

## Episode 43: A Realist Adjusts the Sails

**Chris Dall:** [00:00:00] Hi, everyone. Before we get to this week's episode of the Osterholm Update, I want to remind you that mugs, T-shirts, buttons and other Osterholm Update podcast merchandise is now available through the Minnesota Alumni Market. You can find the link to the merchandise on the Osterholm Update website or the CIDRAP homepage. The proceeds help fund research work at CIDRAP. Now to this week's episode.

**Chris Dall:** [00:00:26] Hello and welcome to the Osterholm Update: covid-19, a weekly 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.

**Chris Dall:** [00:01:02] It's been an extremely cold week here in Minnesota that's not unusual in these parts in February, but this week's long stretch of subzero temperatures on top of the pandemic that has kept many of us inside our homes for months has even the hardiest Minnesotans grumbling and hoping that spring comes early this year. But in terms of the pandemic, the spring may not bring much of a reprieve in Minnesota or elsewhere. While covid-19 cases in the US continue to decline and the nation's hospitals are seeing some much needed relief, the B117 variant is spreading and new research indicates that it's likely to follow a path seen in the United Kingdom and other countries where it has become the dominant strain. On this February 11th episode of the Osterholm Update, we're going to talk about the latest news on the B117 variant and other variants of concern, and what their spread means for the US and the rest of the world. We'll also continue our conversation on whether U.S. vaccination strategy should be adjusted in the face of the threat from the variants, and discuss other measures the country needs to take to manage the variants, and we'll answer a listener question about going to the dentist and highlight another pandemic act of kindness. But first, we'll begin with Dr. Osterholm's welcome and dedication.

**Michael Osterholm:** [00:02:09] Thank you, Chris, and welcome to all of you on the podcast today. Thank you for being with us. Welcome back to the podcast family. To those who are with us week after week, we so appreciate having you not only just participate in this podcast in terms of listening to it, but all the feedback you provide us and, I think, even all that you do in your communities with acts of kindness. And I'm very happy to report an update on light in Minneapolis. Today, February 11th, we will have 10 hours and 16 minutes of light. We have increased 19 minutes since last Thursday, and now we have had 90 minutes, or one hour and 30 minutes, increase since the winter solstice on December twenty first. So hold on, it's coming. But, boy, it feels good to see that additional light every day. One of the things I want to do today in terms of our dedication is take a step back. And this is something that is near and dear to my heart in terms of the group that I'm dedicating this podcast to, since I feel like I've spent most of my career in the trenches of public health. Having been at the Minnesota Department of Health for almost twenty five years, I feel and bleed public health day after day in terms of frontline public health workers. And what I have seen happening over the course of the recent months has just reminded me time and time again of the challenge there. So I'd like to take a moment now to dedicate this podcast to the frontline public health workers and to really extend a heartfelt message of gratitude to our nation's public health workforce. They really are unsung heroes who have also been working tirelessly since day one when this virus first emerged and the start of this pandemic. While they're clearly not as visible as the doctors and nurses, people who we obviously have such respect and admiration for, but they're every bit as vital to this nation's response. And in a sense, the public health workers, whether they be at CDC or the ones in your home communities caring for you, the state, local, tribal and even territory health departments really are that front line of what so much of the information that we collect and use every day in making decisions, every day in trying to reduce the risk of this disease in our community. You know, their jobs are many. I couldn't even begin to list them all from health officers to state epidemiologists, laboratorians and disease investigators, intervention specialists, vaccine program managers, public health nurses, the administration clerical staff, and the many applied public health epidemiologists who gathered the data, analyzed them and gave guidance to our policymakers. They truly are working tirelessly, making science and evidence based decisions to help us and our families protect ourselves and to be the best versions of ourselves. Sometimes they've had to do this under threat or make very unpopular recommendations like wearing masks. Some folks have denied their conclusions and tried to shift the blame for the

damage the pandemic was doing to them. I've seen that often. Even in the face of death threats, these public health workers have endured to continue their mission to protect the nation's health with stoic determination and what I call servant leadership. I worry about many of them today. I believe they really are suffering classic post-traumatic stress syndrome of working seven days a week, many hours a day, and being heavily criticized by almost everyone in the community for not doing enough or being enough. Well, today, I applaud them for their commitment and dedication. I thank them from the bottom of my heart and on behalf of all the team at CIDRAP for your calm, courage and resilience. Thank you, public health. To frame today's podcast, I share with you a quote from the late William Arthur Ward, who said, "The pessimist complains about the wind, the optimist expects it to change, and the realist adjusts the sails." I'm a realist. I have been all my career. And the wind seems to me to be a fitting, an ongoing metaphor in relation to this pandemic. As many of you know, two weeks ago when I was on Meet the Press, where I said we could think of ourselves as sitting on a beach, looking out at the ocean where the sky is blue, everything seems fine. But beyond the horizon, a hurricane is approaching. A hurricane of category five or more, is sitting four hundred miles offshore and heading directly to our beach. But because of the bright sunshine, the blue skies and the gentle breeze, the beachgoers were not the least bit alarmed. It's two weeks later now. Now the hurricane, I'll call it covid, is two hundred and fifty miles away, not four hundred. And as of this moment, all the forecasts are saying it's still headed directly towards us. That's our realistic situation. That's the truth. You've seen hurricane stories on the news so many times, unfortunately, far more often in recent years, there's always the optimists who feel certain that hurricanes will change course and never be a threat or quickly downgrade just before hitting land. There's the pessimists who end up paralyzed by the fear and despite knowing they must do something and fast are frozen in action. And then there's the realists who look at the science and the available data and say, yikes, this looks like a serious threat. It's time to start rapidly preparing. I consider myself in that last group, I hope the hurricane downgrades quickly, but at the same time I'm getting ready, assuming it very well may not. As you know, the hurricane I'm referring to is the arrival of the new virus variants of concern from the UK, South Africa and Brazil and other places. Several weeks ago there were only the first scattered reports of the new variants in the US. Now, the UK variant, what we call B117, is doubling in cases every 10 days in the US. I'll go into that in much more detail later. So what can we do to get ready? I will share with you the data why I am convinced that this hurricane is going to make landfall and why it is so

