February. So where do we go from here? Will the U.S. continue to see high rates of infection, hospitalization and death as we head into the fall and winter with few restrictions? Or will vaccine mandates, booster shots and vaccine authorization for children begin to turn the tide? We're going to discuss these issues this week on the podcast as we assess the state of the COVID-19 pandemic in the United States and abroad. Our discussion will include a closer look at the latest data on vaccine efficacy, an examination of the FDA advisory board's recommendation on booster shots and further exploration of how the Delta variant is impacting kids in schools. We'll also tell you about another beautiful play submission from one of our listeners. But first, as always, we'll begin with Dr. Osterholm's opening comments and dedication.

Michael Osterholm: [00:02:00] Thanks, Chris, and welcome to all of you. Back to another weekly episode of trying to understand what's happening in the world of COVID. At this point, if you're increasingly confused, if you are finding yourself, not quite understanding what the current status of vaccines are, what is happening with the pandemic in the United States and, for that matter, around the world, what this means to your children, particularly if they're in daycare or schools, how in fact politically are we trying to respond to what has become a very, very divisive issue around our schools? The fact that we're seeing every week horrible examples of human behavior at school

board meetings, at community meetings in general. Just this past week, more public health officials resigning over the intense pressure to basically take messages of the anti-science, anti-public health world and promote them. This is a tough time and I know every podcast I start out almost by saying that, but I think it is getting tougher. We just have to hang the course. We have to understand that in the end, we have the tools to deal with this pandemic. And unfortunately, if those tools aren't successful, meaning people don't use the vaccines that we have, they will become the new numbers. They will become the statistics, they will become the loved ones for some who are no longer around for those other someones. And so as we launch into this podcast today, again, I will make every effort with our podcast team again, a team that I could not do this podcast without and try to share with you a perspective of where things are at, what's happening and and give you the best sense I can of what that crystal ball and its mud coated glass looks like and what it means. And so hang on. The dedication today really takes off from the comments I just made about the challenging times with our kids. In recent episodes, I've acknowledged teachers, school nurses, but one group I haven't acknowledged are the kids themselves. I think that they unfortunately are caught in a web of politics, scientific uncertainty and in some cases just incompetent work upon those who should be making recommendations with the children's outcomes being not just their education, but also their well-being, first and foremost. And so today I dedicate this podcast to every child. I don't care if you're a day old and you are from the nursery to the daycare all the way through higher ED. If you're a student today, it's a tough time. And so this podcast is dedicated to you, and hopefully the messages that you'll hear through this podcast are messages that will help you as parents or as students, or as grandparents and students navigate the waters ahead.

Chris Dall: [00:05:12] Mike, I laid out some of the dire news about the U.S. situation in the introduction, but the latest World Health Organization update shows a continued decline in COVID-19 cases and deaths globally. We know that bad news is always lurking around the corner with this pandemic, but should we be encouraged by the global trends?

Michael Osterholm: [00:05:32] Well, let me start out by saying, first of all, a reminder which should be front and center on every one of these podcasts is the numbers that I will talk about today are real people. They are loved ones. They are family members. They are colleagues. They are friends. They're acquaintances. And in some cases, they

are people we don't know, but we know of. And I just want to remind ourselves of that, particularly as we get into some of these more heated issues about what we're trying to do to control the pandemic and what others are in a sense doing to make that control much more difficult. So that's just a reminder of that. And it doesn't matter whether you live in the United States, or you live anywhere in the world. This is in fact all about real people, not just statistics and numbers. So in terms of responding to you, your question, it is in fact important to note that as of this past Tuesday, more than six billion doses of COVID vaccine have been administered worldwide, and we're closing in on having one in three people on the face of the Earth fully vaccinated. When you consider that at this point, just one year ago, we had virtually no one vaccinated, you can really begin to appreciate how far we've come. And yet, as I've said many times in this podcast, it's clear that we're still far away from where we need to be to have a major impact in this pandemic globally. We've got a lot of work left to do ahead of us. I'll talk more about that when it comes to vaccines and vaccine availability throughout the world by countries status in terms of high, middle and low income status. What's happening this week at the United Nations and what we hopefully will see result from those efforts in terms of vaccine availability and use. So let me summarize where I think we're at with regard to these latest international trends. We largely remain at the whims of the virus. We do not have anywhere close to sufficient immunity, whether that's vaccine related or natural infection related, any country in the world, to feel comfortable that we really have this virus under control, and I'll comment on more of that later. That said, we are fortunately continuing to report declining global activity, total cases for last week. We're just under 3.8 million, down from the four million at the time of our last episode. This marks the third consecutive week of case declines and brings us to our lowest level since early July. Global deaths are also down slightly, with 62,000 reported, while weekly deaths have decreased over the past month. Just remember that the world has not gone a single week with less than 50,000 COVID deaths since last October. A cycle that has pushed the overall confirmed toll now past 4.7 million deaths. Now, when I talk about this downward trend, also remember that this is basically a very simplified version of a much more complex, ever changing story that can vary regionally, nationally and even locally. We will continue to watch cases cycle on a weekly basis from these lows of two million to 2.5 million cases a week reported worldwide to that of five to 5.5 million. And it's really a situation where, again, it's a Whack-A-Mole approach to COVID control. We will witness countries cycling between big surges like we're having in the United States right now to very limited activity, and it won't be due to human behavior. As such, it

won't be due to suddenly a new arrival of vaccines turning into vaccinations. This is something that's been very difficult for many to accept is that we still don't fully understand the epidemiology of this virus, and we'll talk more about that in detail when we talk about what's happening here in the United States. But on a global basis, you'll watch countries struggle with COVID for weeks and weeks and then suddenly appears that things are under control. Now, one note I would want to add is that in fact, we are seeing countries, however, now coming to the realization that zero control is not a reality. Just this past week, Singapore, which has had one of the most comprehensive and really effective programs at controlling COVID in that country, has now acknowledged that zero COVID is not a reality. As soon as they started lifting some of the restrictions they had put in place in the population, cases bounced right back. So we just have to acknowledge that in fact, we are going to be at the whims and don't be surprised if in four or five, six weeks, I'm back talking about the major increase in cases somewhere else in the world, which now contributes to an overall international increase in cases. But let me at this point just for summary sake, zoom in a bit and look at what's happening at the regional levels around the world. As I might note, given the case numbers, we're finding that most regions are contributing to the overall case declines, with only exceptions being Africa and Europe, where the incidence has remained steady at this point. Prior to this week, Africa had been reporting steady declines for more than two months. This reduction, largely due to the less activity in South Africa, came despite just over three percent of the region's population having been fully vaccinated. Surely it wasn't the vaccine that did this. It's important to note, however, that although cases and deaths were falling in the region, even with the absence of vaccines, the lack of protection allowed Delta to fuel Africa's worst surge to date as they reached record high deaths. Now, recent upticks in countries like Botswana and Zimbabwe and steady activity in Ethiopia have stalled the region's progress. Although this could be a temporary blip that is followed by continued declines, the large gaps in protection across Africa's population leaves them extremely vulnerable to yet another surge, so we'll have to keep tabs on what happens there. I, unfortunately, am quite confident that they will see additional major surges. Meanwhile, Europe has been dealing with stubbornly high case plateaus over the past couple of months. While cases there have slowly crept downward, deaths in the region have been growing over the last month. Russia, which really just lags behind other countries in the region when it comes to vaccination rates with just 28% of the residents there fully vaccinated, is surely playing a big part in Europe's death toll, contributing on an average of nearly one out of every two deaths in

