

## Episode 66: Thank You, Dr. Jena

**Chris Dall:** [00:00:00] Support for this podcast comes from Give Directly, a nonprofit that lets you send money directly to people living in extreme poverty. Due to the pandemic, global poverty rates are rising for the first time in two decades. In response, Give Directly has delivered contactless cash payments to over a half million people in seven countries in Africa. These countries are currently facing their highest covid infection rates yet, and only 1.5% of Africa has been fully vaccinated. Giving cash lets individuals invest in what they need the most right now. Visit, [givedirectly.org/covid](https://givedirectly.org/covid) and your first gift will be matched up to \$200. Hello and welcome to the Osterholm Update COVID 19, a podcast on the COVID 19 pandemic with Dr. Michael Osterholm. Dr. Osterholm is an internationally recognized medical detective and director of the Center for Infectious Disease Research and Policy, or CIDRAP at the University of Minnesota. In this podcast, Dr Osterholm will draw on more than 45 years of experience investigating infectious disease outbreaks to provide straight talk on the COVID 19 pandemic. I'm Chris Dall, reporter for CIDRAP news. And I'm your host for these conversations. Welcome back, everyone, to another episode of the Osterholm Update podcast. As we near the end of summer, there seems to be more uncertainty than ever about what the next few months of this pandemic will look like. A summer wave of coronavirus infections in the United States that some had thought would be declining by now continues to grow. And now levels of hospitalization and death, while reduced by vaccines, are also climbing and millions of children are now heading back to school. Meanwhile, the Food and Drug Administration's full approval of the Pfizer vaccine this week, is raising some hopes that more Americans will soon get vaccinated. Whether by choice or by mandate. At the same time, we're learning that breakthrough infections among the vaccinated are not as uncommon as once thought. On this August 26th episode of the podcast, we're going to explore that uncertainty, provide an update on the COVID-19 pandemic here in the United States and where it's headed, and look at what's going on in the rest of the world. We'll also discuss the FDA's approval of the Pfizer vaccine, revisit the issue of vaccine boosters, and explore how schools can prepare themselves for the return of students. And we'll hear a new voice this week on the podcast, an ICU doctor who will tell us about the strain of being on the front lines of this pandemic. But first, we'll begin with Dr. Osterholm's opening comments and dedication.

**Michael Osterholm:** [00:02:38] Thanks, Chris, and welcome to all of you, back to another episode of the podcast. For those who may be new to the podcast this week, welcome. And hopefully you will find information that will be useful for you and eventually become part of the podcast family. For those who are returning, welcome back. Thank you for being here with us again. I just have to say and I do every week, and I just feel so inadequate in expressing my appreciation and that of the entire team for the number of incredible emails and letters, messages that we get from you about the podcast. And many of these are really heartfelt statements about where you're at in the pandemic and what you're looking for on the podcast. We may not yet be providing, but or trying to or observations that just help us understand of what's happening out there in the real world of Covid and how we might provide more useful information. But we also appreciate the messages of friendship, the messages of of the podcast family. And so thank you very much for those. They mean the world to us. As I've shared with you on a given week, I can get some pretty tough emails. This was no different this week. And so we we very much appreciate those. Let me just start out, as I do each week. Just it it's almost become something that I feel like I have to say or I can't emotionally move on with this podcast. And that is just remembering that all the numbers I'm going to be talking about today, all the policy issues, all the things that boil down to, in some cases, political anger or public confusion or personal concern all have to deal with people. They are parents, our grandparents, our brothers, our sisters, our mothers or fathers, our colleagues, our friends, our neighbors. And they're not numbers. They're real people. And I know that a number of you on this podcast have lost loved ones to Covid. You have been through the worst of what could possibly be a covid day. And so in each week, this podcast never forgets those people. And I just am reminded every day as I talk to you, I listen to you, just how important this is. So thank you for allowing us to share our information. But in the context of who these people are that we're talking about. I also want to just make a note that, as you know, I routinely do a dedication at the beginning of each podcast. This is something we started back over a year and a half ago. And it's come to mean a lot to us just in terms of understanding and recognizing all those who have been impacted by this horrible pandemic. This week, I'm going to postpone that dedication closer to the end of it. And I think it will become abundantly clear to you why when we get there. So hold on. Hang on. You know, I have to tell you that you can teach an old dog new tricks, and I'm working on that. And the final thing I just want to say is that I'm feeling more accomplished in a way that may seem rather odd. You know, for years when you lived in Minnesota and you didn't have

a garage to put your car in in the wintertime, you got very, very good as scraping the ice off the windshield. You know just how to do it. Well, I'm actually trying to get more proficient at scraping the four inches of mud off my crystal ball every day. And today, I will venture out with a crystal ball that may not be completely clean and clear, but at least it doesn't have as much mud on it. And we'll give you a sense of where I see us going with this horrible pandemic. So, again, thank you for being with us. And I hope that we can provide you with the information you're looking for today.

**Chris Dall:** [00:06:41] Mike, your updates on the international situation always provide some important context for what we're seeing and what we can expect to see here in the United States. What is standing out to you at this point when you look at what's happening globally with this pandemic?

**Michael Osterholm:** [00:06:56] Well, first of all, it's really obvious that this virus is causing the world, the world so much pain, so much disorganization and so much challenge, and part of that is the direct impact that the virus is having. But part of it is also the unknown. Just as we're experiencing here in the United States, you know, what is tomorrow going to bring? So if I'm seeing my case numbers drop dramatically today, does that mean, in fact, that I'm done? Or is this just the beginning of the end of the downturn in cases and we're going to go back up again? So I think that this is a general consensus issue that many people are asking themselves. What gives here? When is this going to get done? And it's actually a universal voice right now. We're seeing it around the world. In the latest weekly update, which was published on Tuesday the World Health Organization reported the global cases seem to be stabilizing following two months of increases. We've been here before. Remember that? Go up, go down, go up, go down. Kind of the whack-a-mole of the world. A total of 4.55 million cases were reported last week, just up slightly from the 4.5 million reported the week prior. Weekly deaths also increased with 68,600 reported last week, around 1,200 more deaths than in the previous week. In short, we're at that stable point, and I fully expect to see the case numbers start to drop again and know that within three to four months expect to see a major surge again. We clearly are in a place right now where we are far from the vast majority of the world having been infected with this virus. As I've said many times, this coronavirus forest fire still has a lot of human wood to burn throughout the world. And so I just expect we're going to be in this up and down, up and down situation. Right now, Delta is obviously driving virtually every aspect of this pandemic.

It's now been detected in at least 163 countries around the world. It remains by far the most challenging variant we've encountered to date or that we know of. This is especially true for countries trying to contain the virus. We've been covering Australia, China, and as of last week, New Zealand to get a sense of countries that had done so well in virtual containment of this virus, not just reducing transmission, but literally containing it. And today, we recognize the challenges that we're seeing with their activities and their ability to contain it. Let me just quickly share with you a sense of where things are at that way. These countries really serve as a baseline of what we can expect around the world in terms of the ability to control this virus, even in countries that don't have containment policies, but rather minimizing policies, you know, try to limit the impact on health care like we see in the United States. But they really do give us a sense of just the challenges we have. For Australia, after detecting their first case of Delta in June it is now reporting their highest ever average for new daily cases. More than half of the country's population is under lockdown. A majority of the cases are now being detected in the state of New South Wales, which is home to Sydney, a city that is now in its ninth straight week of lockdowns. Other small flare ups are being seen in places like Melbourne. On Wednesday, they reported an all time new high of 919 cases. And Sydney is now reporting that the health care system is beginning to struggle, at least in one hospital there are major diversions going on because of the load of Covid patients and their inability to handle routine medical care. Before this outbreak, we're seeing now Australia planned on using a phased reopening that was tied to vaccination rates. When select thresholds were hit, such as 70 percent of eligible residents being vaccinated, certain restrictions would no longer be required. However, just over 40 percent of the country has received at least one dose and less than one quarter are fully vaccinated at this time. With growing cases and even public protests against current restrictions, officials in the country are facing difficult decisions of how to best move forward. On Monday, Australia's prime minister said we have to break the cycle. The Groundhog Day has to end. This is a country that has contained the virus since the opening weeks of the pandemic and now they're challenged. We look at China after more than 1,200 total cases were detected in dozens of cities scattered across 17 provinces, China recently reported zero local cases for the first time in just over a month. China's response to Delta, which was first identified there on July 20th, was very aggressive. They shut down cities, which include sealing off Beijing from other areas of the country and have repeatedly tested residents. In one city, which has a population of more than two million, residents were tested 12 different times. Although the long term