significant. So what can we do to get ready? In this week's episode I'm going to tell you two very significant things I think that needs to happen. First, as I noted in last week's podcast, the B117 surge in cases we are likely facing is so urgent. I will detail again why I believe it is time to postpone plans for second doses of the vaccine for those who have not yet received their first dose. We need to shift into disaster preparation mode in which our number one goal is simply saving lives by vaccinating as many people as possible in the sixty five year old and older age group with one dose as soon as possible. I'll put forth in this episode the case for this. I will also address head on the inconsistent message we are sending this country with now acting as if the covid pandemic is behind us. This is a dangerous message. And how committed in my hand to this recommended strategy? I'm committed enough myself to put off my second dose, which is scheduled for next Saturday, and postpone it until later in the spring. I will also address head on the inconsistent message we are sending this country with now acting as if the covid pandemic is behind us. This is a dangerous message we're sending.

**Chris Dall:** [00:10:21] Mike, this week, the nation reported a day with fewer than 100000 new covid-19 cases for the first time since early November. While that's still a high baseline, it's a notable decline from where we've been. But do we know why there's been a decline in cases? While some states have had stronger mitigation measures than others, the nation in general hasn't been in any form of shutdown. So what's going on?

**Michael Osterholm:** [00:10:45] Well, let me just say that if I can answer this for you with absolute certainty and scientific evidence, I think our group deserves a Nobel Prize. This is a challenge. I have little doubt that the mitigation strategies that we have recommended to try to, in a sense, hold case numbers down, try to reduce seriously ill people from having to be hospitalized, has made a difference. But I also have to acknowledge there's something going on in the natural history of this infectious disease, which we can't readily explain. Why have we gone from these regional outbreaks where, again, as I pointed out, the early days of the pandemic in the United States with the hotspots in New York, Detroit, Atlanta, Chicago, Seattle, Southern California and much of the country spared. And then by late spring, early summer, upper Midwest had their highest peak in cases. Then in July, we saw literally a house on fire events across much of the southern Sunbelt states from Southern California to South Carolina. And then that situation lessened in terms of number of cases. We saw some limited activity in parts of

the East Coast. And then along comes the post Labor Day weekend and we begin to see the increase in cases in the upper Midwest again. And then those case numbers started to decrease even before Thanksgiving with little evidence of a Thanksgiving bump. And at the same time, those same southern states again caught on fire from California to Georgia, with, interestingly enough, some exception in New Mexico. Why? What was going on there? It surely blows the theory of seasonality in the sense of a July peak in the southern states and a January peak in the southern states. We don't know, but we do know enough to know that there are general trends that we can count on. And one of those is as long as there's human wood out here to burn, susceptible people not protected by either vaccine or by natural infection, this coronavirus forest fire will find you. But what scares me right now is that we're talking like somehow we have just basically won the covid lottery. Look at how case numbers are coming down. We're watching the country open up at a time when, in fact, a year ago we would have been closing down over this issue. Now, maybe closing down isn't the right thing to do at any level. Maybe it's at a certain level of cases. But just think of the logic. And I realize that, for example, in New York, where they're using the concept of  $R_0$ , think how the public is responding to the following logic. Take, for example, on December 11th when New York City restaurants were basically shut down by Gov. Andrew Cuomo because the rate of cases had hit 40.2 new cases per hundred thousand people over a seven day average. Today, that number is at 66.1, compared to 40.2. And now we're opening back up again. You can do the same thing if you look at what has happened with regard to the hospitalizations. December 11th, two hundred and nine people per hundred thousand population over seven days in New York City were hospitalized. Today, it's at three hundred and thirty five. Now, there's a sense that maybe the cases are coming down, great with that, but what's the decision process here? How do we make these decisions? How can the governor of Iowa say we can open up everything it's back to normal? It's all the same. We're seeing states all over the country begin to do that. Now, I don't want us to stay locked up. I, like all of you on this podcast are tired, I'm frustrated, some days angry. I'm sad. I feel lonely. Fortunately, I've still had my good health during this time. I understand why people feel this way, we've got to get back to normal. But the challenge I think we have right now is what's going to happen over the course of the next four to six weeks as we're doing everything to loosen up and at the same time, we see this cloud, very dark cloud, that is the first outer wall clouds of the hurricane coming onshore. What are we going to do? How do we turn this around quickly if people think that they're being whipsawed by my comments, what are they going to do when in