the region on a daily basis. Otherwise, although deaths are also up in places like the UK, where the average sits at about 144 deaths per day, the growth rate in overall toll remains far less dramatic than what we experienced during previous waves, such as the UK's winter wave, where they saw an average of 1,250 daily deaths as compared to their 144 now. Turning now to Asia and the Middle East, cases and deaths there have been falling for the past two months, mainly due to downward trends in places like Iran, Indonesia, Japan, Malaysia and Vietnam. In fact, Indonesia, which went through a devastating delta wave, is reporting that cases and deaths have returned to their pre delta baseline. Of course, other countries in the region that got slammed by Delta, such as India, Iran and Malaysia have yet to return to that baseline. Otherwise, a handful of places there are still reporting record high cases, including South Africa, Syria and Singapore, as I just mentioned. Less than 2% of Syria's population is fully vaccinated, so they're particularly vulnerable to a sharp rise in deaths. Meanwhile, more than four of five residents in Singapore are fully vaccinated, and although they're seeing continued case growth, they're considering a rite of passage as they move away from their zero COVID strategy. Last Friday, their health minister said that Singapore is quote "on a path of transition to a new normal of living with COVID-19. It is a journey that is uncertain and full of twists and turns" unquote. With several COVID deaths reported this past month, Singapore hasn't gone unscathed as expected, but they will be important to monitor as they move forward. We're still tracking activity in Latin America with no clear signal of a regional U-turn in activity after months of declines. It will be particularly interesting to see what happens in Brazil over the next couple of weeks, as Delta is reportedly now the dominant variant there. Up to this point, they have fully vaccinated only 38% of their population with other previous hotspots such as Chile and Uruguay have had more success in their vaccination campaigns, each having now fully vaccinated nearly three fourths of all the residents. Others, like Argentina, Colombia, Paraguay and Peru, have also yet to reach the 50% mark. Finally, our neighbors to the north, our sister country, Canada, is still fighting their delta wave, which started taking off in July. Cases have risen nearly 10 fold since that time, and hospitalizations and deaths have also ticked upwards. However, with seven out of every 10 Canadians now fully vaccinated, the all too familiar wave of deaths that trails behind case increases appears to have been significantly blunted. What are the take-away messages here? First, we're not driving this tiger. We're continuing to ride it for reasons which I am certain we cannot fully explain. We seem to have found ourselves at the downhill side, at least for now, of this latest global wave that has been largely driven by Delta. What

led to the decline? How long can we expect it to last? I don't know. Number two, vaccinations are critical. We have yet to see vaccines alone fend off waves with this virus. Example after example supports the fact that vaccines play a huge role in helping reduce the most severe damage caused by this virus in the form of hospitalizations and deaths. However, even countries with some of the world's highest vaccination rates aren't magically shielded from transmission. As an example, as I just noted, look at Singapore, where 80% of all their residents are now fully vaccinated. Again, they've built up a sturdy wall to help prevent severe disease and deaths, but they're still seeing Delta take full advantage of any gaps in protection. Number three, with that in mind, we should fully expect upticks in our near future if this virus can readily transmit in places with populations presumed to have fairly significant levels of protection, such as Singapore, Iran, the U.K. or Israel. Then why wouldn't we see another wave in Africa or Latin America or in Asia? My bottom line is we will. In the meantime, any break we get from this virus, no matter how small, should be taken full advantage of with vaccines, vaccines and more vaccines. Thus, in the event of the future upticks, we can help maintain health systems and saves lives by concentrating on that very issue on a global basis. I will comment more in a moment on what is happening with the global distribution of vaccines and how the United States is actually leading the way in that effort.

Chris Dall: [00:17:03] And here in the U.S., Mike, we're now clearly seeing the impact on mortality from the summer's Delta wave, with an average of more than 2,000 new COVID-19 deaths a day. And hospitals in several states are now essentially rationing care because they're so overwhelmed with COVID patients. I just want to step back for a second Mike and point out that, as our audience knows, you predicted there would be a delta wave this summer and that states with low vaccination rates would be hit hard. Did you think you it would get this bad? And how long is it going to stay this bad?

Michael Osterholm: [00:17:37] Well, Chris, let me start out by, first of all, saying that as has been paraphrased and attributed to any number of different famous people, you know, making predictions can be very difficult, particularly when they're about the future. So let me just clarify the point about what I saw coming this summer and give some perspective when the alpha wave took off late last fall into the winter in Europe. It surely represented a change in the future of this virus and the pandemic. It indicated what variants could do that we had not previously realized with regard to both their

infectiousness, the ability to cause severe disease and how they might in fact evade the immune protection from vaccines or from natural infection immunity. And so it was at that time that I said, you know, the darkest days are still ahead of us because I was watching what was happening around the world, knowing that the vast majority of the world still had not been infected and surely had not had access to vaccines. So it was just like the comments I just made talking about the international scope that in fact, these surges are going to occur again. And so it didn't really take rocket science to say that this was going to happen. And based on the fact that we had seen summer surges in 2020 in a number of locations around the world, why would we not expect to see them again? So while there are a number of my colleagues who were saying, No, no, No, we have enough people who have immunity from vaccination or previous infection, and this is going to become a wintertime virus. I saw no evidence to support any of that. And while none of us actually described Delta as a variant replacing Alpha and even being much more infectious, it was nothing that should have been a surprise to us that it could happen. So I just think that this is part of what I sometimes referred to as, you know, in our group as creative imagination. You just take the best science and look at what could happen. And then from that on a science basis to say this is what you need to be ready for, prepared for. So this delta surge has not surprised me at all. What I don't understand yet is how it is going to play out. What is going to be the next chapter? And so I take no consolation at all in having, you know, seeing what I thought was going to be the future when others didn't. But let me just take a quick step back. In your introduction, you reference the infamous influenza pandemic in 1918. While there are plenty of examples of infectious diseases playing major roles in reshaping civilization like smallpox, bubonic plague, etc., the 1918 pandemic really helped set the more modern day standard for what a novel virus that spreads via the respiratory route could do on a global scale. It's sort of the scenario that before COVID kept people like me up at night because we knew that much like tornadoes, hurricanes and earthquakes, future pandemics were going to happen. It's also a reason that I've spent a good portion of my career trying to warn people that as a country and a world, we were woefully ill-prepared to deal with such a reality. Even to the extent of talking about the impact that it would have on business, the current supply chain shortages we have, were not a surprise at all. We wrote about that, Mark Olshaker and I did in our 2017 book Deadliest Enemies that this would happen during a pandemic. But so now here we are with COVID. Well, there are several features that really distinguish the 1918 pandemic from this one, including notably different population sizes and age based mortality rates, especially in

