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CHRIS DALL: 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. As we near the end of July, with the new number of COVID-19 cases rising by more than 60,000 a day, there's a growing realization that the coronavirus pandemic is with us for the foreseeable future and will shape how we live, work, and educate our children for the coming months. Parts of the country have made some adjustments in recent weeks, from mask mandates to new restrictions on businesses, but will these changes be enough to affect the current trajectory?
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And what will the next few months look like? That's what we'll be discussing on this July 30th episode of the Osterholm Update. We'll also be diving into some of the latest news on vaccines, the nations continued problems with testing, and whether all that sanitizing of surfaces makes a difference, but we start, as always, with Dr. Osterholm's dedication. Who are you dedicating this episode to, Mike?
DR. OSTERHOLM: Thanks, Chris. It's good to be with you again, thank you, and I want to thank all of our listeners who are with us today. We know you have many choices from which to choose with regard to getting your information about the COVID-19 pandemic, and it means a lot to have you with us. Two weeks ago I started discussions around the issue of school openings, and I dedicated the podcast at that time to the children, who are obviously at the very heart of that issue.
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Last week I dedicated it to the teachers, all the staff, and all the support individuals within our schools that make it possible for our kids to go to school, and so today I think it's only appropriate to kind of round out the important trio. I dedicate this to all the parents, grandparents, caregivers, who are obviously concerned in every possible way about what it means for their children to go to school this fall, and so parents and grandparents, please know this one's for you. In that regard, in somewhat of a selfish way, it's even for me, because I have 5 grandchildren who are just in that position, and I think about them everyday. Everyday. So I'm with you. Thank you parents, grandparents, and other caregivers.
CHRIS DALL: Mike, although the nationwide surge in cases continues, we're seeing some glimmers of good news in the hard hit states of Arizona, California, and Texas where new cases seem to be leveling off. Do you think we've hit a peak in those states?
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DR. OSTERHOLM: Well what we have to understand is that we're on a journey, a journey that we all took together beginning in January when the virus first moved from Asia to its many locations around the world and really recognized here for its impact in March, and what I think has been hard for most people to understand, and understandably why, is that this journey means we're going to have lots of zigs and zags, ups and downs, ins and outs, and that our

hope is that we can anticipate them, reduce the impact they have on our society, but know that they're going to happen and be prepared to respond accordingly. This is one of those good news bad news weeks, where yes, absolutely Arizona, Florida, and Texas surely are seeing a decrease in cases.
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I could only have imagined that it would've lasted this long in the sense that things are so on fire in many of these communities, that it's hard not to have some kind of containment or mitigation activity going on where people are not leaving their homes, where they are wearing masks, and reducing their risk from that standpoint, but at the same time, we're having happen now, in almost a similar manner as to what we saw happen in April and May with New York State, Chicago, Detroit, and the rest of the country, where in those cities we saw cases rise quickly in April resulting in what we thought was the big peak, and then to see cases drop off after they started to bring these hot, hot areas under control, and then the rest of the country picked up. Not major, major activity, but they started to pick up, and so I think that what we're seeing now is the very same thing.
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The White House which has this group of states called the "red zone states," these are states where there has been 100 new cases per 100,000 in the previous week documented, and they've listed these 20 different states and including Alabama, Arkansas, Mississippi, Missouri, Nevada, North Carolina, North Dakota, Oklahoma, South Carolina, Tennessee, Utah, and Wisconsin, in addition to Arizona, Florida, and California, and what we're now seeing is an emergence, basically in these states of an increasing number of cases that I think will at least equalize, if not offset the number of cases being, reduction of cases, in the other 3 states we just talked about, and so for a while I think we're going to have a plateau.