weeks we're going to be struggling again to keep our hospitals afloat? When we're now saying we have to basically lock down? So I don't know why these trends happen like they do, but as I'll discuss in a moment, the B117 variant, we know they are going to happen. And I think right now we want to feel so good about where we're at. And I understand that. I get that. But we also are then missing this hurricane coming ashore soon. So, Chris, I don't know for sure why we've seen what we're seeing, why we see these ups and downs like we do. But surely, surely this is going to change over the days ahead despite the availability of vaccine. And I think in our next session we'll go over that.

**Chris Dall:** [00:16:22] So, Mike, the CDC is currently reporting fewer than one thousand U.S. cases of the B117 variant, but in a new preprint paper that came out over the weekend, scientists at the Scripps Research Institute looked at genome sequences from 460 sars-cov-2 samples and found that the B117 growth rate is doubling every 10 days in the U.S. So does this confirm your fears about what this variant is going to do in the coming weeks here in the US?

**Michael Osterholm:** [00:16:45] Well, this is the hurricane I was talking about. It is, in fact, this issue of the B117 variant from the UK. Just to remind everyone, and I know this is repetitious for some of you, but let me just make sure we're all on the same page. Variants with this virus have been occurring from day one. Variants are mutated viruses that in many cases the mutations do not provide any benefit to their survival. And they typically don't do all that well in circulating in humans. And they eventually die out. New variants that have some unique evolutionary quality to them that enhances their ability to be transmitted in humans or survive in the human population are the variants to take over. We've had many, many, many variants of interest, meaning that they basically are different. But more recently we've had variants of concern. These all fall into one of three categories or are a combination of all three. Number one, they result in more efficient transmission to humans. Number two, they result in more severe illness, including death. Or they have the ability to escape the immune protection of either vaccine or next natural infections in a human. And these are really relatively new issues for us to deal with, dating back to the origins of the pandemic. So what we're dealing with today is three particular variants of importance. B117, the UK variant, which I'll spend more time on in a moment. In addition, the variant P1 from Brazil, which we've heard a fair amount about. I'll cover that. And also the B1351, which is the variant that is

often referred to as a South African variant. And this is one that also I'll cover a bit on. But let me focus on the B117. The paper that you just referenced, Chris, is a really very important paper. The senior authors on this are Bill Lee and Kristian Andersen. Kristian has been a very important advisor to us here at CIDRAP and someone whose academic and common sense knowledge of this issue, I think, is among the best in the world. And what they did at Helix Company as well with a number of other academic centers and including the Scripps Research Institute, basically laid out what's happening with B117 in the United States. Remember, this particular variant in England has been a severe challenge in terms of what it's done over the last several months. We know that England has been in a lockdown of real significance for weeks because of this issue. We have learned through their work that initially B117 was clearly much more infectious, potentially 30 to 50 percent more infectious. It also produces more severe illness that is yet to be fully characterized. But the evidence is mounting that it does produce more severe illness. We've seen it expand out of England to countries like Ireland, Portugal, Belgium, Denmark and including Israel. There are a number of lessons, I think, to be learned here. Just take, for example, what happened in Denmark, where they went into a nationwide lockdown in mid-December, which they then showed cases dropped from three thousand per day in Denmark to just a few hundred, just like we are now. But then what's happened is the B117 keeps spreading at an increased pace in Denmark, and they now estimate it will become the dominant variant later this month and cause overall increases again despite the lockdown. As was noted by one of their senior health officials, it is completely a game changer. And they are seeing in Denmark B117 spreading at almost 1.6 times faster than the previous variants. Current restrictions, which include capping gatherings and closing non-essential businesses and schools, have brought the overall  $R_t$  in Denmark to 0.78. This is the reproductive number in real life, meaning it's below one. So the numbers should be dropping. The problem is the B117 still has an  $R_t$  of 1.14, which means that you're going to see that one increasing. It's above one, meaning one person infects more than one person. And I could go through the entire list of what's happening in these other countries in a very similar way. And I will comment more in a moment on what's happening in Israel, particularly as relates to the vaccine. So I think the point that we want to make clear here is that this virus, B117, is now in the United States. It is throughout the country. We know that there's at least six hundred and ninety cases reported in thirty three states. That number keeps getting updated. We know that Florida and California have seen the largest number of isolates identified in cases. And while these numbers may seem small, they