young adults, it's still sobering to realize that I've actually encountered a pandemic capable of causing such devastating death tolls in this country. This is especially true for me when you consider that we now have the resources such as modern ICUs, highly specialized and well-trained health care workers, and for a larger part of this past year, a safe and effective vaccine. So I conclude it by just saying we would have seen this coming. We've could have done a much better job preparing for it, and this must be our future goal is to not just contain this pandemic one day, but also be better prepared in many, many ways for the future pandemics because they will occur. In a way, that's how I feel about where we're currently at in this pandemic as a country. We were so ready to be done with this virus and move on. At the very least, we planned on having a uninterrupted summer. Everybody seemed to be on board. Yet once again, we find ourselves in a position where more than 2,000 Americans are dying from COVID each day, the highest average since late February. To put this into context, let's look at the list of the world's 12 countries with the highest death rates today. Right now, the country of Georgia has the highest rate in the world, with 1.28 deaths per 100,000 population, and Serbia ranks 12th with 0.5 deaths per 100,000 population. However, as of Tuesday, the U.S. has 23 states, let me repeat that 23 states with death rates that are above what is being reported in the 12th place Serbia. In fact, if Alabama, Florida, West Virginia, South Carolina and Mississippi were countries instead of states, they would replace the current top five on the list. Think of that, this is the United States of America. And this is what's happening right now. With so much of the U.S. population still vulnerable in combination with the sheer contagiousness of Delta, I can certainly piece together why we're in the current position that we are. However, it is still jarring to see that play out. Now, the question is what will happen here? How will this unfold over the days ahead? You know, I've referred in the past to what has happened in the United Kingdom, a population that is substantially more vaccinated than we are with 67% of their population vaccinated. If you look what's happened by the end of July with the Delta surge, they got up to 51,000 cases a day, more than 25 times higher than what had been seen in May. And then by early August, that 51,000 case number dropped to 26,000. But then, instead of going back to baseline of 2,200 cases, it basically leveled off at 26,000 cases, increasing again back in September 10th to 38,000 cases a day. Now, grant you, that's very important to note that the number of deaths are substantially lower. So here they are today at 30,533 cases being reported, but only 144 deaths, far less than the number of deaths seen per day last January. So what will happen in the United States? We watched the case numbers drop from 135,000 to 140,000 cases a

day to 60,000 cases. What's our goal? Where are we at? I don't think we really know that yet. Let me just talk a moment about what's happening with the surge as we're seeing it, because I think it is unlike any other surge that we've seen around the world emerge here in the United States. And what I mean by that is it's there's a very distinctive epidemiologic pattern how the cases are moving in a sense from one location to another. It's not necessarily that it's in a sense spread. It's more why does it show up in some places and not others? I've likened what I've seen happen to that of viral larva. For example, there's been a number of chapters in this surge. The first one was really the we saw that area of northwestern Arkansas and southwestern Missouri light up. And then soon after that, it was Louisiana, Mississippi, Alabama, Florida. And then about the same time in the far northwest, we saw Washington, Oregon, begin to light up. The third chapter for the pandemic, we then saw case numbers beginning to peak in that second chapter countries and which they now have peaked and are coming down. But then we saw a third chapter where Georgia, South Carolina, North Carolina, Tennessee, Texas and then Idaho, Montana and Wyoming and even North Dakota in that northwestern segment of the country's increasing number of cases picture. They then lit up and became the states with the highest incidence. Now they've hit their peaks and are starting to come down. But we're seeing now is the next chapter Kentucky, West Virginia, southern Ohio, southern Pennsylvania. And then on the western part of the country, we are beginning to see in Nevada and even Northern California beginning to take off, even as we now see chapter one, two three and even some of four states beginning to see either peaks or decreases in cases. We're now seeing potentially another chapter, Chapter five in the Upper Midwest. We're now beginning to see an increasing number of cases just in the last 14 days, Iowa has had a 26% increase, South Dakota 39%, Kansas 15%, Minnesota 121%, Michigan 31% increase, Wisconsin 87% increase, North Dakota 44% increase. Is this going to be the next hot area? Could it be as hot as anything in the south? And then we look in the northeast. If you look at a map and plot the cases by time and location, you can literally see the cases going from that southern Sunbelt initial chapters and going right up kind of the East Coast. And where it's at right now is one that is approaching the northeast, which is surely more vaccinated than the rest of the country, but there are still huge gaps there. And if we look at that Northeast and just look at some of the states, New Hampshire has had a 41% increase, Vermont had a 36% increase. Connecticut 32%, Massachusetts 16%, New Jersey 24%, Virginia 10% increase, and even New York a 13% increase. Will this become the next hot area? Please don't tell me because of the vaccination levels there,

which are higher than any other place in the country as a region that you can't have substantial activity again. Look, I just referred to with what's going on in the U.K., so I think this is the question we don't know. And then I would just last leave you with this sense of people who have such understanding of this virus who frankly, I don't think they understand it, are all telling people, you know, this is what will happen, whatever I cannot for the life of me with 46 years of experience under my belt, taking on viruses, day in and day out all my life, what is happening right now in this country with regard to New York City and L.A. County? Here are two areas if you just look at again, remember that the national incidence of disease right now on an average is 41 cases per 100,000, 54% of our population is fully vaccinated. Ok. 41 per 100,000 fully vaccinated, 54%. If you look at New York City right now, they're at 23 cases per 100,000 population, well below 41 per 100,000, 62% of their population is fully vaccinated. That by itself, based on what we've seen in other countries, would not provide the kind of protection that says they should see such a low number of cases. If you look at L.A. County, they are at 17 per 100,000 population, 17 cases per 100,000, far below the 41. They only have 59% of their population fully vaccinated, and yet we're not seeing this kind of surge issue occurring there. Now will that change? We surely can't explain why it's happening. It's surely not because of just vaccination levels or other mitigation strategies that are taking that are protecting them. It's this virus. Why is it not there right now? We don't know. But should these two areas alone light up their combined populations of 18,350,000 people is about six to seven percent of the U.S. population? Imagine how it would look quite differently than if this lit up today versus the Upper Midwest. So let me just conclude by saying it's painful to have to acknowledge that I don't know when this next surge will let up or how will let up or where we'll will let up. We're not done. We're not done with this yet. And then on top of it, remember, we still have 70 million Americans, at least who have not been vaccinated, who could be who likely do not have immunity from previous infection. That is more than enough human wood for this coronavirus forest fire to burn widely for some time to come in a very, very hot situations.

Chris Dall: [00:30:53] There's been a lot of news about COVID-19 vaccines this week and the past few weeks, and we're going to get to that with these next few questions. But Mike, can you start by just providing an update on where we are in the U.S. and the global vaccination effort and how well the vaccines are holding up?

Michael Osterholm: [00:31:11] Well, this is basically a topic that could use in itself an entire whole day symposium to really try to drill down and dig deep and understand what's going on. Let me just start out by just some, some blunt numbers you might say to give people a sense of what's happened to date. Based on the best data we have in the U.S. and I'll come back and comment on that later, because each of these supposedly represents an individual using the two dose Pfizer vaccine, 99,477,000 individuals have been vaccinated. For Moderna, that's 67,780,000 and for J&J, it's right around 14,651,000. So let me just summarize that again more than 99 million Americans vaccinated with the Pfizer vaccine. 67 million vaccinated with the Moderna vaccine. And over 14 million with the J&J. As of September 20th, the United States has administered about 383 million doses of COVID vaccine. So of course, that estimate includes people who have not yet completed both doses. 63.5% of the population in the United States has received at least one dose, and 54.2% are fully vaccinated. Both up 0.8% from last week, and I have to say I'm skeptical even of that number because we have many reports of individuals wanting to get a third dose going into clinics and pharmacies saying that they'd never been vaccinated before, and therefore they wanted to get their first vaccine when in fact, it was the third dose. And so how much that's happened? We know CDC itself acknowledged several weeks ago that probably over a million people had done that. And so it's unclear of that 0.8% increase in the past week how many are really, truly legitimate first time vaccinees and how many are individuals purporting to be first time vaccinees but are actually looking for a booster dose? If you look at vaccination rates in the U.S. compared to other countries. This, to me, is a very painful acknowledgment of how we have failed in this country to respond to the pandemic. Right now, we rank 43rd globally in terms of the percentage of population fully vaccinated as of September 20th. Globally, 78 doses per 100 people have been administered. In the United States, that number is 116 per 100 people. While this is still above the global average, we're trailing behind many other developed countries. Canada has administered 147 doses per 100 people. The U.K. has administered 139, France 138, Italy 137, Germany 127, and Japan 121. Overall, the European Union has administered 123 doses per 100 people. All of these are substantially more than the United States. And as I've noted before, only 3% of those living in low income countries have been vaccinated to date. Now, I hope that will change soon, and we'll talk more about this in a moment about what is happening on the global level. But I'd like to spend a minute concentrating on the vaccines and kids in the U.S. since we're so concerned about our children today and we do have vaccines available for those 12 to 17. Why are