viability, this approach is questionable. China has once again contained the virus, at least for now, as they continue administering vaccines. Whether they can continue to sustain this to a point where the world is largely protected against the virus from either vaccination or having had previous infection is not known. But it's very costly to do what they're doing. And we're already beginning to see supply chain issues that are occurring because of these activities where ports are shut down, where workers are not reporting to work. And it is going to continue to have an economic impact that will literally be felt around the world. If we look at New Zealand, last week, we mentioned that New Zealand detected its first local case of Covid, since February, with the country locking down in response. The outbreak has continued to grow up to this point, with New Zealand now reporting 62 cases on this past Wednesday. Its single highest daily total since April 2020. Lockdowns have now been extended in the country with fewer than 20 percent of residents having been fully vaccinated. We don't know. Will their delta outbreak look more similar to Australia or look more similar to China? I think the challenge is going to be unless you take these very heavy handed steps, as China has done. I don't think any country today can control this virus. It really points out the fact that vaccine vaccine vaccine is going to be the critical aspect. Now, if we look briefly at areas with lower vaccination rates on the global basis, let's take Asia and the Middle East. During last week's episode, I mentioned that cases and deaths in the region were leveling off, following decreases throughout July. Now the activity there is declining for certain. Even still, more than 4,000 daily deaths are being reported in the region, and 11 countries remain at or near peak highs for cases including Georgia, Lao's, Vietnam and the Philippines. Japan is another country reporting record high cases. Their current seven day case averages nearly 3.5 times higher than their previous peaks. Deaths in the country are on the rise, although they remain below levels experienced during past surges. Indonesia, a country that got hit hard by Delta, continues to report declining cases with deaths also trending downward. However, Indonesia continues to report the highest number of daily deaths worldwide, accounting for one in eight deaths worldwide. For the first time in more than two months, Iran is reporting a decline in cases their fifth wave driven by the Delta variant has brought about record high activity in the country, including a current average of more than 600 deaths a day. Let me just briefly mention Africa, although cases in the region were once again down slightly, Africa still seems to be in what I'd call its third wave. The WHO is reporting that 22 African countries are experiencing a resurgence in cases. Nearly half of those countries are located in West Africa, which is also battling outbreaks of cholera, ebola, and Marburg. Cases have also

been creeping back up in South Africa following the country's rapid Delta surge, short-lived declines, and plateauing levels well above their previous baseline. The vast majority of Africa still lacks access to vaccines. However, the WHO is reporting that vaccine shipments to the region have been picking up. Covax has delivered more than 10 million doses to Africa this month, which is reportedly nine times more than was delivered in all of July. Let me just close out the international section here with an update on the countries with higher vaccination rates, the ones that we might look to, to say, what does this tell us about how the United States may fare over the course of the upcoming weeks and months? Going back to the United Kingdom, again, more than six in 10 U.K. residents have been fully vaccinated, including nearly eight in 10 residents aged 16 and older. Clearly far exceeding our numbers. Even with vaccination rates well above what we have in the United States, the UK continues to report growing activity following the rapid but short lived decline in its Delta surge seen some six to 10 weeks ago. An average of more than 33,500 cases are being reported each day there, up from the 29,600 last week. Remember before the Delta surge, which peaked out at about 47,000 cases a day, the baseline was one to two thousand cases a day. Now, here we're talking about a baseline of 33,000. So you can see how Delta is still holding on. And this is important in terms of us talking about where our surge may take us here in the United States. Hospitalizations in the UK are also rising right now with approximately 7,000 UK residents currently admitted to the hospital. Last week that number was around 6,300. A total of 174 deaths reported on this past Tuesday, the highest single day total since March, moving the seven day average to 101 cases. That average is equivalent to just over 500 daily deaths in the United States after adjusting for population. If we look at Israel here, nearly eight in 10 residents, age 12 and older are vaccinated. However, on Tuesday, the country reported nearly 10,000 cases, its highest single day total since mid-January. 1,117 individuals are currently hospitalized, up from 926 last week. 690 are considered seriously ill, up from 559 last week. Israel is now reporting an average of 24 deaths a day. This country's efforts to get booster doses into arms have continued, with a total of 1.6 million administered an increase of 500,000 compared to last week. More than 60 percent of the 60 plus year olds in Israel have now had a third dose, including nearly 80 percent of individuals between the ages of 70 and 79. Preliminary data from Israel suggests that the booster doses are playing a role in limiting transmission and reducing the risk of severe disease. If we look at now the reproductive rate among those vaccinated 60 years of age and older is now below one, which is good news, meaning the case numbers should really decline. The growth rate

of patients developing serious illness is flattening. Overall, countries considering booster doses are paying close attention to what's happened in Israel, which will become clearer with more data in time. I'll discuss this in greater detail later in this podcast. Finally, let me just close you out on the international scene with Canada. We are keeping tabs of what's going on in Canada, where 76 percent of the residents are fully vaccinated, actually exceeding our level here. Nearly all the country's cases are Delta. And the activity has been on the rise. Over the past month, cases have increased from less than 500 per day to more than 2,500 per day. We're now starting to see a growing number of hospitalizations, which currently sit at about 460 a day, up from less than 300 in late June. However, the country would need to see a lot more hospitalizations to reach the previous peak, which was this past winter at 4,050 or during the alpha surge that they had in April of 3,250. Finally, average daily deaths in Canada are currently at 15, which is more than tenfold lower than previous peaks. Vaccines have clearly blunted Delta's overall impact there, both in terms of the number of people who are seriously ill and being hospitalized, as well as those who are dying. This is another pattern that is a very important one we're seeing is even when case numbers cannot be decreased as such, are we seeing a decrease in the overall incidence of serious illness, in particular deaths? So this gives us a sense of where we're at internationally. I'll try to tie this back in and using these experiences to help guide us to say what might be happening here.

**Chris Dall:** [00:20:28] Here in the U.S., as I noted in the introduction, the summer surge continues and we're now seeing those lagging indicators, hospitalizations and deaths climbing again. Mike, do you have any indication that this wave is close to peaking?

**Michael Osterholm:** [00:20:43] Well, this is the part of that crystal ball piece that I talked about, and we'll try to give you a sense, I think, of where we're at or where we're going, at least. Let me just start out by just giving an update. As of this week, because, frankly, case numbers are moving so quickly, it's very important that we understand at least where we're at. The current seven day average for cases in the U.S. continues its ascent upward with more than 151,000 cases now being reported each day. As of Tuesday, the country surpassed 38 million total confirmed cases. I will say at the outset, I believe that the case numbers that we're seeing now are substantial underreports of the actual number of cases in the community. Part of this is people are having milder illness, not being tested, or we're actually seeing a substantial number of people who are testing themselves, using the antigen testing kits that are available at local