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You can even look at states like Minnesota, our home state here. We didn't make the red zone, but it's very concerning to me, when you look at Minnesota, on May 25th when we really hit the height of our activity, we reported 707 cases that day, and it was shortly after that the case numbers begin to come down. By June 19th, just a little over 3 weeks later, that number had been reduced to 320, from 707, and everybody began to feel, "Oh, look what we've done. Our ICUs are beginning to clear out, we actually really accomplished something, but ironically, yesterday, the number of cases reported was 707. The exact same number it was on May 25th, and we're coming back. I worry very much about what is happening here and if you look at our numbers, I surely am not going to suggest to you that it's going to be the same as California, Texas, or Florida, given their population size there's a rapid increase,
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but don't be surprised if a number of these states in the next 10 to 20 days end up having some pretty substantial increases, which again will at least cause a plateau, if not some increase in cases even with Florida, Texas, and Arizona being reduced, so this is a huge challenge in terms of where we're at, and I just don't think people yet understand what these numbers mean. Let me give you further perspective on this. If you look at where we were on June 1st of this year, nationwide, at that time we had reported 21,510 cases on a 7 day moving average. So, 21,510 cases. On July 16th we were at 65,420. Think of that, going from 21,000 in about 5 and a half

weeks to 65,420 cases reported. Now, that number is down in terms of the overall 7 day average to 59,179 cases, so it surely shows it's coming down.
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The challenge we have now is that's almost hit a kind of new plateau. I would not be surprised if we see somewhere between 60,000 and 65,000 cases for sometime to come, and then I think what's going to happen, and this is very troubling to talk about, but I think we're going to have a really difficult fall. I think that what we're going to see is a combination of events where we're going to open higher ed, we're going to open schools up again, and many of these communities that have not come close to driving the numbers down low enough for testing and tracing can have any really meaningful impact, and I think we're going to see a big bolus of cases in September, October. That will be a real challenge.
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You know, I'm at an institute of higher learning, I know no one wants to hear me say this, but I think we're going to have a real problem, and I think we have to start anticipating that now in a way we haven't. One of the things that just gives you a sense of what's happening is you know, we all knew what happened after Memorial Day, and that we relaxed our, any kind of guard you might say, with this virus, but if you look at just what's happened in the last week and a half to two weeks, we're beginning to see a number of high school athletic teams now starting to have outbreaks with them. The Lake Zurich High School in Illinois, there were 36 cases among that group of students who were part of athletic camps, ironically most of the cases were tied to social events that took place before the camp happened, and it's one of those situations where even the governor said,
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"I'm so deeply troubled by outbreaks that we're seeing all around the state tied to activities like youth sports, like in Lake Zurich where dozens of students and parents tested positive." Look in Kentucky, there on July 20th, 38 people tested positive for COVID-19 following a Kentucky high school football team outbreak. There the cases occurred among football players, coaches, family members, and close contacts, and this suggests that the high school weight room was a big part of the transmission picture. On July 24th in Michigan, all fall sports were cancelled through August 10th at Richmond high school after student athletes tested positive for COVID-19. These were athletes in 3 different sports—volleyball, cross country, and football all tested positive, all cases believed to be related to an off campus event. Finally, on July 22nd, in Wisconsin, Franklin High School athletics were postponed after a team COVID outbreak in that city. All the athletic events were postponed through July, in the city of Franklin,
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where there was a large increase, as they described it, which includes youth between the ages of 16-19, and I think these are only going to continue to accentuate this challenge we have in many of our communities. I think these high schools are going to really see substantial transmission. We get to college already, we're now talking about the Kansas State football team returning to campus and most players initially tested negative. Soon after they arrived though they detected two cases among a group of players that were final arrivals, which then resulted in 14 total cases in just a few weeks time, and you know, outbreaks here like this come on the back of cases in other division one schools including Clemson, at least 28 cases in athletes, 23

who were football players, Texas, at least 13 cases in players, Louisiana State, at least 30 players were quarantined after exposures there, and you know, last but not least, I think we're all aware right now this week of what's happened with Miami Marlins and the outbreak there in the Major League Baseball team,
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4 players today, additionally, are positive, for 17 total reported cases among the team, and I think that, you know, it's going to be a challenge, and I just don't think people understand yet, if you're together with this virus, in the kind of social settings we're seeing here and you're feeling well once fall starts, it's different than summer, I don't have to worry, I think we're going to have a major, major challenge. So, to make a long story short in the U.S., I think we're going too see cases leveling off a bit, I think we will see the subsequent increase in cases begin probably in about 3-4 weeks, and I think it could be a sizable increase, whether it will get to the 100,000 cases a day, I don't know, but I'll be surprised if we don't see that big increase coming, and just to add further perspective to this,
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when you look at the international picture, you know, we all know the global numbers mean very little, because so few people are getting tested around the world that are getting infected, but we're now over 16 million cases reported with more than 654,000 deaths. If you look at what's happening in terms of countries, Brazil which is right up there with the United States yesterday reported 23,284 new cases, 614 deaths. India, which is now become one of the hottest spots in the world, yesterday reported 44,457 cases with 637 deaths. This is country that is of absolute critical concern for us, as so many of the supply chains that we depend on for medical supplies, for some very key and critical computer equipment, etc. are coming from India, and we're already learning about challenges with some of the critical drugs we need not being able to make it out of India right now because they are, in some locations, in virtual free fall.