we where we're at with those individuals in terms of the vaccination levels? Let me just briefly summarize the vaccine situation in kids in the U.S., children age 12 to 17 have a lower vaccination rate than the overall U.S. population, with just over 45% of children ages 12 to 17 fully vaccinated. This compares to 64% of all Americans age 12 and up. In August, the Kaiser Family Foundation conducted a nationally representative poll of nearly 1,300 adults in the U.S. that are parents or guardians of at least one child under the age of 18 living in their household, and saw correlations between the child's vaccination status with their parents vaccination status, their parents political party, household income, parent age, parent education level and parent race and ethnicity. The vaccination of kids seems to be strongly correlated with the vaccination of their parents. I guess we shouldn't be surprised. 60% of vaccinated parents have children ages 12 to 17 that have received at least one dose of the COVID-19 vaccine, compared to only 4% for those unvaccinated. 50% of unvaccinated parents said their child, 12 to 17, will definitely not receive the COVID vaccine. That's 50%. 61% of parents who consider themselves Democrats have children aged 12 to 17 that have received at least one dose of the COVID vaccine, compared to only 49% of those who declare themselves independent and only 24% of those who declare themselves Republicans. 54% of parents with college degrees have vaccinated children, compared to 33% of parents without a college degree, and then 55% of parents with a household income over $90,000 a year have children that are vaccinated compared to just over one third of parents with an income of $40,000-90,000 a year. And just one quarter of parents with an income of under $40,000 a year. There surely seems to be some correlation between the parents decision on the annual flu vaccine and their decision on COVID vaccines for their children. Of parents who say their children normally get their annual flu vaccines, 57% said their children, ages 12 to 17, received the COVID vaccine, compared to 25% among parents who say their children do not normally receive the flu vaccine. More than a two fold increase. So one of the challenges we have today is understanding if we're going to improve vaccination rates in our kids and what happens in schools, what happens in the community, it's all through the parents critical issue. Now there is one point that I think we need to really look at very carefully. These are barriers to kids getting vaccinated that may not be ideologically based, but rather reality based. What do I mean? In this same survey that I just described, it was shown that despite vaccines being widely available, one of the things we still need to keep in mind is whether they're accessible to people. 32% of parents of unvaccinated children ages 12 to 17 say they are concerned that they may not have the ability to take time off of

work to bring their child to a vaccination site or to take care of them if they experience side effects. 18% are concerned about potential out of pocket costs and 17% have difficulty traveling to a vaccination site. There's very little variation in these numbers between vaccinated and unvaccinated parents. Only 40% of parents in the survey said their workplace allowed them paid time off to get the vaccine. Similarly, 35% said their workplace allowed them paid time off to recover from side effects, but only 24% allowed them paid time off to take care of their children recovering from the side effects. Lower household income was correlated with less likelihood of getting paid time off for themselves or their children to receive the vaccine or recover from side effects. Only 8% of those making less than $40,000 per year said their employer allowed paid time off to get the children vaccinated. This is the group that is least likely able to risk unpaid time off to get children vaccinated. Therefore, relying the most on paid time off yet they received the least paid time off of all. Finally, I would just say that 25% of parents of unvaccinated children ages 12 to 17 said they would be more likely to get their children vaccinated if their employers gave them the paid time off to do so. 14% said they would be more likely to if their workplace provided free transportation for their children to get vaccinated, and 19% said they would be more likely to if their workplace arranged vaccinations for their children and families at the workplace. There is some variation in this data for the different races and ethnicities. 49% of Hispanic Latino parents have concerns about time off to work, compared to 30% of black parents and 24% of white parents, which again compares to the 32% overall. 34% of Hispanic and Latino parents are concerned about the out-of-pocket cost, compared to 30% of black parents and only 11% of white parents, again compared to the overall 18%. And finally, 40% of Hispanic Latino parents are concerned about traveling to a vaccine site, compared to 24% of black parents and just 8% of white parents. This again compares to 17% overall. Bottom line is, there are some inroads we can make here if we understand the barriers to getting children vaccinated that are not ideologically based. And this is what we must do right now is work in this regard in terms of dealing with parents who they themselves oppose the vaccines is going to be a tremendous challenge. And as I talk about what I see happening in the schools right now, I don't know how we're going to bridge this gap and what I fear is is that we will continue to see the prolongation of this pandemic in our kids, which will have big impacts in our community just because of our inability to get parents to get vaccines. So while I am fully fully supportive to get vaccines available to every child six months of age and older, let's just be reality based here and say it's not about the vaccine, it's about vaccinations. And so even if we get approval for these

younger kids, the question will be how many will actually get vaccinated? This is going to be a major issue ahead of us.

Chris Dall: [00:41:30] So that brings us to the issue of booster shots. Last Friday, the FDA's vaccine and Related Biological Products Advisory Committee, or VRBPAC, made some recommendations about who should be eligible for a booster or third dose of the Pfizer COVID 19 vaccine. And we're going to turn now to one of our listeners for this next question because she really gets at some of the confusion around these recommendations. Here's what Tanya wrote to us. "Can you please address what happened with the FDA Advisory Panel recommendation on booster shots for the Pfizer vaccine on Friday? I understand that the committee recommended Pfizer boosters for older adults and those with other conditions that put them at higher risk of severe disease. However, I do not understand why the committee also then informally endorsed boosters for otherwise young and healthy health care workers, first responders and teachers. If there is evidence that third doses would be beneficial for otherwise healthy, low risk members of that group, why would they not be beneficial for the rest of the population?"

Michael Osterholm: [00:42:28] Well, let me just begin by saying that we're on a journey with this vaccine. And what you're watching are some of the major pothole sections of our journey. It is something that I talked about the last several weeks. I'll be happy to come back and reiterate and just say again that what happened at the FDA VRBPAC meeting was something I fully expected to have happen. In fact, the recommendation that finally came out of the group was virtually what I thought would happen. But to understand this, let's just again take a step back for those who are routine listener of the podcast. I've covered this before, but let me just briefly summarize it again. The challenge we have right now with this whole vaccination program is we have many, many different moving parts, all at the same time that all in their own way can contribute to how the vaccines are performing. And we're trying to identify a single issue in many cases that will account for what should we do with these vaccines? And it's not that simple. Take a step back. One year ago today, if I had been on this podcast and said we are going to have a vaccine that is going to be 95% effective after two doses, protect you against illness, protect you against hospitalization and protect you against death. Isn't this great? And a year ago at this time, we said, Hey, if we get a vaccine is 50% effective, that's going to be great. And we set that expectation only to then realize that in