pharmacies, testing themselves and never reporting the results. Even though we know anecdotally that in many instances these people are actually positive. So this has been a change in just the case numbers. So I am absolutely convinced that the case numbers are far higher than 151,000 new cases being reported each day. How much higher? I just don't know. Nearly 100,000 Americans are hospitalized right now for Covid. That number is nearly tripled in just the last month. Current ICU admissions have surpassed 25,000, the highest number recorded since the start of the pandemic. Let me repeat that. Current ICU admissions have surpassed 25,000. That's the highest number recorded since the start of the pandemic. We'll talk more about what that means, we cover the ICU care in a later part of this podcast. More than 1,100 Americans are now dying each day from Covid, up from 700 last week. With every U.S. state reporting increases in deaths over the past two weeks. The current average is the highest we've seen since March. In the entire month of July, the country reported a total of around 8,600 Covid deaths. In the past week alone, we had nearly 7,800 deaths. Remember that. In all of July we reported 8,600 deaths. Just last week we reported 7,800. At this pace, we will see more deaths in August, currently at 18,400, with another week remaining, then in June and July combined, which was 19,500. And just to help emphasize how bad the situation of the country's hottest spots are right now, if we look at the world's top 12 countries with the highest per capita deaths over the past week, the country of Georgia ranks number one with 1.57 deaths per 100,000 population. And with Trinidad and Tobago ranking 12 with 0.46 deaths per 100,000 population. The U.S. actually has 10 states with per capita deaths that fall between those ranges. Three states would rank number two, three and four on the list if they were their own countries. Mississippi, which has 1.33 deaths per 100,000, Louisiana, 1.26 deaths per 100,000, and Florida, 1.06 deaths per 100,000. So here we are, a country with all of the assets of health care that we have, with the riches of vaccine that are virtually unlimited for the population, and we're sitting here among the very worst death rates in the world for Covid. What is wrong with this picture? It is challenging. Well, there are signs that cases are leveling off or even declining in some of the hardest hit states, including Arkansas, Louisiana, Florida and Mississippi. They remain near their highest levels and health care systems are being pushed to the brink. Let me just give you some examples. 63 hospitals in Mississippi requested help with staffing, prompting the state to deploy more than 1,000 contracted health care personnel to assist. Kentucky is deploying their National Guard to help overwhelmed hospitals. On Tuesday, the governor of Arkansas announced that all Covid ICU beds are full across that state. A similar situation is



playing out in Alabama, where the state has 1,536 staffed ICU beds, but has reported 1,589 ICU patients. This means that at least 53 ICU patients are being treated in other areas of the hospital. Last week, Texas had at least 89 hospitals without any open ICU beds. And in Florida, which is reporting record high hospitalizations and deaths, a total of 75 doctors held a press conference pleading for residents to get vaccinated as they described their dwindling patients and energy. Recent reports out of Florida indicate that people who are often desperately ill are waiting in line for more than two hours to receive monoclonal antibodies. We have many reports of individuals who have other health conditions, heart attacks, unintentional injuries, falls, accidents, who can't be seen in a timely manner in the health care systems. They may not be broken, but, boy, they're bent, really bent. And we have to understand those what covid is doing. Where do we go from here? I already mentioned the states that are really the hottest areas of the country. I would consider those to be, again, Louisiana, Florida, Arkansas, Alabama, Missouri and Nevada. They've led the way in this initial surge, but all of them either have started to drop in the number of new cases or they're close to peaking. That has been the group of states driving the larger numbers. So the question is, though, does that mean that the surge is over? And does that mean we'll see over the next several weeks a rapid drop in case numbers or will something else happen? And that's something else I think is the big unknown. If you look at the population of those states I just mentioned, they only make up 12.5% of the US population, only 12.5%. So what are the other states that have 87.5% of the population going to look like over the course of the next three to five weeks? And that's an unknown. In some cases, it looks like they have a rapid ascent of cases that are going up that could mimic, in a sense, what we saw in these original southern states. Or it could be the fact that they will never get that high. And that, in a sense, yes, as the those cases drop in those most impacted states, the new cases in the other states will merely replace them and keep the peak level or even potentially have fewer cases. And the peak continues to drop. I don't know. I look at what's happening right now. I look at the places around the country like state fairs and and what's happening in so many open air events where we're now beginning to see transmission. I can honestly say that this surge could actually get substantially higher if these locations actually start to see big increases in cases. If they don't, we may be getting closer to the peak of this particular surge and see cases coming down. If we look right now, it's clear I think the hotspots are going to see this decrease in activity I talked about. Will we see other areas like the Pacific Northwest and the Mountain West or the Midwest or the Southeast? Will they light up more? I look right here in in what's

happening in the upper Midwest where Minnesota, Ohio, Wisconsin, all continue to move upward. I mentioned cases in the Dakotas have risen sharply over the past two weeks, including in Mead County, which is home to Sturgis and what we had there. We have yet to see the full impact of Sturgis. In summary, if you look at the United States, we're really a combination of those states with case numbers going up, those staying level and those dropping. And I just don't know where this surge is going to go. The other thing I can't answer is just going to be like the countries, India, South Africa, U.K., where after having the Delta surge from point A to get to the peak of point B, it doesn't come back down to point A again. It goes to point C, as we saw in England, where instead of going back to 1,000 or 2,000 cases, that peak of 47,000 is now continuing at 32,000 cases. And so we don't understand what's going to happen here with this so I can only say over the course of the next weeks to several months, do not expect to see us go back to a baseline of May and June, ain't going to happen. It's not. The question is, how high will that peak get? How long will it last? And once it comes down, what will be the baseline that it will eventually go back to?

**Chris Dall:** [00:29:58] Let's turn now to the vaccines, and let's start with the big news of the week. The FDA's approval of the Pfizer-BioNtech vaccine on Monday. Mike, how important is this for the immunization effort and do you think it will move the needle much?

**Michael Osterholm:** [00:30:13] I think it's going to be very important to the overall vaccine efforts in this country and not necessarily for the reasons some people think. I keep hearing people saying that, oh, if it just got approved, then I would consider taking it, if it was fully licensed. I'm not sure how many of those individuals really will now come and get vaccinated. I think it was a convenient reason for not getting vaccinated. I surely don't want to diminish those that were really, truly concerned about vaccine safety. But, you know, here's a vaccine for which we have, you know, 190 million people vaccinated with with extensive safety information. Why would the FDA's imprimatur now somehow make a difference, particularly if they don't trust government to begin with? So to me, I'll wait and see. I'm very cautious right now about watching numbers of people getting vaccinated going up. I'm very suspicious of how many of these are really first time recipients of vaccine and how many are those who are frankly misrepresenting themselves, seeking a third dose and appearing to be a first of recipients so they can get it. And so I think we have to be very careful when we look at the number of

people vaccinated in a given day of trying to interpret who really got vaccinated. But I do think where the licensure of this vaccine is going to play a very substantial role is in the rollout of mandates. There have been a number of private and public entities that have basically waited for the full licensure of the vaccine to put in place mandates. You know, if you're listening to this podcast, I'm a very strong supporter of mandates. And it's not because I want to take away your personal rights. I don't want to tell you what to do with your body, but you have to understand you pose a risk to all of society. So I've used the analogy before. Some of you like it. Some of you don't. But, you know, I don't get to go drive drunk just because I feel like I have a right to if I want to do that. You can't do that because, in fact, you put other people's lives at risk on that highway. So in a sense, vaccinating people is another way in which we can reduce community transmission. And so to me, I can support a mandate in that respect. I think you're going to see a number of companies coming forward enacting mandates. You've already seen the federal government efforts. And, you know, institutions like our University of Minnesota, the state of Minnesota government, others are putting these forward. So I'm very supportive these and and hope that that will really make the difference. The other point I just wanted to make, because this is really getting missed, I think, in a way that has actually kind of surprising the media hasn't picked up on this, is when you look at the safety of these vaccines, that has been the big deterrents. It's not just how they work. And we'll talk more about that in a moment. But the question was, are they safe? How could a vaccine that was part of Operation Warp Speed be safe? If you look at the number of human people who have been vaccinated with mRNA vaccines, I'm not going to talk at about the adeno platform, the J&J for a moment, but if you just look at the mRNA vaccines, the only adverse event of any significance have been associated with those have been myocarditis and pericarditis. And in those instances, they have been in some cases, people were hospitalized, but they basically all have fully recovered, most of them were actually very mild conditions. No one has died. No one has died. From the 180 million people who have been vaccinated with mRNA vaccines in this country. That's an important number. In fact, I dare say I wish aspirin could be as safe. And so I think we have to emphasize the fact that these aren't just safe vaccines, they're incredibly safe. Now, the J&J, which has been associated with the thrombosis, it's also been associated Guillain-Barré syndrome, even there where there have been more serious adverse outcomes and potentially some vaccine related deaths, the overall analysis by the advisory committee immunization practices have shown clearly the actual prevention of deaths far, far exceeds the use of the vaccine that would occur

with natural infection. As the advisory community immunization practices has already demonstrated in their thorough analysis. Getting a adeno platform vaccine like J&J still provides a substantial benefit in reducing the risk of death from infection with an adverse outcome such as the thrombosis or Guillain-Barré syndrome, than actually getting natural disease so that the vaccine is much safer. So no question about safety. But more importantly, please, as we talk about these mRNA vaccines, I hope the media I hope I hope the public begins to understand when's the last time anybody can say they saw a drug, a vaccine, whatever, where over, you know, 185-190 million people have taken it and there's not been one death associated with it. So I think this is an important message to get out. And I hope it really resonates with the public that these are safe vaccines. We'll talk more about their effectiveness in a moment. But at this point, I hope that the licensure does lead to a substantial increase in vaccination and soon.