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Peru, Mexico, South Africa, I could go down the list here of all these countries that are really having challenges, but of all the ones I just listed you could say, "well, they're the ones that aren't really handling it very well. You know, they're kind of like the United States," which is a hard thing to say, that we're not handling it well, but I think that it's really important to understand, that I have been sharing with you from the beginning, and I feel like sometimes this virus is inside my head, because I just, I sense it, and I know that's going to sound crazy to you, but I have been saying for sometime, not because I want it to happen, but I just knew it was going to happen. If I've had it said once to me, I've had it said 50 times, we've just got to do what Vietnam's doing. Well, as you all know, Vietnam now has a major outbreak around the city of Danang.
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22 cases we're detected there just yesterday, and they had basically kept this virus out, at least from what was detected, virtually from the very beginning of the pandemic, and I think they will do a great job there, and they will beat this down. They will whack-a-mole it into oblivion for a while, but it points out that even under the very best of conditions, even under the most vigorous programs, this is a constant battle. The battle that we're trying to win until we get an effective vaccine. You know, other ones, Germany, which has done really a quite outstanding job in

stopping its major challenges, including in the meatpacking plant. Yesterday the head of the Robert Koch institute, a very well known scientist basically expressed his serious concern about the rise in cases due to complacency, he actually called it negligence, about distancing measures. The Germans are taking it, kind of in stride that, you know, we've kind of got this licked.
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In Australia the outbreak in Melbourne has now found it's way into nursing homes, which is, you know, we said all along that in a country like Australia that had prided itself on the number of deaths, very few, and we knew if this got into its long-term care facilities it was going to be a whole different ballgame, and now it's there. Spain has continued to see an ongoing problem in Madrid. They're now making mask use mandatory. China had 68 new cases today, 64 of which were local, for which most of them they did not have a known source for, and I could go down the list here, and what I'm trying really to point out is the world is finally really waking up to the fact that no country will be without this virus. Many countries, if not most, can do a much better job than they're doing. Including us, and I'm in the process of writing an op-ed for a major publication in this country right now on why we have to relook at the idea of shutdowns,
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or what we need to do to try to bring these numbers right now, knowing the economic pain, the personal horrible, horrible situations this puts people into without adequate support, but otherwise we're going to be up there. We're going to have these very high numbers which is going to cause terrible unemployment problems, because businesses just won't be able to open. So I think that standpoint, we're going to see what's happening over the course of the next few weeks, but I guarantee you we'll be revisiting this, and I thought it was interesting, just trying to understand how we're reopening, I look at the restaurant business, and looking at gross receipts from restaurants in the United States, and in the March-April time period, the restaurant business was running almost 45% below the normal number they would've expected for that time of year for the previous year.
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You know, they took just a heck of a hit, but by last week it was up to -8%. It almost had recovered back to normal, and when you look at that and realize that, you know, there is nothing normal right now. There's just nothing normal. This virus will not allow us just to be normal, doesn't mean that we have to be crazy, doesn't mean that we have to be in a fear and panic position, but it says we got to act smarter than we are, and we're not, and so I think that we'll see what happens over the course of the next few weeks both here in the United States and also around the world and we can go from there. Let me just add one last piece on the international picture, Chris. I think that is an adjunct that is important. We've been concerned in terms of the impact that this virus will have both domestically and internationally for the coming flu season, and just know that, you know, we have been tracking this very carefully of what's happening in the current Southern hemisphere winter. Which of course New Zealand, Australia, South Africa, parts of South America, have all been experiencing,
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and it's actually, we have to be a little bit careful about the issue of interpreting numbers where we have healthcare systems or public health systems that are overrun right now, because some

of them are in the Southern Hemisphere, but it's quite remarkable that we're seeing some of the lowest levels of flu we've ever seen in the Southern Hemisphere in these modern times, and New Zealand, which was not heavily impacted by COVID-19 in terms of how they handled it, had a very, very low flu season, and that has remained the same. It's true in Australia. Flu deaths have dropped substantially in Australia this year. In January through June of 2019, they had 132,000 flu cases, 430 deaths.