fact, we had vaccines that at the time were being reported as 95% effective for reducing clinical disease, hospitalizations and deaths. And that was real information that was not misinformation. But what's happened since that time are two things. One is we have seen the arrival of Delta, a more infectious virus which, whether that can have an impact on whether someone gets infected who has preexisting immunity is still up in the air. But at least that's something you have to look at in the pre delta and then Delta era. But the second thing is, the vaccine was always designed to be studied initially as an emergency response vaccine. And what I mean by that was that we had this pandemic looming in front of us. We couldn't take four or five years to study this in full detail to come in with every possible answer that might be asked about how it would perform. How safe is it? So we concentrated on were two things. One was safety. We have never once compromised on the safety issue about these vaccines. What we know today is the accumulation of incredible experiences. I just pointed out with the millions of people who have been vaccinated, we can put to rest the question about vaccine safety. Now, of course, we're going to want more information about our kids and how safe the vaccines are there, but not because we suspect that there will be a real problem or a challenge. We just owe it to the kids. But when you look at what we have, it's remarkable. What we're now really dealing with is a second bucket, not safety, but how best to use these vaccines. One of the things we had no way of knowing when we set up the original dosing schedule, how much vaccine to put into a single shot and how to space out those doses so that you maximized in terms of the human immune response. So what we did is let's see if we give dose one at day one and dose two at the third week or the fourth week. Can we get a rapid immune response that we can detect we can pick up? We can measure and we can actually see protection for and then get these vaccines approved if the safety data supports that also. That's what we did. Well as some people who have been following this podcast, some of us raised questions during the early days of the Alpha variant arrival that could we just give a dose now and a dose much later 10 weeks so that we could maximize the number of people that got at least one dose because we had early evidence that one dose was actually still protective from serious disease for Alpha? Well, we didn't go that way. The U.K. did, Canada did. And guess what they have found now that dose one on day one and dose two on potentially week 10 actually even gave a better immune response than dose one at day one and dose two at three or four weeks later. This is all part of understanding what we call corrected science. We learn, we learn, we implement. Then we look at it, we study it, we learn more, we re-implement. We keep getting better and better. So that

one of the challenges we have right now is how do we best set up the dosing for this vaccine by time? Well, now another feature comes into play. That feature is waning immunity. All of us who have had a history of vaccination knows that for different vaccines, you have different schedules, some varying by many months apart between the different doses to maximize on the actual response so that vaccine. In a very simplistic analogy, imagine your immune system is one where you can very easily run a marathon. But if I tell you to run a second marathon an hour after the first one and then I asked you to do it again a third time an hour after the second one, you're probably not going be able to perform nearly as well in that second and third marathon. The immune system's like that, once you hit it, you stimulate it. You basically are trying to develop that immunity. In some cases, waiting many days after the first hit to the second hit. So now it's fully capable of really responding to that second vaccine is actually preferred in terms of getting maximum protection. One of the things we really hadn't considered when we looked at the two dose mRNA vaccines or the one dose J&J vaccine was would we have waning immunity, meaning that how many doses are really going to be required to get us the kind of level of protection that's sustainable over time? We should have thought about that issue when we saw breakthroughs beginning to occur, particularly in those people after five or six months following their second dose, where the immune system was now starting to wane. The breakthroughs were surely, in most cases, much less severe, but they were real. And for some people, particularly the older age population, there's evidence in a number of locations now that they were also severe illnesses that were occurring, not just the fact that it was a mild disease breakthrough. And so this added in now time with the immune response and waning immunity. Well, then you add in another element, which is, well, we've got to vaccinate the world, you know, be careful, don't use these vaccines as luxury doses. You know, if this is just mild illness, it's inconvenient. You know, you need to get first and second doses to the rest of the world. And so what basically has happened is this all has gotten put into one big mixing bowl and it is really created a lot of confusion. So let me just back off and give you my take on it. I'm not a vaccine immunologist. I listened to a lot of them who are out there, who know a lot more than I do, but I'm an epidemiologist who can tell you, you know, basically when you see a phenomena like I've seen with all these breakthrough cases and realizing that from a time standpoint, we're just now entering where we're going to have less and less protection over time unless somehow we can hypothesize that we have this great protection. All of a sudden it drops off like a cliff. We get breakthroughs, but then it levels off again. I don't think so. I think this is a

long descent into an ever increasing lack of response over time, i.e. waning immunity. So what happened was the administration clearly took this on as a very significant issue. I wish they'd never put a date out there. That was unfortunate to start a program because then it made it seem as if somehow the decision had been made. I can tell you from my own conversations and interactions the administration that was never the case. They always knew that the FDA and the CDC were going to have to approve whatever was recommended, but they were prepared I think at the point of saying, if we need to vaccinate a large population, we can and will. So here's where we're at today. The FDA, I think, appropriately turned down the request to take booster doses if they call them. I don't like that term because I, while it is a boost, I think this is going to be a three prime series vaccine for the world. All three doses will be critical. You'll get an initial hit with dose one. You'll get a much better hit with dose two. But the fireworks dose is going to be dose three, where you'll really see the potential for substantial immune response that might lead to long term protection and surely a substantial protection against breakthroughs. But now we're in this situation. What are the data support? And I think that what the committee did by turning down the request for approval as low as 16 for booster doses was the right thing. We don't have the data yet supporting the waning immunity issue there. And remember, part of that is the fact that if you were younger, you didn't get vaccinated right away. Remember how we tiered it in? And so the older people were the ones that were first to receive the vaccine or health care workers. And so now we're understanding that as time goes on, we're going to see more and more 50 year olds, 40 year olds, 30 year olds, 20 year olds. They're going to come up to the six to eight month post-vaccination dose, two time period. We'll study them. If we're seeing that they are starting to have significant breakthroughs that cause serious illness and hospitalizations, then I think you'll see these recommendations change from what then eventually did get voted on where in fact it was for the older age population and, in a sense, high risk groups for infection and health care workers at the top of that list. Because we have such a major shortage of health care workers today already for what's happening with the surge, and it's been extremely, extremely difficult with the increasing number of health care workers who are having breakthrough infections that then mean they're off work. And so clearly that makes sense that if we want to protect them from breakthroughs we'd vaccinate them. So let me just say that this process was messy. It was very messy and it's not done. We're still waiting for the FDA's final approval for what they're going to allow with the third doses. We're still by the time this podcast plays, we will have a better sense from the CDC's ACIP committee what

recommendations they are going to make. But just know this is not done. This will be the first group to get booster doses or third doses, as I like to call them. And I think that this will continue to change over time. So to answer the question of our listener today is that's what happened is we're just dealing with one, waning immunity two, a delta experience three, different age groups coming to, in a sense, their six month, eight month post time period, where waning immunity will happen more often more frequently. And we're still trying to put all that together. I would like to address one issue, though, that I think does deserve real comment. And it's the issue of are we taking doses away from the rest of the world? As I've said for many, many months, it's not just an altruistic issue here to vaccinate the world, it should be that it should be a humanitarian effort with the highest priority. But it's also a strategic issue, how do we protect our vaccines from additional mutations leading to variants that might escape immune protection of our current vaccines? That's where it's going to really see the mutational evolutionary pressure is all these infections around the world. So we have kind of a double priority humanitarian and strategic to get people vaccinated. So I am all for that. If we were vaccinating people from luxury, merely just preventing a mild illness with limited impact in the community, then I think that's another challenge. I think ultimately one day we will see that for many people, what if they didn't get a third dose, they could have serious illness and die. And if that would be the case, then we wasted the first two doses to begin with. So I think we're in a place where one day we'll see that. But in addition, on a national level, you know, I'm everyone I hope knows on this podcast, I'm willing to call balls and strikes. I'm not at all intimidated by that, even if it's the administration. But you know, the U.S. has been the international leader in getting vaccine to the rest of the world. You know, so far, we've committed to donate more than 630 million doses of vaccine globally. Nearly 160 million of those doses already on the ground in more than 100 countries from Peru to Pakistan, Sri Lanka to Sudan, El Salvador to Ethiopia. And this was detailed again in another White House op ed piece just today in The Washington Post. The United States has now delivered more doses than every other country in the world combined. Let me repeat that the United States has delivered more doses than every other country in the world combined, and millions more free doses are being shipped every day. President Biden just announced on Wednesday that the administration will do even more after purchasing 500 million doses of the Pfizer vaccine in June to donate to the world, we'll double that commitment, purchasing an additional 500 million Pfizer doses to give to low and middle income countries around the globe. Now this is a monumental commitment by the U.S., and it