**Chris Dall:** [00:35:58] So last week we discussed the Biden administration's announcement that Americans who got the Moderna and Pfizer vaccines will be eligible for boosters eight months after their second shot. There has been a fair amount of criticism of this announcement for a variety of reasons. Some feel that the data don't support it. Others argue that it's going to heighten global vaccine inequity. Some were concerned that the administration got ahead of the FDA and the CDC. A week later Mike, how are you feeling about the recommendation for booster shots?

**Michael Osterholm:** [00:36:28] This has been a interesting week, trying to digest what information is available, new information that's coming out, which is happening every day and trying to put this into perspective. Let me just take a step back really quickly and give a general sense of COVID-19 vaccines and what we know about them preventing serious illness, hospitalizations and deaths. If we go back to the actual inception of these vaccines and what was anticipated with their very first discussions of making a vaccine, you know, the research lab level, we really didn't look at the standard dose spacing issue of if I give the vaccine on day one, when should the second dose be given to maximize its response? We wanted vaccines out as quickly as possible. And so our stress test was how quickly can we give doses and actually show an immune response that's protective and also safe? We didn't look at the issue of what might happen with waning immunity because we couldn't. And I say that I mean that we could have waited three or four years. It had just an incredible portfolio of information on these vaccines as part of an R&D program. But think how many millions and millions of people

would have died. So our job was, in a sense, to build this plane while it was flying at 30,000 feet, always assuming that safety would be job one, and that if it was ever a challenge with safety, you know, we wouldn't continue to build it. We'd go look carefully at that and do an assessment which has been done. And I'm very proud, I think, of the public health system and how it has responded to vaccine safety with Covid vaccines. But now we're at a point where we're really asking ourselves, you know, what is the maximum approach for using these vaccines? So as I said, last week's podcast, there are two buckets. One bucket is safety. I've already addressed that. It's a very, very safe vaccine. There's not any reason why we should question that. In terms of how to best use these, you know, there's already been lots of discussions. You know, you really would get the best result. Instead of dosing, for vaccine dose two at three to four weeks, you should consider it at 10 weeks because of the maturation of the immune system and how that may actually enhance its overall impact. Or if you do a booster dose, when do you do it? Why? Well, what is waning immunity? And so part of the challenge we've had over the course of this last several months is we have several things all happening at the same time. One, we have people who were vaccinated now six to eight months ago, that we didn't have five months ago. We have large numbers of people that are reaching that, so if there is a waning immunity issue, meaning your immune system starts to drift off a bit at six months, now is the time we start picking it up. The second thing is we didn't have Delta before. There is no suggestive evidence at this point that Delta by itself evades immune protection, meaning that somehow the mutations have occurred so as these things we've learned with beta and these other variants that somehow could basically neutralize the impact of the vaccine. Rather, what we have is we have a hyper infectious virus that is very readily transmitted. I see all these clusters that continue to occur. I mean, I'm dumbfounded when I watch someone who is infected, who is actually vaccinated in an outdoor wedding transmits to, you know, 90 percent of the people there at that outdoor wedding. I mean, and they're vaccinated. That's a pretty amazing virus. So how could this be happening? Because this is not just breakthroughs as we think of as random chances. I think it has a lot to do, and hopefully, you know, time will help us understand this, it has to do about infectious dose. And I think that what you're seeing is even in people who are quite well protected against serious disease and who may be largely protected against mild infection if this were a pre alpha strain. Now, with Delta, they may be getting such an infectious inoculum, inhaling it in that it basically is overwhelming the level of protection that can be afforded by the vaccines or your immune system. And so you don't get serious

illness that often because you're still basically have enough protection in your lower lungs. But in the upper respiratory tract, you get infected. And I don't know that to be the case, but I think that that's something we have to look at. So what does that mean relative to use of vaccines? Is waning immunity really important or not? Are we seeing the issue of more serious illness occurring among those who might have waning immunity, particularly with this higher infectious kind of venture with Delta? The bottom line message for me that I've come away with is that if you look at all of these studies that have been coming out and I'm not going to bore you in all the study by study numbers, there's a trend I think is coming through. One is clearly there is waning immunity. And I think it's unique to some degree with Delta because of the fact even before, as we saw in the months just before Delta, we did have people who are at four or five months post the early vaccination time period, meaning that they were the very first out of the shoot around the world last December, early January. And we didn't see a big drop in their protection five or six months, post their earliest vaccination with non Delta strains. So I think Delta does add something. So you have potentially two things. One is you do have some potential waning immunity. You have this higher infectious dose, and I don't see it at this point really leading to a big increase in severe illnesses, in hospitalizations and deaths. The Israeli data sticks out right now as supporting that possibility. We need to look at it very carefully. But the rest of the data, I don't think really does. So the challenge we're going to have is at what point do we say that there is potential for more severe illness, then I think it's no longer just a booster dose, so you don't have mild infection. It's a booster dose in concept, but in reality, it's a third dose of a prime series, meaning you really needed those three doses. And I think the groups that this is going to ultimately come down to, and I may be wrong, is health care workers, because we can't have breakthroughs and then we need them badly in our health care systems. And right now, we're seeing a, you know, a number of health care workers who are breakthrough cases because they were the earliest people vaccinated. And they're also in the face of Delta. And yet we need them to be on the front lines. I think the second group is going to be the immune compromised. I said that last week when I talked about the fact that they truly are not booster dose recipients, their third dose prime recipients. I think the last factor could be age. If you look at the age related results right now, there is a strong suggestion that over age 60, 65, you're at higher risk of having a breakthrough and it may be more serious. So I think I'm coming down right now somewhere in between. What have some proposed as the universal third dose approach and those of saying, yes, you need it for these individuals because time

means that they will wane and that is different than a booster dose. That is really about finishing a prime series. To me, I think this is completely consistent with the need to get vaccines to low and middle income countries it is just saying if in fact, there is going to be more severe illness potentially in older individuals who have waning immunity with Delta, you waste the first two doses if they go on and develop severe illness where the third dose could have given you the benefit of that protection. So stay tuned. I don't think it we're all yet to a final answer. I do want to emphasize over and over again, I am so cognizant of the need for international vaccines and being good stewards of these vaccines and that, you know, if all we're doing is preventing some people from having sniffles or, you know, a very mild flu like syndrome, that is a whole different question about sharing vaccines with the world versus using them here. But if we're really going to prevent serious illnesses, then I think we need to take very seriously the need for that third dose. And that's what I hopefully time will tell us in terms of more data.

**Chris Dall:** [00:45:31] There are a lot of parents out there wondering about when vaccines for children under 12 might be authorized. Mike, do you have a sense of when this might happen?

**Michael Osterholm:** [00:45:41] I don't and if you actually consider the FDA action of this past week, this had been anticipated for weeks by others and didn't come until this week. Remember that the information we're collecting now in younger kids is actually about different dosages. And when we looked at the older kids, they were getting the same dose as adults, and we assumed that that would be safe and effective. And to date, at least for the 16 year olds and older, that's been the case. I think that the issue here with the younger kids and potentially lower doses wanting to assure safety is all very important. It's going to take more time than we thought. So. I like so many people who have kids or grandkids who are in those ages below 12, that we would still very, very much like to get vaccinated. I think that this is is is going to be the real challenge. I will say, however, that one of the things that continues to disappoint me very much is even with the vaccines we have available for those under 18 years of age, from 18 to 12, at this point, we only find that about 13 percent are fully vaccinated and only about 20 percent have actually even received one dose. We have a lot more work we need to do to get these kids vaccinated that could be. So, yes, we want to make it available to all kids. Let's get the kids vaccinated we can right now that we have it.