really are just a small sampling of what's happening in our community. Now, why our case number is not yet going up in the United States? Because we are just about to hit the bottom of the curve and watch and see what happens when B117 really kicks in. So think about this. It's like the early days of the pandemic. If you're doubling in the case every 10 days, you go from two to four to eight to 16. Those aren't big numbers. But then when you start doubling several thousand to twice that number, then again, twice that number, that's when you see the very, very rapid increase in cases which, for all the information we have now says that's going to happen in the United States. So it's really important we get this message out that we have to start preparing our health care facilities, our public leaders. I feel like, you know, the point I just made about here, we have all these elected officials trying to basically celebrate the opening and meanwhile, the hurricane is about to hit them. They don't see it yet, but it's coming. Let me just say a few more words about the other two variants of concern that we've talked about, the B1351, or what some people refer to as the South African variant. And I can only say that while we've seen a few cases show up the United States, six cases to date in three states, there's no evidence here of any kind of widespread transmission. And for that matter, we continue to actually even lack really comprehensive data on what's happened in South Africa. We surely know that this variant is very important, as was evidenced by the recent trials looking at AstraZeneca's vaccine, as well as looking at the Johnson and Johnson vaccine and the impact that this has had. This is one of those variants, though, that may very well not be that fit for transmission. But when it does exist, it has the real potential to impact on the immunologic protection. I can only hope that this one doesn't take off and that we may actually see it limited to South Africa and even fizzle out there being outcompeted by other variants. So, you know, at this point, we just don't know how fit this is. The same thing is true with P1. While we know this has been a tremendous, tremendous challenge in Brazil, we haven't seen it spread around the world with an ongoing transmission occurring within countries where it's arrived. We have three cases here in two states, including our own state of Minnesota with two cases, Oklahoma with one. And yet we have not seen any additional transmission. We realize we are flying blind into a certain degree with our sequencing because of the limited nature of it. We've not seen any evidence, at least here in the state, that this particular variant has caused additional infections and that we can attribute some kind of vaccine failure relationship to it. So I only hope that these two variants end up not being fit enough to keep transmitting in a population with other variants. That may be wishful thinking. As I've said to you before, I think I know less

about these viruses today than I did three or four months ago. And so we'll have to wait and see.

**Chris Dall:** [00:25:43] So, Mike, last week we started the conversation on an audible on the U.S. vaccination strategy. Mike, does the news about the B117 variant reinforce your belief that we do need to adjust our vaccination strategy?

**Michael Osterholm:** [00:25:57] Well, Chris, you know, this is an issue that some I think, would like to see go away. To me, it only grows in importance. And it grows in importance, not just because we need to respond to the surge, but I think how quickly it's going to be coming upon us. I'm going to try to be very realistic today, some people would rather have this go away, but this is far too important and it may be the most important thing I will work on in all of covid-19. That's how I view it. You know, why now? Why am I keep raising this issue, even though in the face of others, it's not something that we need to address. We have a window of opportunity here right now to potentially save thousands and thousands of lives that we would not otherwise save. And we need to get really straight on what we know and don't know and why that's the case. And so this is not just a simple administrative decision. This is not just about an inconvenient truth. This is about a window of opportunity to do something, and if we don't in the next few weeks, we will, in fact, I believe, experience these substantial increase in serious illnesses and deaths. We have to take a step back. What is our goal with this idea of delaying or postponing the second dose? And I keep coming back to that over and over again. We're only delaying or postpone it. Nobody is talking about not getting a second dose. But our goal really at this point when we see these surges shifts entirely to dealing with the burden on our health care system. It's not about trying to bring the case numbers down for the very sole purpose of reducing morbidity and mortality. If we did that, we wouldn't be opening up again right now like we're doing. It's all about what will happen to our health care systems. And as I mentioned prior, if you look at what's happened in Europe with B117 and you just take the United Kingdom and you take their rate of hospitalizations on their worst days of their surge with B117 and you extrapolate that to the United States, as opposed to the one hundred and thirty thousand hospitalizations a day we saw with our January surge, which surely challenged our health care system beyond anything in modern times, the British experience would have put that number to one hundred and ninety five thousand hospitalizations. Sixty five thousand more than we had at our max. We're going to be in

that same boat again, trying to keep that down. Not just for the purposes of saving lives around covid-19, but those with heart attacks, those with strokes, those coming in with injuries from automobile accidents, etc.. So our goal is going to be just about lightening the burden on our health care system. The other point that comes up over and over again, and this to me is really a challenge not only to our leaders, but also to the media. I keep hearing Osterholm wants to do a study. I don't want to do a study. No. That's not true. You've got to stop saying that. This is about an immediate review of data that are already available, not just in the United States, but around the world, Israel, etc. to understand what do we know about the protection of one dose of the mRNA vaccines and how might that be considered? That review could be done within days if the FDA and the CDC with the ACIP took it on. And so I want to be really clear. You can't hide behind the concept that a study couldn't be done in a timely way. That's not the issue. The data are already there for us to review. And if that review doesn't demonstrate that we could do the kind of thing we're proposing here with single doses now in our older age population and then coming back later with second doses, then I'm the first one to say, nope, it's not going to work. How can you deny that? This is not an either/or. This is a next step. So I think that's really important. I understand where the media is at right now. I see so many in the media really challenging me about my lack of excitement about where we're at with case numbers. Don't get me wrong, every day that we have fewer cases is a wonderful day. But remember, we're at a level right now that is six times the number of cases when a house was on fire last April in New York. And we're almost double the number of cases every day we were at the peak that we were in July. So we're still hurting. And as I just explained, you know, about openings, this is a challenge. But what the media is not covering here is what's going to happen going forward. And they're missing this point largely that what are going to be the implications of a B117 surge when it occurs? And as we've just discussed, this is not, for me, a question of if it'll happen. It's when it will happen and how big will it be? So we need basically to reframe this question. We can't let it be about personalities versus personalities. It's got to be about what are the data. Finally, I want to be really clear here. Everyone who is currently scheduled to get their second dose should get it as scheduled. That's already in the system. So I'm also not advocating that anyone not get their second dose. Those who have second doses are delayed starting from this point forward, we'll get theirs in the spring after the surge. And I believe that the data will support that they will be protected during that time. This is going to be a tough public health call, you're weighing theoretical versus some would say theoretical. I'm saying