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From January to June of 2020, going into their winter, they had only 21,000 flu cases, again compard to 132,000 and 36 deaths compared to 430. So, in a comparable time period, you know, much less. This very well could be a result of people taking more extreme measures to limit transmission of COVID, it conversely does the same for flu, this could be just a good situation where the interaction between the two viruses, flu gets beat out. We don't know, but the bottom line is we're following this very carefully and if you've heard predictions that we've had flu in the fall, this in the fall, oh my, I think it's way too early to say that, and I don't know, I just have a sense I'm optimistic that we're not going to see a major flu year this year and that would sure help us out a lot.
CHRIS DALL: We spent the last few episodes focusing on schools as you noted earlier, Mike, and last week the Centers for Disease Control and Prevention came out with revised guidelines for school reopenings.
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What did you make of these new guidelines?
DR. OSTERHOLM: Well I have had the chance to review them in some detail, and I was struck by the very pro "we've got to get school open again" mantra, and you know, again, I don't know anyone that could not be for opening schools for all the appropriate reasons, not just for educational instruction, but for you know, social and emotional skill development, a safe environment for learning, you know, nutritional needs, facilitate physical activity, even just something as simple and yet as critical as internet connectivity, you know, schools are just so important, and we all know that, we could spend a lot of time, but I keep coming back to the fact that this is not any other year.
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No one argued after Katrina hit Louisiana that they would expect school to be the exact same as it were before that hurricane hit, and it wasn't that we had any less emphasis on the very things I just noted that are so important. So I come back to the fact as I discuss this, that you know, it's time that we just understand, we're going to have a COVID year. Let's just accept that and not make it an urgency and a crisis in and of itself, and say, you know what, we can't leave anybody behind, we've got to make sure that a year from now have kids with the opportunity to catch up where they may not have had the opportunity to learn, or they have not had the chance at educational instruction that helped them in the way they needed to be helped, but we're going to make a commitment as a country, as a world, to catch up.
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That's our commitment to kids. You're more important than bars and restaurants, you're more important than any other thing in our lives. We're going to catch up. So if you go into it with that mindset, then you kind of take the pressure off, of "Oh my God am I going to make the

September 1st school opening date or not?" You know, will there be 32 desks in that classroom? Now if there can be, and you can have classes, then we should go for it. So when I look at the CDC's recommendations, I'm struck by several things. It is very, very pro reopening with only very limited discussion, I think, on the downsides, and I was struck by the absence, or relative absence, of discussion about what do we do to protect our teachers, our staff members, our administration, school lunch program specialists, bus drivers, coaches, librarians, I can go down the list. All the people who make our schools function as they do and are there for our kids,
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and today we're already hearing about the possibility of a strike by one of the teacher's unions over the issue that they want to go teach but they want to do it as safely as possible, and as I record this podcast today, we are still a long ways from passing the HEROS Act into congress and that contains incredibly important money for the schools to help enact some of the things they need to do to provide this higher level of safety. So when I look at this, I say to myself again, you know, I've been through this last two weeks, you've heard enough about this from me, but let me just remind everyone of a couple few things here. In terms of cases in kids, don't let anybody tell you they're not going to happen. They're going to happen. Where there have been studies done prior to this suggest that only few kids get infected or transmit to others, they were done largely in areas that had only very limited activity in the community, so I don't dispute the data,
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I just don't think they're relevant to a place like the United States right now. If you look at what we have so far, these are data from the American Academy of Pediatrics and the Children's Hospital Association which have been running a children's COVID site really very, very well done, and as of this week, 288,277 kids have been reported to be positive. That's 8.4% of all cases in the U.S. Now, the data come from 49 states, New York City, and the District of Columbia, and they do vary in what each of those areas calls a child. Some are 0-14, 0-17, 0-18, 0-19, 0-20, so that gives you a sense of where we're at with case numbers. From that perspective, it also is important to understand that some of the fastest growing categories, 88,103 alone reported just between July 9th and last week,
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and so as we've seen in Florida, Texas, and Arizona, kids are making up a big part of the issue. Now, as we've said though, fortunately they don't get that sick, relative to their numbers of cases. It's a tragedy anytime you have to even talk about this, but to date, 76 kids have died related to COVID illness, and that is surely a hard number, I just can't imagine any one of those children if they were one of mine, I don't know how I would handle it, but when you look at other comparable public health challenges, in 2009 when H1N1 hit the pandemic from April 15th 2009 to October 22nd of 2011,
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there was 358 pediatric cases, and we didn't close down schools, we didn't, at that point, take special initiatives. Now, that doesn't mean we shouldn't have or couldn't have, but I think the bottom line is we're all trying to figure out how to use these data. How to use it in a way that doesn't minimize the cases but gives a sense of relative perspective, is what I tried to do last

week. I think that our state here in Minnesota has done a remarkable job of trying to put together a reasonable and thoughtful plan or approach for how to deal with this, and at my head is often the Minnesota Education Department, the Minnesota State Health Department, and teachers and administrators who've worked hard on this. If one looks at the Minnesota plan, which is being announced this afternoon by our governor, the goals are 5-fold. First is prioritize the safety of students and staff. Second is to prioritize in-person learning, especially for young learners.