**Chris Dall:** [00:47:14] Staying on the topic of kids, Mike, I know you've been thinking a lot about K-12 schools and how they can prepare for this year, and you've been discussing it with others. What are your recommendations for this upcoming school year?

**Michael Osterholm:** [00:47:28] The most important recommendation I can make right now is we have got to stop with the happy talk. I think that we in public health have done a major disservice to the school districts and parents across the country with regard to what is going to happen with this virus as schools open and continue to open around the United States. I know that this may sound harsh and I don't mean it to be other than to say that what we've done in public health is bought into the emotional issues of getting kids into in class, learning for which we all agree. And as a grandfather of five of these kids, I want them in there too. But we have to... I'm going to start all over again, OK? We in public health have to be completely transparent and honest about what we know and don't know about transmission of this virus in kids and what it means for opening schools. We've been caught up in this idea that the risk to a child not having in class learning is so great that we will emphasize that over other data supporting what their risk might be. And that really is very evident by the fact that the data that has been used to develop the CDC guidelines for children attending schools has largely been collected from the period before the first alpha variant showed up in this country, let alone Delta. That was a very different time. I have talked about that time and time again on this podcast. The idea that, you know, this was not transmitted by an aerosol. The idea that there was very little transmission in kids, generally speaking, from one child to another or from a child to an adult or even from an adult to a child, were largely observations that were valid in those first eight to 10 months of the pandemic. But the variants came and changed that, and we have not kept up with that change. And so the CDC recommendations, frankly, there are there are some valid and good points in them, but they're built on a house of cards. So when we talk, for example, about, you know, the distance of three feet is acceptable in a school, if you have a face cloth covering on defies gravity. Why? Because we know face cloth coverings have limited protection. Again, I'll come back to the masking more. I'm not going to allow the world to characterize me as anti-masking quite the opposite. I want adequate masking. And who in their right mind believes that an aerosol is only going to be transmitted three feet or less, or the plexiglass will make a difference? And that's just wrong to continue to promote that. And the CDC guidelines do that, and as such, educators have then thus



become convinced that they can open their school safely based on this new information from public health. I don't believe it was intentional as such, but we have misled them. Let me just open this topic a bit by just reality. The southern states opened schools earlier than anywhere else in the country. Look what's happened just in the last two to three weeks in those southern states. Let me just take a couple, let me take Georgia. Right now more than 80 school districts or charter networks have closed or delayed in-person classes for at least one entire school and more than these states in the south. Others have sent home whole grade levels or asked half their students to stay home on hybrid schedules. In Georgia, specifically, where in-person classes are on hold in more than 20 districts, they started off the school year without mask requirements. Some superintendents say the virus appeared to be spreading in schools before they sent students home. They look at what's going on right now, one particular school in Georgia, 40 percent of the students are in quarantine or isolation right now. The district unprepared had to shift last week to online instruction until at least September 13th. And they're looking at more. Right now, more than one out of every 100 school aged children has tested positive for COVID 19 in the past two weeks in Georgia. Let me repeat that. This is health department data from last Friday. More than one of every 100 school aged children have tested positive for COVID-19 in the past two weeks in Georgia. Children five to 17 are currently more likely to test positive for Covid than the adults in the community. This virus is moving quickly and effectively between kids, by kids and for kids. If you look at what's happened in Florida right now, the same situation is there. The 15 largest school districts this past week have reported 11,851 cases in students and 2,610 cases in employees. This is not going to be handled by the kinds of recommendations that have largely been made by the CDC and now supported by schools around the country. So what does this mean? Well, first of all, let me just take a document from the CDC that actually says, and I quote, "To get kids back in person safely, schools should monitor community transmission, vaccination coverage, testing, outbreaks to help prevent the spread of COVID-19." Well, that's a wrong supposition to say, to get kids back in person safely. I don't think that's possible today. And I know this is going to be hard for people to hear. They don't want to hear it. But you know what I promised you from the beginning of this podcast, despite the fact I'm going to get a million emails who all want me to not exist anymore. We got to tell the truth. Look what's happening across the country with how easily this virus is transmitted. So, for example, if in fact, you continue to recommend that basically and this is the key takeaways I'm reading from the CDC recommendations for guidance for COVID-19 prevention in K

through 12 schools, the number one first key takeaway in that document is students benefit from in-person learning and safely returning to in-person instruction in the fall of 2021 is a priority. Yes, we all want them back. But their first priority should be we will tell you the science. We will tell you what we know and don't know and what it means in terms of getting kids back safely and the safely is a relative term. What does safely mean? It's not what's going to happen in our schools in the next three to six weeks. Another one of the key takeaways due to circulating highly contagious Delta variant CDC recommends universal indoor masking by all students, staff, teachers and visitors to K through 12 schools, regardless of their vaccination status. That's great. But what's the quality of masking we're talking about? How do you use these masks? Another key takeaway. I quote, "When it is not possible to maintain a physical distance of at least three feet, such as when schools cannot fully reopen while maintaining these distances. It is especially important to layer multiple other prevention strategies, such as screening, testing." What are we doing putting kids in harm's way by putting them in an environment where it's not even three feet maintained, which again, the science on this is terrible. Anyone in aerobiology will tell you. I mean, imagine you're sitting three feet away from somebody smoking. Do you think you would smell it? You bet you would. So now we're saying to them, what else can we layer on to make it safer? And I think that this has just been a misrepresentation of what the science says. I know I'm being very hard on CDC, and I'm I'm sorry. I looked at it as the public health agency of the world that we need so badly, but they have really dropped the ball on this one. And so I think that what we have to come back to is not what our belief systems are. We do want to get kids back in in person learning what are what is the science telling us? And the science is telling us with Delta, it is absolutely impossible to open up schools and not have major transmission when you're talking about the issues of how close kids are, what kind of respiratory protection they're using, etc. And I think one more point that I want to make here, because it's a it's a it's a tone issue I think that is really very important. I think health equity is a critical, critical public health priority today. It is real. But in the CDC statement about the issue of preventing the spread of COVID-19 in schools, they say as it relates to health equity, "for these reasons, health equity considerations related to the K through 12 setting are a critical part of decision making and have been considered in CDC's updated guidance for schools. School administrators and public health officials can ensure safe and supportive environments and reassure families, teachers and staff by planning and using comprehensive prevention strategies for in-person learning and communicating these efforts." It is,

again, not scientifically sound information to say that you can make schools safe. We can make them safer. And we have to do that. So what what do I consider to be the challenges and what we need to do? Well, first of all, we have never educated the public about the hierarchy of environmental controls. How do we control things if this were in the workplace and it wasn't involving kids or in the health care setting, etc.? The first thing we do is we use our vaccines. Vaccines are critical parts of this and grant you that we don't have vaccines for those that are 11 and younger, but we have them for 12 up and we're not using them effectively. I just gave you the numbers on the very low rates of vaccination right there. You know, a vaccine will trump a mask every day, every day. Why are we not putting more emphasis on vaccine mandates? Because we know how it'll tear our communities apart, just like the mask is. But if we're honest, we'll say that's what it is. Then if we look at the hierarchy of environmental controls, which is the order in which we have most impact, ironically, masking is at the very bottom. It's not the top. The top one is all about ventilation, moving air in and out of a room. And while there surely has been investment by school districts around the country to improve ventilation, it still is in many districts grossly inadequate. It is apparent if you're enrolling your kid in a school, you want to know that every room they're in is going to have five to six air exchanges per hour. What can the school tell you about that, can they? That's what they need to provide. And I know many schools have not had the resources yet to try to change that issue with the ventilation. Some are just in a place where it would take major reconstruction to do that. But as a parent, that's your number one issue. Ask the question, how many air exchanges are in every room that my child will be in? The second thing is you can use portable air cleaners. They can be very effective. Now, there are a lot of gadgets on the market right now. Most of it is pixie dust. If you want to get a portable air cleaner, buy one that has HEPA filters. They are very effective and will basically help eliminate the virus in the room to compensate even with the issue of circulation. How much is there? Now it may be too expensive to buy portable air cleaners with HEPA filters or frankly, they may not be available because hopefully a lot of people are buying them right now. But then do your MacGyver thing. And we put a link on our website, on the podcast site here, so you can get to this thing called the Corsi Box, named after dear Professor Corsi, who basically has created a device that is really clever and actually is quite effective. Take a regular box fan. Go to any of your local hardware stores and buy MERV 13 furnace filter material. Literally put that on the one side of the box fan. So as the air comes into the fan, blows through it, and then out, it's actually filtered with this MERV 13 furnace filter, which is highly effective at removing