no. The B117 is not theoretical. It's going to happen. And I don't believe that the data about whether we can expect our current mRNA vaccines to actually provide protection beyond the second, third, fourth week of one dose, I don't believe either of those are theoretical. But let me back up. Let me get in first with just helping you understand the framework for this issue. If you look, there are fifty four million Americans sixty five years of age and older. Fifty four million. This is the risk group that we have to address right up front in terms of significant morbidity/mortality. Clearly, our hospital burden. 80 percent of the deaths we see in the United States are in those who are sixty five years of age or older. To understand where we're at, as of February 9th, the CDC reports that thirty two million people in the United States have received one or more doses. That includes 10 million who received two doses. This leaves twenty two million people in need of their second dose right now. Right now. If you're going to fully vaccinate that thirty two million people. If you just take the one point seven million doses that are becoming available on an average day, if we just vaccinated those twenty two million people for their second dose, it would take us till February 22nd. 13 days. One point seven million per day just to get to the twenty two million that need a second dose. That would mean until February twenty second we wouldn't vaccinate any more first doses. Exactly what we're seeing happen in L.A. right now where this week all they're doing is second doses. We're getting more reports of more places in the United States where all they can meet right now are the demands for second doses. So but let's just assume we do that. If we started on February twenty second, when everybody has been caught up, everybody has their second dose. Nobody got cheated out of a dose. If we were to give one point seven million doses per day, that amount that we're seeing coming, and just give first doses, delay the second dose, we could vaccinate 60 million people by March 29th. That's one point seven million times thirty five days between February 22nd and March 29th. 60 million doses. That is going to be probably at the very peak of the surge, so even vaccinating people then is going to have a reduced impact because of the fact that it's going to take them several weeks to develop immunity. If we prioritized vaccination for those sixty five years of age and older, remember, over half the vaccine right now is being given to people under sixty five, we could vaccinate with one dose all fifty four million people at increased risk for hospitalization or death by March 29th. If we moved all the vaccine for first dose to that group. And let me just again re-emphasize that to date, about 50 percent of the vaccine given has gone to individuals sixty five years of age and older. And if this trend were to continue under a one dose strategy, we would expect approximately 30 million people over 65 years of age with one dose by

March 29th. That is still twenty four million short of vaccinating that entire fifty four million people. And let me just conclude by saying, if we continue the two dose strategy with the same 60 million doses I just talked about, we could vaccinate 20 million people with one dose only and 20 million people with two doses. That means, again, 20 times one, 20 times two, 60 million is going to be available between now and the end of March. If we assume only 50 percent of the available doses will go to those sixty five years of age or older, which is what we've been seeing, that means by March twenty ninth, that will leave 34 million persons unvaccinated through all of March. Vaccines arriving later than March twenty ninth will likely have limited impact on the B117 surge. So I don't understand why you can't look at these data and say, wow, that will be a lot of people that will not get vaccinated in this age group. And yet this is going to be the age where, in fact, we're going to see the most impact. So just, I know these are a lot of numbers and I apologize for that, but I'm trying to get the point across to you with the approach that I'm recommending here, I think we could save many, many thousands of lives in this age group. And when we're in the middle of it and people are all wondering why we didn't do this, that's going to be far too late. Let me just also get back to the issue of this study versus review continued, the point that I think is being misrepresented in the public. You know, if you look at the Plotkin and Halsey paper I talked about last week, if you look at the data that they put out, and I'm going to paraphrase their paper that's been published in Clinical Infectious Diseases, but I think it will help you understand it's not that there is not data out there that we surely can look at and consider. Data from both of the trials using Moderna and Pfizer revealed that a single dose to induce considerable short term protection against covid-19. If you actually look for both vaccines, the curves of cases in the vaccine and placebo group diverged at about 12 days after the first dose and few cases occurred in vaccinees thereafter. So dose one. What happens after 12 days? For the Moderna vaccine, thirty five cases occurred in the placebo recipients from 14 days after the first dose until the second dose, compared to two in the vaccine recipients for an efficacy of greater than 90 percent. So already, after the first dose, before the second dose was even there, it was at 90 percent. The Pfizer study reported an efficacy of 52 percent from the time of the first dose to the second dose. But the efficacy from 12 days after the first dose was estimated to be similar to the Moderna vaccine from the curves, meaning that if you lumped all the data from day one until that later date, then in fact, yeah, it measured out to 52 percent. But if you looked at the data from splitting out the first part of that time period until the second time period the data supports, it was very similar what we saw