does clearly show that we are doing what we can to vaccinate the world. So while I understand this potential, you know, 100 million, 200 million doses in the United States that might be used for booster or third doses, it pales in comparison to what we're doing. And I'm not hearing anybody complain about the rest of the countries of the world. All the other high income countries, what are they doing to help? So I think at this point, I I have to say, I think it's a bum rap to say that we're taking vaccine from the world when in fact, right now in this country, I do have real concerns that we're going to see more and more breakthroughs that are going to lead to serious illness, hospitalizations and deaths. And that's what in fact, we want to protect against. So the vaccine situation right now, it's in flux. Hang on, hold tight. You're going to see more changes coming, but it's corrected science. Learn, implement, study, learn, implement, study. That's the process we're using right now to improve our response every day.

Chris Dall: [00:58:01] So, Mike, just a quick follow up here, that meeting on Friday was just about booster shots or third doses of the Pfizer vaccine. We also got some data this week from Johnson and Johnson. This whole process is going to have to be followed for all the different vaccines. Isn't that right?

Michael Osterholm: [00:58:20] Yes, in fact, as you know, since the VRBPAC meeting was held, J&J came out with its findings. Unfortunately, we're seeming to do a lot these days in press releases, which is a terribly unfortunate way to learn about things because the lack of depth and clarity that you can get out of a press release versus reading the actual study data. In fact, with the Pfizer vaccine and the J&J vaccine, it's clear that the third dose or second dose in terms of J&J will be important in terms of long term protection. There were data from the CDC showing that, in fact, the Moderna vaccine actually has provided more durable long term protection over time. This also may be a factor that they've vaccinated at four weeks after the first dose, as opposed to the third week for the Pfizer vaccine, again giving up a bit of a better immune response. So it's unclear yet just what will play out with the different types of vaccines and what the recommendations will be. But I feel quite certain that yes, we will see third doses for some of the population who received Pfizer and second doses for some of those in the population who have received J&J. Whether that'll happen with Moderna, I don't know. But the important point here is we have to stay on top of this, anticipate it, don't wait until we have big problems in younger age groups, should that be the case before we take steps to actually address it. And I think that's what you're going to see happening. I

know this is confusing to have different vaccines and what they mean in terms of protection. I know J&J vaccinees in this country, have been very concerned and have been frustrated over the lack of information that has been made available to them. And part of that is a function that you have many fewer people who are being studied. It takes longer to get the data, but nonetheless we need a better plan for that. So. Hold on. It may be that for all three vaccines, there'll be a third dose or second dose, but it may be also initially just Pfizer and J&J.

Chris Dall: [01:00:29] And just one final vaccine question, Pfizer put out a press release this week saying its COVID-19 vaccine was safe and produced a quote unquote robust immune response in children ages five to 11, and then it would soon be submitting that data to the FDA. Mike, what's your sense of the timeline here for potential authorization for younger children?

Michael Osterholm: [01:00:51] Well, one always hates to speculate on any kind of approvals for the FDA, as they will determine their timeline when the data are sufficient. Of course, we all know we're dealing with a national crisis, an international crisis for that matter, that the deliberations they undertake reviewing these data will surely have not just national but potentially international implications. I think right now, if I read the tea leaves of my colleagues and understand the FDA process would probably suggest that some time, even in the next eight weeks, that this vaccine may very well be approved, at least through emergency use authorization for these younger age groups. And that would be obviously very, very good news. And as a grandfather, I can tell you that I have grandchildren who would be the recipients of those vaccines, and so I'm incredibly excited about that possibility. But I also want to add a note of reality. I've already covered the issue on vaccine and kids and the fact that a vaccine in of itself does not mean a vaccination. And so I worry that actually the percentage of kids younger who would ultimately get vaccinated will actually be lower than we might even see some of the older kids. We have heard often parents expressed even more concern about the safety issues around these vaccines in younger kids than they would even their teenage kids. So I think it's still up in the air to know just what will happen once the approval occurs, which it will. And just we're in that challenge situation of turning vaccines into vaccinations. And I just don't know what that will mean.

Chris Dall: [01:02:40] Obviously, authorization of the vaccine for younger children would bring a sigh of relief for many parents and grandparents like yourself, given the challenges that the Delta variant is posing for schools across the country. Mike, do you have an update on on how schools are faring so far?

Michael Osterholm: [01:02:57] Well, again, anyone who has been listening to this podcast knows that schools and the transmission among children has clearly been a very challenging situation and one that I have a great deal of energy around. Just as way of update, as of September 16th, over 5.5 million children in the U.S. have been tested positive for Covid-19 since the onset of the pandemic. Most notably in the past four weeks alone, there have been almost one million new pediatric cases. There has been a 9% increase in cases in kids over the past two weeks. However, it appears that we may have hit a peak in cases and that this past week was the third highest week for pediatric cases since the pandemic began. Right behind the numbers that we shared in last week's podcast, if we look at deaths in kids between September 17th of 2020 and this past September 16th, this past week there have been 371 deaths in kids, zero to 17 years of age. 78 or 21% of those have occurred just in the last month. So we continue to see this increased occurrence of severe illness and deaths in these kids. According to the American Pediatrics Kids account now for more than a quarter of all reported cases in the U.S. last week, compared to 16% of the total cumulative cases since the pandemic began. This should not be totally surprising in the sense that hopefully vaccines and those older age populations are reducing their number of cases, so that would naturally boost up the percentage of children who could be cases. Right now, among the 11 states that are reporting testing information for kids, children make up somewhere between 11.3 and 21.8% of the total cumulative state tests, and between 4.9% and 17.9% of children tested were positive. That tells you the number is very high and suggestive of the fact that we're missing cases and kids just by that alone. This past week, there were 311 new hospital admissions for children in the country, and after hitting a peak on September 3rd, of 0.51 hospitalizations per 100,000 population. That's 0.51 per 100,000 population. The number of hospitalizations decreased to 0.44 per 100,000 population on September 19th. So we've seen a reduction there, which is great news. But this is still substantially higher than the winter peak of 0.3 cases per 100,000 in January of 2021. So we're still way above that. As I've already pointed out, the epidemiology of COVID-19 in the United States is evolving. The southern states are no longer the hotspot spot, even though in fact they contributed a great deal to these