viruses. So go become MacGyver. How many schoolrooms actually have Corsi boxes even if they can't get HEPA filter portable cleaners? Then we get into student density and physical distancing. Right now, we have so many locations where kids are closely together with their Plexiglas shields up. Plexiglas shields are part of hygiene theater. There is no good evidence at all that any of these Plexiglas devices make any difference. It's an aerosol. If that person was smoking on the other side of the Plexiglass shield, do you think you'd smell it? You bet you would. If that's an infected student or an infected teacher, you would smell it. So, in fact, basically keep looking at the distancing. And six feet is not magical. It's not going to give you absolute protection. I mean, I just this past week was walking outside on the sidewalk and somebody 20 feet in front of me was smoking and I didn't see it till I got the whiff of it. OK, that's outdoors. So the point being here, though, is, is that what you want to do is keep kids far apart as you can relative to the amount of ventilation in the room. The more kids in there, the more they breathe, the more they breathe, the higher concentration of virus, if somebody brings it in. So three feet distance is wrong, wrong, wrong. CDC is wrong, wrong, wrong. I don't care who in the educational world and who in the public health world did those studies. I'll tell you right now, it defies gravity to think that three feet apart will make a difference with Delta. So schools need to know that. They need to understand this. So that's one. Finally, we get to the issue next of testing and quarantine. At this point, testing can be a very important way to understand, do we have somebody in here today that's infected and get them out before they transmit even more? So these rapid tests could be helpful. And then quarantine. I see people today saying, well, according to the CDC, if I'm masked, and it's under 15 minutes in a room, I don't need to be quarantined. That's just wrong. We've seen this with Delta, I think, Delta right now quite honestly, the data we have would support the fact that this is probably transmitted within seconds to minutes in terms of contact time for transmission. And with that kind of situation there, you can't say, well, just administratively it's hard because I put all these people in quarantine. So therefore, if it's not more than if it's if it's 15 minutes or more and it's they were wearing a mask, you know, regardless of how close they were, three feet, then I don't have put them in quarantine. Not going to work that way. The virus will do what it's going to do, not to deciding what it's going to do based on what you decide to do as an administrator. So we have to understand that this quarantine issue is a real challenge. And it's not it's not an easy one. It's not acceptable, I know, to parents in general to have to be able to be home with their kids because they're in quarantine. But if you really want to stop transmission, if you want to have an impact on what's happening in

kids right now in this country, and remember, I've said this before. Right now, our pediatric intensive care beds in this country are filled. They're filled. So if your child gets severely ill, don't count on getting a pediatric intensive care bed or even getting a pediatric intensive care doctor. And nurses to take care of them. We have got to dramatically decrease transmission in our kids. Finally, in the hierarchy of controls, masks come in the very last. They're the least effective overall of trying to reduce the overall burden of transmission. Now, don't anyone walk away saying, I said that they don't matter. With good fit and filtration, you can actually accomplish substantial reduction of the virus risk with a good quality mask. I will be labeled by some as antimasking, you know, the southern governors who have used my comments out of context will do this again. But I keep coming back to we know that face cloth covering as just such provide very limited protection. You need an N95 mask. You need a KN95 to make it to fit. And if you can't get those, which basically right now they're readily available, you can then use the barrier face covers that are available. And those have been approved by a group that's called the ASTM, a group that measures basically the effectiveness of things like respiratory protection devices. We put it we put a link on the website here for the podcast where you can go and actually look at the ASTM barrier face covering standards and which ones are available. They're not as good as N95s, but they're the next level. So please, whatever you do. Also make sure that you've got quality masking and that there is an educational program so that if you put it under your nose, just know that, as I've said before, you're only fixing three of the five screen doors in your submarine. So for parents, let me summarize. Vaccination, vaccination, vaccination should be for the child if they can be 12 and older. The teachers, the support staff and you as parents. One of the big challenges we've had is a number of cases that show up in kids that they actually got infected from their infected parent. Vaccination. Then the hierarchy of environmental controls, ventilation, five to six air exchanges an hour. Ask the school for evidence of that. How many portable air cleaners do you have or HEPA filters are used or actually use a Corsi box? Make it up. Go to our website. Learn how to be MacGyver. Do not for a moment take three foot distance as acceptable for how many children you can put into a room. Do whatever you can to create more physical spacing. Testing, what public health and schools can do together for testing. It's a challenge. I will tell you right now that once a week testing is being used by many schools. You know, the chance of picking somebody up is about one out of seven, OK, in that first earliest days of infection. So again, if you're going to really try to limit transmission in your schools, testing is going to even have to be more frequent,

which is a huge challenge. Masking, the idea you want to mask, you want to mask, you want to mask, you want to support quality masking. You want to support how do you educate students, their parents, teachers, how to use these masks? You want to make sure that you've got that in place. And then and then we may be able to have a much higher level of safety for our kids in our schools and our daycares. Not guaranteed. I will not tell you this is going to be safe. Safe implies that I'm giving you a high level of assurance that nothing bad is going to happen. This is Delta. This is a virus that is going to do what it's going to do, and our best efforts to try to limit its transmission will always be challenged. So I hope this is helpful. I hope CDC will address these issues and its recommendations. It's really hard as a public health professional that wants very much to support the elite public health agency of the world when it has provided such absolutely scientifically unsound recommendations without really any acknowledgment at all of what the challenges are.

**Chris Dall:** [01:08:31] As I mentioned in the introduction, we're hearing from a new voice this week on the podcast, Mike, you spoke earlier this week with a local intensive care unit doctor about their experience working in the frontlines of this pandemic. And we're going to hear some of that discussion now. Can you set this up for our listeners?

**Michael Osterholm:** [01:08:49] I can. I will tell you, it will probably be tough. Anyone who's been following this podcast knows that there's some soft spots in this old epidemiologist's heart. This past week, I had an opportunity to read a blog post by a local intensive care physician, intensivist who, for the sake of identification, I'll call her Doctor Jena. I don't want to use her last name or identify where she works, so she can be spared the types of emails that I routinely get. This post that she provided was the most honest, deeply touching reality post that I had seen coming from someone who is spending her entire life right now trying to save people from dying from Covid. It was also very emblematic of the current situation we find ourselves in. We are such a divided nation. You know that I have made the issue of supporting health care workers one of my very, very top priorities in this entire pandemic. I'm very biased, of course. My daughter, who is a neonatologist, heads up the neonatal intensive care unit here at the University of Minnesota. Fortunately, she inherited her mother's brains. She's one of the smartest, brightest people I've ever met. But more importantly, she has a heart that's bigger than the world. I have a niece who is an ICU nurse, a charge nurse here in the Twin Cities who has had to live, eat and sleep Covid day in and day out. And there are

times my heart just aches for these individuals and their heroic work that they're doing. You know that you know, I've also witnessed the horrible implications of Covid for health care workers when they've died from their infection. Whether it was acquired at work or at home was the reason we started the Frontline Families Fund, the fund that has been set up for families of health care workers who have died. So in looking at this and wanting to share with you, this sense so that you might use this information as kind of the apostles to go out and continue to promote in any way possible vaccination. I decided to change my approach this week. This is my seventieth podcast, seventieth, and it's one of those situations where I felt like, you know what, in 70 podcasts, it's just been Chris and me. He's been stuck with me and then Cory occasionally. But I think it's really important you hear from Dr. Jena. An intensivist, a mom, a wife, a human with a heart. So I asked Jena if she'd be willing to answer some questions for me and be part of this podcast, I wanted her to share what it's like to be in an intensive care unit. I wanted her to share the challenges we have today. I wanted those that on the very off chance someone who's not vaccinated would ever listen to me, would actually hear her words, describe the pain and the suffering by the patients, by the family members, and by the people trying to save their lives. So here is an interview I did with Dr. Jena. We recorded earlier in the week. And all I can say is thank you, Jena, for what you represent, what you've done, and all your colleagues who, like you, have been so incredibly important to saving lives during this pandemic. So here is my interview with Dr. Jena. Let me start out by just asking you, what is it like to be a physician working in the intensive care unit and the kind of hours and the kind of issues you have? And what are you and your colleagues feeling professionally and personally?