with Moderna, where basically you had high protection. So as Neal and Stanley appropriately concluded, both vaccines induce neutralizing antibodies after the first dose, which were boosted by the second dose. But the long term efficacy was approximately ninety five percent before that that second dose was even given. And although much more work is necessary to define correlates of protection, the induction and neutralizing antibody and how it appears to be protective, we're in a crisis. Go look at these data further. Go look at what additional data is available. Go look at what's happened in other countries with these very same trials, like Israel, with one dose. Now, I understand there will be major questions that will exist. No one denies that. Will antibodies and efficacy persist for several months after a single dose? Will a second dose give a boost if it's delayed? I think the answer to the first question, we do not have data on persistence of antibodies. But in view of the apparent low levels of antibody that correlative protection by the mRNA vaccines initially, low level antibody efficacy is likely to last for at least several months. And for the second question, B cell memory that those cells that produce the antibody after an mRNA vaccine has been clearly demonstrated before. And this supports the ideas that antibodies will be boosted by a second mRNA dose given months later. And that's a conclusion I have heard from many, many virologists, immunologists working in the vaccine area. And priming the immune system generates good responses to second doses for most vaccines, at least six months or perhaps longer. So why are we suddenly now changing, well, this isn't going to work here. And I just want to quote from you two paragraphs that came out of our CIDRAP news story that was done on this several weeks ago and which they interviewed Neal Halsey, the author of the paper of data I was just citing, and I quote "Halsey said, data from both companies show the first dose of the vaccine offers significant protection against covid-19 in the short term for at least one to three months after injection. He also said he and Plotkin believe this was the most beneficial public health strategy even before the arrival of the new variants of the virus was discovered. He said there were a number of examples of changing vaccination courses because ACIP takes into account public health impact. He said, 'We asked the ACIP to review in depth this strategy to give one dose as rapidly as possible. Such a meeting should be scheduled as soon as possible.'" In a follow up with Neal as late as yesterday, he indicated that while he has heard back from some on the ACIP, this is a good idea, there's no urgency here. This administration is not urgently reviewing this, and they should. Either to decide yes or no. Are we all crazy talking about this or is there merit here? And are there are lives at risk? We have data from Israel where they're using the

Pfizer vaccine. More data is being generated every day, including those with second dose and first dose only situations. What else are we learning about where these vaccines are used? I think we are derelict in not trying to bring this data together, given what we're about to face. And, you know, in terms of context, just remember, bear in mind that the clinical trials performed for both Pfizer and Moderna vaccines weren't designed to identify the optimal number of doses for inoculation nor the perfect schedule for administering them. The goal of those trials was only to test whether two doses of vaccine given according to the schedule chosen by the manufacturers, did confer sufficient protection against covid-19, and those trials were designed to get results as soon as possible. So this idea that this is the only way they work, the way they designed the study is just simply not true. I hear often people say, "Well, but this is going to lead to variant development, inadequate responses as it relates to the vaccine." Well, let me be very clear. The vaccine, as we know it basically gives a superior response than clinical disease. If you look at this, though, however, all these variants evolved from natural infection. None of them were evolved from vaccine. And I just want to add context, Mark Lipsitch, who is, I think, one of the premier epidemiologists in the country, if not the world, a colleague and a friend, his work at Harvard over the course of decades has been monumental. He was quoted in that CIDRAP article I mentioned before, too, and Mark is as skeptical as they come about data and so forth. But he said, "I think this strategy, [referring to the deferred second dose], is something on which reasonable people could disagree, but saying you should only do something supported by randomized evidence when there is an emergency would have precluded us from using masks, social distancing, from doing all the things we know are good public health practices." He went on to say, "There's an old saying that we wouldn't use parachutes or aspirin if we waited for randomized trials either." Do not wait for a randomized trial here. Please do not wait. Look at the data now. Time is wasting and the surge is coming. I think about the White House, the CDC and the FDA, what they would be doing right now if I knew and they knew that there was a contaminated food product on the market, that over the course of the next six to 12 weeks would kill thousands of thousands of people. Do you know what? They would be burning the midnight oil, they'd be working twenty six hours a day to address this issue. Where are they now addressing this issue of a review? Just a review? And then trying to model out the numbers that I just shared with you at the beginning of this discussion of how many people are going to be at risk. Imagine you're sitting across from a table of two people sixty five years of age or older. Both have underlying health conditions. You have two