numbers in terms of kids and their infections. But now we're seeing these other areas and the question will be will we also see the transmission in children in those areas that are now beginning to see an increase in cases? There's no reason to think it would be any different than that. Kids will start to show up in these other geographic regions at a higher level just because they are now equally capable of being infected by this virus, both in terms of of the activity in the community, meaning they're in contact with infected people. But also, as we've pointed out, time and time again, what's going on with Delta is very different than what happened a year ago before Delta virus showed up and kids did not seem to get infected nearly as much. Now, if we look at the schools themselves, as reported last week, the surge in cases in children is continuing to take its toll on schools. This week, Burbio, the service that collects information about school activities, has reported more than 2000 in-person school closures, up from 1,700 last week. And this is across 469 districts, up from 386 last week, and 39 states, up from 38 states last week, with many of them shifting now to remote learning during the closure period. In 60% of the disruptions, schools have gone to virtual instruction for 55%. And 35% of the schools have closed entirely for a period. The average school closure is now six days versus eight days from last week at the district level. I'm not sure what to make of that, but if you look at the timing of the closures in relationship to the first day of school, it remains similar to that of last week, with the bulk of a closure still occurring between three and four weeks after the district opens. This tells you something if this was just community spread being detected in schools, then week one week two week three week four should all be up should be basically the same as what's going on in the community. Whereas if this is a situation of getting the virus into the school, having its first transmission to the first ring of contacts, then expanding to the second and third rings, that takes three weeks sometimes before you really see large numbers of cases. This is much more consistent with the transmission in the school itself. While this situation is still overwhelmingly impacting the southern region of the United States, where the delta surge is hitting children the hardest, we now see other areas are also beginning to report this increasing occurrence associated with the schools. New York City schools, which I talked about earlier in terms of New York City and where it's had with the pandemic being a much lesser of a challenge there in terms of case numbers than it is in other parts of the country, at least for the time being. Since they opened schools on September 13th in New York, there have been including charter schools, 1,274 positive cases. This includes 817 students, 457 staff. There have been 647 classroom closures. This measure basically moves a classroom of students to learning

from home, but allows the schools to remain open from an administrative standpoint that may make sense from an infectious disease standpoint that is still really to be determined if there was mixing in the school and did, in fact, one classroom really isolate itself. There have been 490 partial classroom closures. These apply largely to middle schools and high schools. There have been 80 non-classroom quarantines and one school investigation and one entire school closure. We'll see what happens in communities that have much more in the way of community occurrence of COVID-19 and what it relates to schools, New York is clearly an area to watch, given that we may be seeing this virus emerge there in the days ahead, I think it's notable and I've talked about this before that the CDC's guidance for COVID-19 prevention now includes an exception clause in the definition of what a close contact is. And this is all about whether kids can stay in school. Their exception states "in the K through 12 indoor classroom setting, the close contact definition excludes students who are within three to six feet of an infected student laboratory confirmed or a clinically compatible illness. If both the infected student and the exposed students correctly and consistently wore well-fitting mask the entire time." Now you've heard me say this over and over again. We've looked at the data that support this recommendation. In fact, we have an article that will be coming out of commentary looking at masking in general and what do the studies that are frequently being cited as providing evidence of protection? What really do they tell us based on the study results and methods used? And I can tell you if you really believe that a face cloth covering on a child three feet away from another child is going to stop transmission of an aerosol, that to me, is not responsible science. I mean, it defies it's just like defying gravity that just, you know, doesn't make sense. Not only does the study not make sense in general, but these were all conducted largely before Delta became the virus that circulates in our community, which we know is very different. So let me just give you some examples, though, of where I find the administrative response to keep schools open puts kids in harm's way, it really does. For example, in Meade County, Kentucky, this past week reported that without a mask mandate, they would have had to quarantine 2,493 students as opposed to the 550 they quarantined that they had this year already. So they would have had to quarantine almost 2,500. They've only quarantined 550 because of this mask requirement. That's not about infectious diseases. That's about trying to keep a school open administratively. And I find that basically putting the students in harm's way. And I acknowledge the CDC has supported that, which is a terrible, terrible mistake. Additionally, an Ohio district made a move to require masks and subsequently report a large drop in quarantine numbers. The mask

requirement reduced the number of close contacts to a positive case from 104. There had been no masking to just one close contact at lunchtime. Well, this doesn't say about the cases. This talks about how many people had to be quarantined and quarantine's for a purpose. Quarantine and follow up is so that someone who was exposed to maybe a case does not end up transmitting to others. So I just want to conclude by saying the school situation, from my perspective, remains a terrible mess, and I think that it will be one of our darkest days in terms of the ultimate review that will occur of how we've put our kids in harm's way in these schools. One, I'm all for in-class learning, please. No one has to write me and tell me how irresponsible I am. I want those kids in school. But in many instances we're not doing all the things the ventilation, the testing, the filtration, the density of students in the school, the kinds of quality masking, the vaccination of teachers and older students, if possible. That's to me, really is what this is all about, and we're not doing this as communities. And ultimately, we're putting our kids in harm's way. Just to summarize this, I want to share with you two emails I've received this past week. I get hundreds and hundreds and hundreds like this. I've talked to many school superintendents, I've talked to school nurses. I've talked to state health department professionals responsible for trying to assure as much school safety as possible. What I want to share with you are two emails that I think really typify where we're at right now. This is what's really under the covers. This is not the public persona, how good we're doing. This is the actual real on the street example of what's happening. The first letter that I want to share with you is from Cheryl. Cheryl is a college professor, and I've basically will obscure her location so as to not put her in any kind of harm's way one way or another. But let me just share with you what Cheryl just shared with us. "This has been a really rough week. The students at college A, her college, are of a different genera than the ones at college B, a sister college. Over 35% are first generation college students. The COVID-19 vaccination rate is lower. I heard it was 38%, but an email says that 61%, which I am not sure I believe since no proof is required to self report vaccination. Motivation to self-report are $100 from the state of X and the college scholarships for fully vaccinated students. At any given time, I can walk down a hallway and observe students wearing chin diapers or a student peeling their mask off in the building as soon as he or she leaves a classroom. Someone has been X-ing out the signage in the science building that state's "mask required in all campus buildings." While I get the children struggle with masking, these are young adults. It's sad how defiant many are. Unvaccinated students and employees are required to be tested weekly, but we don't have nearly the capacity and the tests are rapid tests. Reporting is

a week behind, so we have no idea what the number of cases are until a week later if that. Less testing is done in general in our county. Since no testing is done on weekends at testing sites, the main testing site manned by the National Guard recently closed while the unit was called away. I'm not sure if they're getting volunteers to work there or what is happening. I've modified the Corsi boxes from my teaching lab and was told I could not use them because facilities management would be upset. Fortunately, I won the battle. A student in my course, which has 142 students, was upset that I recommended they were N95 or KN95 or double mask so that they are wearing a tight fitting mask. The student misinterpreted the term recommended for requirement and said nothing to me and proceeded to go straight to the chancellor's office to file a complaint and I was contacted I must follow the university masking policy. I provided my syllabus, which states the university policy, the CDC guidelines, which are face cloth coverings. They could wear their underwear on their faces and I could do nothing about it, so I had to address that in class. No social distancing, crappy masks, testing some of the unvaccinated, slow reporting or lack of reporting. This is not enough. It's appalling and frustrating. Our most recent dashboard states there are 40 cases on campus via rapid test, but this is only through September 10th. While I can handle 24 students at a time in a lab, 142 in a poorly ventilated room breathing air with these and the 300 to 400 individuals in crappy masks two to three hours prior to my lecture in the class is what I find so wrong. I was fully vaccinated in March in fear of my immunity has waned since it doesn't get primed because I don't socialize. I go to the grocery store at five a.m. to avoid people. So that is what the trenches in the college is like. I'm getting emails from former students in my class who are CNAs is in nursing homes. They were vaccinated in February and are experiencing breakthrough cases. These are the young pre nursing students. Thank you for listening to me, Cheryl." Now, let me share one with you from a K through 12 teacher. "Hello, Dr. Osterholm. I'm an elementary teacher in Community X and have been for 27 years. I teach third grade and this year I have 28 students in my class. I wanted to let you know that I'm having some real difficulty with what is happening in our schools and community. As you are aware, Community X is in County Y and there is a definite pushback from the community for any restrictions whatsoever. So we have none. As I listen to you each week, you talk about the importance of distancing, well-fitted masks, air circulation, testing, contact tracing, etc. We literally have nothing. Our district is not requiring masks. So there are none. We are not contact tracing any cases. There's absolutely no social distancing of any kind. We're not quarantining or even sending home children who exhibit symptoms. And worst of all, we