**Dr. Jena:** [01:13:14] Well, thank you, first of all, very much for having me here and for letting me speak so openly about this. I think in one word I would say it's demoralizing. We as ICU doctors have spent most of our adult lives training to be ICU physicians and how of the general public doesn't seem to think that training or experience is worth anything. I talked to one of my colleagues about this, and he said it's like their house is on fire, but they're yelling at the firefighters to use squirt guns or the firefighters are just letting your house burned down for a profit. No one in their right mind would ever say anything like that to a firefighter yet these are the types of things that we hear every day now. During the previous surges, prior to the availability of the vaccine, we were completely overwhelmed with patients, with patients who were very sick. And all along, the families have not been able to visit. They haven't been able to come into the

hospital when the patients are in Covid precautions. And that's a good reason, but it's extremely difficult for them. So the patients, therefore, have been dying alone, usually with a nurse by their bedside, but not with any of their family. Previously, the families would get frustrated or upset with us due to the situation, but they were generally quite appreciative of our care and all the families and patients are angry and very distrustful. The patients in the ICU are either unvaccinated, which is the vast majority, or have some immunodeficiency, and despite being vaccinated, were unable to mount an immune response. Many of them refuse to take the vaccine because they feel that it's experimental or because it's not approved by the FDA. Yet they demand treatments that have not shown any benefit or even worse can cause harm or increased mortality and would be much more accurately described as experimental. They beg for us to help them while they're gasping for breath. And then when we do, their families are angry when inevitably one of the dreaded known complications of Covid happens to their loved one. And then sometimes they threaten to sue us. They say horribly offensive and hurtful things. And then day after day of this is causing us moral injury. So in preparation for this interview, I was reflecting on your question, and I had a number of thoughts that come to mind, and I'll just kind of tell you them in no particular order. No amount of medical training can prepare us for what we are seeing in the ICU. Between the acuity of the illness, the sheer number of patients, we're dealing with situations we never imagined. Losing multiple patients in one day to the same disease is completely unheard of previously. And we don't have time to debrief with our peers or discuss difficult cases because we have to move right on to the next patient. We have been able to learn and adapt to the medical aspects of the disease, because there are many parts of this disease that aren't new to us and the management of it, isn't necessarily new to us. But the mental toll and the amount of energy and time that it takes to respond to all the anger is enormous and something no amount of training can prepare us for. And we just don't have an opportunity to process our grief either. We're still, another thought that I had is we're still healing from last year, and as a number of cases dropped over the summer, we finally had time to reflect on what we saw over the last several months. But now that numbers are rising again, we are suffering from PTSD, panic attacks, insomnia and worried about ourselves and our family members getting sick again. What I tell people is I have no way to fill my bucket to recharge. It's hard to keep my head above water. For all of us, it's hard to keep our heads above water. For me, what I would do to keep my head above water and to deal with challenging the challenges of my job were to travel. And right now, I don't feel like that's safe and I haven't been able



to do it. We just feel empty. We feel we have low emotional reserve and have a hard time dealing with any negative news, such as politics or other events that may cause an emotional response. And we're frustrated that information about trustworthy sources is being blatantly ignored. We also can't really ever escape Covid. Like most people, for us, it is a constant source of anxiety. It's always on our minds. We are constantly assessing whether or not a situation is safe when we're at home and in public. We're wondering if we'll get sick, if we have to quarantine, how that situation will affect our partners at work and their ability to take care of patients. The trauma is completely inescapable and usually results in us isolating at home. We also feel inadequate or like we aren't doing a good job because we were spread so thin that we can't spend the time we would like to with each patient or the time that each patient deserves and needs. We don't have time the time we need to talk to families and to guide them through this difficult and nerveracking process. I personally feel a lot of anxiety about going to work every day and knowing that I'm just going to have to face these same things day after day. At the start of the pandemic, we felt pretty helpless. We didn't really know what we were dealing with. I still remember the day I heard about the first hospitalized, hospitalized patient in my state. It felt like doomsday because of what we had heard was happening in Italy. And now we're just angry. We're angry that we are still in this situation when death and severe disease are preventable. But misinformation and politics are really getting in the way. One of the frustrating parts of this pandemic is that people around me in my community seem to have moved beyond the pandemic thinking it's over. Yet I'm living it day after day. It's not over for me, and I'm glad they won't. But it's also frustrating that people don't know how incredibly hard it is to do my job right now and the toll that it's taking on me.

**Michael Osterholm:** [01:19:11] Well, Dr. Jena, thank you. I can't imagine a more honest, heartfelt and unfortunately realistic answer right now than that. But let me look forward to the next few weeks, because as much as I don't want to have to even anticipate this, we're going to have to, because we're far from done. Even with this surge. So now here you are. How do you see the next six to eight weeks playing out in this Covid surge that we're in right now with health care in this country and even right here where you are practicing?

**Dr. Jena:** [01:19:50] I really feel and know that a lot of people are going to suffer and a lot of people are going to die, and then those who don't will grieve the loss of a loved

one. There will be increasing spread from gatherings like the Minnesota State Fair or school starting without precautions or mask mandates in place, and everyone has Covid fatigue. I do, too. We're all tired of all of this. We're tired of mandates, restrictions. People are quitting their jobs in health care or out on quarantine, and we don't have enough staff as it is even with them. We've had to put tighter restrictions on highly medical, medically complex treatments like ECMO because of a lack of resources. Thankfully, so far that hasn't happened with ventilators. But if the surge becomes overwhelming, I'm worried that we'll have to face that, too. When I work as the chief of the day for a hospital, taking the incoming calls for the patients that are to be transferred in, I've had to turn away very sick patients because they don't meet our criteria for ECMO or more commonly, we simply don't have an available ICU bed. Often times they have called other hospitals already. Sometimes many hospitals. I heard one provider had called thirty four hospitals in just in the state. And when I have to turn them away, I know that that patient will die. It's absolutely heartbreaking to feel so helpless. Our regional hospitals in the smaller areas around the state are overflowing with patients that are very sick, and that would have normally have transferred to our hospital for a higher level of care prior to COVID. Now, we don't have beds available at these higher levels of care centers, and we are managing critically ill patients and even running cardiac arrests over the phone with our colleagues at these smaller hospitals. The system just wasn't created for this number of patients or patients that are this sick. And remember, you don't just get hospitalized for Covid. What if you or your loved one has a stroke or a heart attack or needs an appendectomy or your kid breaks a leg or an arm? We just might not have a hospital bed, a nurse or a doctor to take care of this if this continues on.

**Michael Osterholm:** [01:22:03] So to kind of summarize all of this, what would you say personally and professionally to all those who are not yet vaccinated, but who could be but choose not to be?