doses of vaccine, one in each hand, and you say to them, "Look, I can give two doses to you or to you, but then the other person gets nothing. Or I can give one dose to both of you. And this is what I know or don't know. At the very least, one dose is likely for each of you to prevent serious illness, hospitalization and death. Two doses will probably even prevent you from getting clinical disease with B117, but the other one of you, if you get infected with this virus, which with this next surge, I think a substantial number of Americans will, boy, things are not looking good for you. What would you like me to do? Do you want each get one dose or do you want me to give two doses to one of you and then the other ones out?" If that's your mom or dad, if that's your grandpa and grandma, if that's your son and daughter. What would you do? How would you approach that? This is when the rubber meets the road, this is what kind of discussion we have to have. I think we, if the data bears this out, can save so many lives in the upcoming weeks and we're missing that opportunity. So, as I said earlier, you know, I've already agreed. I'm postponing my dose. I want my second dose. Oh, I want my second dose. But I am confident and comfortable I can wait till the spring till after the surge. And I can only hope that my dose that I have just deferred this next week will go to someone who it will save their life. It will make it a totally different world for that family because that person got the dose. I have heard people say to me, "Oh, please don't confuse us. We just want everybody to agree. We don't want experts disagreeing." You know, some can argue this could be the end of my career. You know, I've called it so wrong. I could not sleep with myself at night if I didn't do this. This to me is I would much rather be sorry, and I have my entire career, for something I did than something I didn't do. I just know in my heart of hearts this is something we must do if we're going to save lives.

**Chris Dall:** [00:46:55] In an opinion piece for The Washington Post, you and several members of the Biden Transition covid-19 Advisory Board called for other measures to manage the variants. Can you talk about those other measures and how they might help?

**Michael Osterholm:** [00:47:08] It really has been a wonderful opportunity to work with this group of Biden advisory members and as all of you know, our advisory board is no longer in service once the administration began its work officially. But but nonetheless, our group still continues to work together. And so we had an op ed in The Washington Post this week, which we really try to lay out three very specific areas that we need to address immediately. And this is really to deal with the issue of the current and future

variants that we're seeing. The three pronged response basically focuses on current vaccines and how we understand what's happening in our communities with these variants and about the vaccines. First, we identified that we need much more in the way of genomic surveillance. The point that I made earlier. We just don't know how many variants are in the United States, how widespread they are. We don't have a rapid response system to evaluate the effectiveness of the available vaccines and so forth. And so we need to really establish that system and I know this is a priority for CDC. I hope over the course of the next days to a couple of weeks, we'll learn much, much more about how they're approaching this issue. The second thing we laid out is we really need to develop multivalent vaccines. That means that they can vaccinate against more than one strain of the virus. I think also that in that mindset, we're looking to the future to say we may need to have whole new types of vaccines, second or third generation vaccines that will allow us to deal with the curveballs that this virus is throwing at us. So while we will continue to use the vaccines we have as the backbone of our public health response in terms of prevention of new cases, we need better vaccines. And finally, as we well know, we're short of effective therapies, drugs to treat these infections. And this includes not only the acute case of covid-19 infection, but even for those with long hauler disease. What we've called for is really a major increase in these studies related to drug therapy for covid-19 and how we can actually use that beyond the immunotherapies that we've developed to date. So it would be a way to create a network of academic centers, health systems, managed care organizations, clinical research organizations so that we can have really easy and rapid access to therapeutic drug trials around the country when someone test positive for covid-19. So this is a group that is continued to stay together. We'll keep putting out the big picture ideas, the long term consideration, and we're hopeful that the administration will find this very helpful.

**Chris Dall:** [00:50:12] Ok, so switching gears a bit now to a listener e-mail. We've received several questions about going to the dentist during the pandemic. This one is from Laurie who writes, "Should I go to the dentist for a routine teeth cleaning during covid?" Mike, should people have any concerns about going to the dentist during the pandemic?

**Michael Osterholm:** [00:50:29] This is a really a very important question and one that I would even extend beyond dentists offices to include medical clinics where people may

need to go for routine care. First and foremost, dentistry is really important. We know already that when there is an absence of safe and effective dental care, people have dental crisis's infections that are substantial, painful. Where do they go? They end up in the emergency room, which is even more dangerous and potentially difficult place to get care. So we want to see our doctors offices, our dental offices open and able to provide safe care. So the question is, what are they doing? And I think that's what you as a consumer can find out. Contact them, find out. Do they have crowded waiting rooms or do they actually space out their appointments so that people are not sitting in one large room? You know, what kind of safety measures are they taking relative to such things as masking for you, for themselves? And what are they doing for infection control procedures within their building? And if they're doing it right, they will be happy to tell you. And then I think at that point, it is very important for you to be able to keep up that medical care. I worried, as many have, that the collateral damage we're seeing to health in this country from people delaying, postponing important dental and medical care is substantial. Not only is it painful, but in some cases it is potentially deadly because some of these conditions need care. Now I know we're doing much better now than we did last spring. Telemedicine has surely been a godsend in many ways, but even now we're seeing more and more people in clinics where health care workers themselves are often vaccinated, where we're also seeing infection control procedures that are put into place to minimize transmission. So I would say, yes, go. The important thing is obviously call ahead, make certain that, as I just said, you're not going to sit in a crowded waiting room, make sure that they have an infection control policy. Your dentist should be wearing high level respiratory protection. We would want them hopefully to have a face shield on just because of the fluids that come out of the mouth of somebody who as a patient could be infected. Make sure they're screening you. A good dental or medical office will ask you a lot of questions before you come. I know mine does, and that's good too. So go for it. Just ask your questions, but please don't hesitate putting off critical dental or medical care. I think putting off critical medical and dental care is a huge health risk in of itself.