are not notifying parents of positive cases in our classrooms. I don't get it. How can this be? We are six days into the school year, and today I have multiple children coughing, sneezing, complaining of sore throats. I put on my mask and I guess I plan to wear it for who knows how long. However, I don't think it'll do any good with no children wearing a mask. A fourth grade teacher in my building has a student go home with a positive test and parents are not contacted. I don't know what to think. I don't know how this can be allowed. We send home letters for strep throat lice, whooping cough, but not Covid. Why? They're all getting infected. We are doing nothing to stop it. Please let me know if you're aware of the state or county's changing their policies regarding these practices. Shouldn't families be made aware of the positive cases and shouldn't children have to stay home if positive or exhibiting symptoms until they have a negative test? Thank you for listening to me. Sue." I hope these two emails share with you a sense of what we've been experiencing in terms of feedback from the schools. We, in many school districts in this country are taking on Covid as an administrative nightmare where we're going to do whatever we can to ensure schools do not shut down, that we keep them open and that we minimize the number of students who may be in quarantine so that we can keep the school numbers up. I've had multiple superintendents contact me who have said this is a nightmare, I don't know when to close our school and why. Because we have no criteria. We have so many cases occurring right now and we're not sure how to respond. And let me just close by saying that every day that I think about this issue, every day that I'm challenged by this issue, I have five young grandchildren who are sitting on my shoulders. And I think to myself, what must I do for them? And I know that there's a lot of listeners in this podcast who are listening to this as professionals or interested parties. But most of all, the parents and the grandparents are listening because of those kids, the very kids I dedicated this podcast to and we are letting them down right now in these schools. Clear and simple. Unfortunately, I don't see that changing in the near term. Let me summarize today's podcast with three basic conclusions. Number one, the pandemic at this point seems to be in a lull worldwide, but that is only going to be a matter of time. We will see more surges coming back. We will see more dangerous days ahead. Number two, I don't know what this current surge in the United States will look like in a few months, and we're in a period where the uncertainty is surely a challenge. We'll keep you posted. Finally, the last thing is, remember that our vaccine science right now is all about corrected science. We're learning, we'll keep learning and what we learn will implement back into the vaccine programs. Don't be confused into thinking that somehow there's chaos. It's not. It's

learning, and I'm confident that in the next year, we'll have much more clarification on these vaccines and how to use them and make them the most effective tool that we can.

Chris Dall: [01:21:44] So on a lighter note, Mike, we continue to get a lot of great submissions for our Beautiful Places segment, where is this week's beautiful place?

Michael Osterholm: [01:21:55] Well, thanks, Chris. In fact, it is wonderful to have something on a light note, and this one is a beautiful note and the pictures are attached to the website. This came from Michael and Michael wrote, "Dear Michael and Chris, your story about Teri and the Hummingbird Garden rang a bell for me. This was one of our recent beautiful place inclusions. When the pandemic hit back in the winter of 2020, I returned to Long Island, New York to assist my mother, 92 years old from Antigua, where I was teaching at a medical school. I remained in New York for a protracted period and began taking long walks to nearby parks and green spaces, or just a place, as I recall from my childhood. I began noticing and photographing scenery and organisms that I simply never took the time to observe before. I'm a biologist. In my professional career, I have largely been dedicated to teaching and laboratory research in molecular biology. Somehow, I had lost the naturalist interest and wonder that had inspired me as a child and led me to study biology in the first place. Then, in August 2020, I attended the Ecological Society of America's Annual Meeting, virtual for the past two years. I had volunteered to be a mentor for the society's seeds program, aimed at encouraging students from disenfranchized communities to pursue interests in ecology. Some of the seeds students and the naturalist section of the society had organized a global biodiversity contest and drafted me into one of their teams. The goal was to take as many photographs of living organisms as possible and upload them to the inaturalist app. This app serves as the useful purpose of crowdsourcing biodiversity data collection. Ever since then, I've been hooked on nature photography, especially birds, which had never had particular interest for me and visits to parks and wildlife refuges and found myself newly astonished by the living world thanks to the pandemic. Best regards, Michael." Please go look at these photographs. They're beautiful, a very beautiful place. And so thank you very much, Michael, for sharing that with us. And what a noble thing to come and take care of your 92 year old mother, as I'm sure many people on this podcast would say you're a good son.

Chris Dall: [01:24:16] And to our listeners, please keep those submissions coming, you can e-mail them to us at osterholmupdate@umn.edu. Mike, do you have any closing poems or songs for today?

Michael Osterholm: [01:24:30] Thanks, Chris. Of course I do. What would this podcast be like without those at the anchor here, huh? As I've talked about this entire podcast in one way or another, it's about kids. That dedication was to the kids. The issue of illness in the kids, the schools, etcetera. So, you know, I thought I'd take something right out of the kid book and use it, something I've done before. I've taken here the song, written by Fred Rogers in 1967, "Won't You Be My Neighbor?" Interesting enough, in 1966, Rogers acquired the rights from the Canadian broadcasting company and had them transferred to a public television station here in the United States. He now owned this. But in 1967, the series was canceled due to a lack of funding, but an outpouring of public response prompted a search for new funding. Later that year, the Sears Roebuck Foundation provided funding for the show, enabling it to be seen on National TV on National Education TV. We all know the rest of the story, and it was in this year that Mr Rogers wrote this wonderful song and this is for all the kids, "Won't you be my neighbor?" "It's a beautiful day in this neighborhood. A beautiful day for a neighbor. Would you be mine? Could you be mine? It's a neighborly day in this beauty wood, a neighborly day for a beauty. Would you be mine, could you be mine? I've always wanted to have a neighbor just like you. I've always wanted to live in a neighborhood with you. So let's make the most of this beautiful day since we're together, we might as well say, Would you be mine? Could you be mine? Won't you be my neighbor? Won't you please, won't you please, please, won't you be my neighbor?" Last week, I urged the listeners to reach out to an old friend who they hadn't seen for a while. This week, reach out to your neighbors. Reach out, you know, continue this pandemic of kindness and particularly if those neighbors or kids reach out in a safe way, they've not been vaccinated. Be careful. You need to understand that risk, but reach out. And most of all, just continue with this pandemic of kindness. I've covered a lot of tough things today, and one could easily become pessimistic about what our future is. We've got these incredibly critical tools called vaccines. We've got to get them used. I'm not naive to think that somehow that's going to happen overnight. I worry that in fact, many, many people will have to experience the severe impact of Covid before they understand what they missed by not getting vaccinated. And when it's our kids and our kids are the pawns, the parents basically keeping these kids from being protected. That's really a

major challenge for me. It's like putting your kid in the back seat of a car without a car seat or a seatbelt and driving through red lights at 60 miles an hour. I think we don't have the right to do that to our kids, so hopefully with time we will see that all change. So for now, I just ask you in this podcast, would you ever consider being my neighbor? I would like to be yours. Thank you so much for listening. Another week. Thanks, Chris, and to the podcast team for all your work. Thank you.

Chris Dall: [01:28:12] Thanks for listening to this week's episode of the Osterholm update. If you're enjoying the podcast, please subscribe rate and review, and be sure to keep up with the latest COVID-19 news by visiting our website CIDRAP.umn.edu. This podcast is supported in part by you, our listeners. If you would like to donate, please go to CIDRAP.umn.edu/donate-now. The Osterholm update is produced by Maya Peters, Cory Anderson, and Angela Ulrich.