**Dr. Jena:** [01:22:18] I've actually been confronted with this a few times, and the first thing I do is ask them their reason for not getting the vaccine. And I try to meet them where they're at and answer their questions, address their fears, their concerns. And I explain to them that I'm confident that this vaccine is safe and I'm even more confident that it will keep them out of the ICU. This has been proven over the last several months because as the vaccine has become more available, the patients that we're seeing in

the ICU are all almost entirely unvaccinated. And as I said before, the ones who aren't who are vaccinated are generally the immunocompromised, who didn't respond to the vaccine. Compared to the previous strains prior to the Delta strains, the patients are the patients now are much younger, much sicker, seem to respond more poorly to treatment, and many of them have few to no underlying comorbidities. And it's just heartbreaking to have a patient begging for a shot when they're struggling to breathe because it's just too late by then. We're seeing a huge increase also in pregnant patients in the ICU, which is extremely devastating. I've had babies die in utero when I've been taking care of the mother. We've had to deliver babies at 26 weeks. Much earlier than usually expected to save the mom and the baby. And then the baby gets taken care of in the NICU for a long period of time. And it's just terrible. Also, being in the ICU for Covid is never a quick stay. Hospitalizations are long and the morbidity persists for a long time after discharge. Most of the time, patients are in the ICU for weeks to months and can be on ECMO, which is a lung bypass machine for weeks to months also. The recovery is long and slow. And really, it's not just about the chance of death, but because Covid infections span a huge spectrum, but really, can you even risk being out a week from work or deal with an ongoing issue from the Covid infection for longer than that? And can you risk the long haul symptoms that affect 25% of Covid infections? So as part of my self care, over the past several months, I've been organizing vaccine clinics around my state. And every patient I vaccinate, I think that's one less patient that I'll be taking care of in the ICU. And it absolutely feels amazing. When I was eligible for my vaccine, when health care workers were being vaccinated, I was so excited and I pretty much ran to get my vaccine. I felt a huge sense of relief knowing I wouldn't meet my peers in an ICU bed. And really, any ICU doctor will tell you to run, not walk, just get a vaccine as soon as you can. And that should really tell you something. So I guess in summary, I'd say just please go get the shot. And as my very eloquent colleague that I mentioned previously said, it's putting a smoke alarm in your house instead of having to call the fire department because your house is burning down.

**Michael Osterholm:** [01:25:22] Oh, Jena. Thank you. Thank you. It's so inadequate to tell you, just thank you for your story, for sharing your time with us. Your humanity, your commitment, your struggles, and most of all, your kind and beautiful strength. I hope everyone can find a way for just one unvaccinated person to hear your message. And hopefully that will help people understand what might be in front of them. And for this reason, what you've just shared with us, my dedication this week for this podcast is to

you, Dr. Jena, and to all of your colleagues who every day put it all on the line. It's my daughter, my niece. All of you. And I just thank you and I know I speak for so many on this podcast. Thank you for what you're going through and your willingness and your ability to keep coming back even when you have nothing left. Here you are trying to be a mom of two young kids. You're trying to be a wife. And yet every day you leave it all back in that workplace. And so thank you. And one day when the history is written of this pandemic, people like you will be understood and recognized, not because you ever for a moment wanted to be a hero. I know that you don't do this to be a hero, but I hope that the world can understand the contributions you have made. Thank you.

**Chris Dall:** [01:27:10] And let me add my thanks this week to Dr. Jena for joining us and sharing her story with us. So on a lighter note, Mike, now tell us about this week's beautiful place.

**Michael Osterholm:** [01:27:21] Well, you know, I have to say, we have a lot of artists in our podcast group in terms of that artful eye and what they can see. This is from Carl. And he sent us a number of different views of his beautiful place. And I'll just share his message. And these are linked on the podcast website. I urge you to go take a look, because, in fact, they really are remarkably beautiful. So Carl wrote "Dr. Osterholm and team, I wanted to share a couple of photos with you. One is entitled "Just Get the Damn Vaccine." That is how I want to tell people how important is just to do it. The others in the link are from my beautiful place, my view from my office where I'm sitting right now. I live in Topanga with a small view of the tops of the tallest buildings in downtown Los Angeles, 20 miles away. I live alone with my dog and have stayed safe here. I am alone, but not lonely. I have many neighbors that I meet and chat with from a distance while walking the dog. We often discuss things I've learned on the podcast. My sense of community here has really been important to my mental health and well-being and being able to be surrounded by the Santa Monica Mountains, I can't imagine living anywhere else. Feel free to share. Cheers. Carl." Please go take a look at these photos. They really are beautiful. And Carl, thank you for your very kind note and for your contribution, not just in the beauty of what is there for the visual eye, but you're very, very thoughtful message. We we very much appreciate it. Thank you.

**Chris Dall:** [01:29:07] And to our listeners, keep those beautiful places coming, you can share them with us at osterholmupdate@umn.edu. You're closing thoughts today, Mike.

**Michael Osterholm:** [01:29:18] Well, you know, how do you close a podcast after hearing Dr. Jena and the kind of information that we've covered today? And this is actually a closing that I've kind of held for some time. It's one that near and dear to me. And I think today is the day to bring it out. It's the day that kind of ties all of this together. I have not used a Beatles song through the duration of this pandemic, despite the fact I know that they're the greatest rock group that ever was on the face of the Earth, amazing. I've picked a song that I think is really very telling of the moments that we've spent here together today. "Help" is a song by the Beatles that served as the title song for the 1965 film and its soundtrack album. It was released as a single in July of 1965 and was number one for three weeks in the United States and the United Kingdom. "Help" was written by John Lennon with some help from Paul McCartney. During an interview in 1980, Lennon added "I was fat and depressed and was crying out for help." In this sense, I think we're all crying out for help today. We all are. I know I am. I'm trying my best, but I, I know there are days I need help. And this is where I think we can help each other. I hope it was helpful to Jena to be able to tell her story for her and for all of her colleagues that that story represents. I know it was helpful to me to understand where we're at in this world right now with Covid and what it means. So if there's anything I can say today that would be, in a sense a message, it's we all need to help each other, no matter how broken we are, no matter how on top of the world we are. We all need help and we all can provide help. So it's in that regard. Here it is. "Help," Lennon and McCartney. "Help, I need somebody. Help, not just anybody. Help, you know, I need someone help. When I was younger, so much younger than today, I never needed anybody's help in any way. But now these days are gone. I'm not so self-assured. Now, I found I changed my mind and opened up the doors. Help me if you can. I'm feeling down. And I do appreciate you being 'round. Help me get my feet back on the ground. Won't you, please, please help me? And now my life has changed in oh so many ways. My independence seems to vanish in the haze. But every now and then, I feel so insecure. I know that I just need you. Like I've never done before. Help me if you can, I'm feeling down, and I do appreciate you being 'round. Help me get my feet back on the ground. Won't you, please, please help me? When I was younger, so much younger than today, I never needed anybody's help in any way. But now, these days are gone. I'm not so self-assured. Now I find out changed my mind and opened up the doors. Help me if you can, I'm feeling down, and I do appreciate you being 'round. Help get my feet back on the ground. Won't you please, please help me? Help me, help me.

Oh." Thank you for spending another podcast with us. I hope the information was helpful, maybe provocative if I offended anyone on this podcast today with my rather frank comments, I surely did not intend to. But if I in any way could motivate you to maybe see the world a little differently, that part I'll take full blame for. But also, I hope that this podcast will be remembered for the humanness. Dr. Jena brought that humanness. This is a tough, tough time. This pandemic just won't let up. And we can't give up. Get your vaccine. Yeah, you may be a breakthrough case, but it will be a lot milder and your chances of having a bad illness, hospitalization and death will go down substantially. And just remember, as difficult as it is, as much as a country will continue to tear apart ourselves over schools and masks and vaccines and all those things that can save one's life. Just remember, we still have that need to be kind, to be thoughtful, to be patient. We have to understand that we will get through this pandemic. We're going to get through it. We will just a matter of how we do it. So thank you for all the help you bring to me. Again, I can't say it any more times than how much your messages mean, how how important they are to our team. And that we'll be here. You you help us. We help you. And I just wish you the very best. Be kind, be safe. And thank you.

**Chris Dall:** [01:34:49] Thanks for listening to this week's episode of the Osterholm update. If you're enjoying the podcast, please subscribe rate and review and be sure to keep up with the latest COVID-19 news by visiting our website [CIDRAP.umn.edu](http://CIDRAP.umn.edu). This podcast is supported in part by you, our listeners. If you would like to donate, please go to [CIDRAP.umn.edu/donate-now](http://CIDRAP.umn.edu/donate-now). The Osterholm update is produced by Maya Peters, Cory Anderson, and Angela Ulrich.