**Chris Dall:** [00:53:18] The wonderful and inspiring pandemic acts of kindness keep rolling in from our Osterholm Update listeners. Was there one that caught your eye this week, Mike?

**Michael Osterholm:** [00:53:28] Chris, there were probably hundreds of acts of kindness that caught my attention this week. I can't put into words what a wonderful gift that is to see this sharing occurring and the acts of kindness we witnessed. This is one that because of the issue we're talking about today and the long term care and older age populations, I think just fits well into that sense. This is actually an email from Dana. And she writes, "Good afternoon, diligent folks at CIDRAP. I have been offering for acts of kindness, but first I'd like to thank you for the important work you're doing to deliver scientifically credible updates on the coronavirus to the public." Dana, I hope everybody feels that after today's edition. Dana goes on to say, "There is so much misinformation flying around out there, it's good to have a reliable, trustworthy source to go to for information. Today, I'd like to share a most wonderful act of kindness. Pam, a good friend of mine, lives in rural Minnesota and is a passionate nature lover. A keen observer of the natural world in all of its glorious seasons. At the beginning of the pandemic, she decided to write down her thoughts and observations as she went for long walks on her property. Every month, she makes copies of her musings and sends them to the residence of the local nursing home. I'm lucky enough to be on her mailing list. I've attached a copy of her January letter. Can you imagine the smiles on the faces of all those dear ones who have been cooped up in their rooms for so long when they get their monthly letter from Pam? She's spreading joy throughout the county. Thank you, Dana." What a wonderful idea, I have to say, reading the letter that she sent, it would be a joy every month to get that particular letter. So thank you very much, Dana, for sending that into us. And most of all, thank you to Pam for what you do.

**Chris Dall:** [00:55:28] And another reminder to our listeners that if you want to share your pandemic act of kindness with us, please e-mail us at [osterholmupdate@umn.edu](mailto:osterholmupdate@umn.edu).

**Michael Osterholm:** [00:55:38] So I thought a lot about what I could say that would make any sense at this point. And now, having going through all these podcasts over all these months, we're almost approaching a year, I went back to an earlier podcast because there is one particular closing that I used that at the time I talked about, it was Episode 15, July 10th, it meant so much to me. And at that time, as you'll recall, on July 10th, we were really in a bad way in this country with cases now starting to get close to 70 thousand a day. And we thought, oh, boy, that's a house on fire, as bad as it could get. And this was a piece that goes back to a time in my life that was very troubled. And it was one that was almost like an anthem for me. Today I need that. I need that same

thing today. So I go back and revisit Bridge over Troubled Water written by Paul Simon, released on January 26, 1970. It was the follow up single to The Boxer. It was featured on Simon and Garfunkel's fifth studio album, Bridge over Troubled Waters, which was by far their best seller. And this was their single biggest hit. And I think today it so reflects where we're at and what we must do for each other as we approach these new challenges. Bridge over Troubled Water. 'When you're weary, feeling small. When tears are in your eyes, I will dry them all. I'm on your side when times get rough and friends just can't be found. Like a bridge over troubled water, I will lay me down. Like a bridge over troubled water, I will lay me down. When you're down and out, when you're on the street. When evening falls so hard, I will comfort you. I'll take your part when darkness comes and pain is all around. Like a bridge over troubled water, I will lay me down. Like a bridge over troubled water, I will lay me down. Sail on silver girl, sail on by. Your time has come to shine, all your dreams are on their way. See how they shine. Oh, if you need a friend, I'm sailing right behind. Like a bridge over troubled water, I will ease your mind. Like a bridge over troubled water, I will ease your mind.' Thank you again for being with us this week. I hope that this podcast, if nothing else, at least gave you an explanation for where I am at this moment in dealing with this pandemic. I've always said in my career I'd much rather be sorry for something I did than something I didn't do. And I think about, this could be your mom or dad. As I said, it could be your brother or sister, your father, your mother. So we have got to at least consider what we're going to do in the next days ahead. And at the same time, I hope we all can help each other be a bridge over troubled waters. We've got to be there for each other. Thank you for all your acts of kindness. Thank you for all your notes. They mean everything to our team. Be kind. Please be kind. It's going to get harder. It is going to get harder. But now more than ever, think about how to be kind. Be safe. And thank you very much for spending your time with us.

**Chris Dall:** [00:59:30] Thanks for listening to this week's episode of the Osterholm Update, if you're enjoying the podcast, please subscribe on your podcast platform of choice and write a review. And be sure to keep up with the latest covid-19 news by visiting our website, CIDRAP.umn.edu. The Osterholm update is produced by Maya Peters. Cory Anderson and Angela Ulrich are our researchers, and Randy and Eric Olson are Dr. Osterholm's story consultants.