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Number three, incorporate potential infectiousness among different ages. Four, support planning while permitting flexibility for districts. And five, take into account disease prevalence at a local level, and those are the heart of what really needs to be done. One, prioritize the safety of students and staff. Notice that's one. That's the very first one, and it's both students and staff. Equal. Yes. Number two, prioritize in person learning. So we all know we want that, especially for young learners, and we do have to incorporate that infectiousness of different ages, and the fact is it looks like the kids who are ten and older are going to be much more infectious based on what data we've seen, what I presented to you last week, and support planning while permitting flexibility for districts. Absolutely. I can't emphasize that enough. This past week since I did my last podcast only reinforces we've got to give the school districts flexibility to support them in coming together.
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They will do this as well as anybody. I'm convinced of that. We just have to help support them, and you've got to know what's going on in your community. If your house is burning down, it's not time to plan your vacation. On the other hand, you know, if it's just a high wind that day, you can plan your vacation because after it blows over, it's all done, and that could change quickly between just a good windstorm, and your house burning down, so you've got to be prepared for that. This plan by the Minnesota department of health and department of education is essentially that, and we'll make that plan available on our website for you to see. In terms of decision making workflow, they consult recommended learning models as indicated by country case data so that when you're looking at whether it's in present, at school, whether it's a hybrid, whether it's distance learning,
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you have to basically consult that learning model, consult with health officials to examine local epidemiology for isolated outbreaks or community wide transmission. We're very fortunate here in Minnesota, and I feel badly for some states that can't understand this. We have invested in state and local public health here, as a few states have done, and I'm very, very proud of the local public health agencies, and the state health department here, and I think we will be providing some really outstanding support to these schools. Every school district deserves that support, I don't care where you're at. You've got to have a partnership between local public health, the medical community, and you. You've got to evaluate ability to implement required and recommended mitigation best practices. You know, don't think you're going to take an old, old building with radiator heat and suddenly fix the HVAC system, because that's not going to happen, and so that in part whether it's that, whether it's space, you've got to figure that out.
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You've got to determine an educational delivery model. If there's disagreement, then I think that you have to work through that and potentially with the department of education, and you just have to continue to have that consultation with public health as you go through this. So parents, this is your opportunity to help support that. Now, as I said already, as the patterns of viral transmission change in your community the learning models going to have to change. You have to transition maybe from in person learning for all students to hybrid model for some in person, some distance learning, potentially all to distance learning. I understand the disruption that would occur if suddenly there's a big outbreak in a community. Case numbers grow rapidly, you may have to switch sooner than you think, but we've got to be prepared for that, that's part of the flexibility, but don't let it upset us in a way that it might otherwise if you had a plan and said, "well this is my plan. I can't get away from my plan," we may have to do that, and I think that's going to be a very important point.
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The other thing is that public health has to be involved to help you decide, if I have X number of cases, what does that mean? If all those cases are in long term care facilities, they're not community acquired infections, then that's a very different picture than if they're all in the community and you don't know where they're coming from, and so even a certain number of cases doesn't necessarily dictate exactly what you'll do. Now the report from the Minnesota Department of Health and Department of Education lay out health requirements and best practices, social distancing of 6 feet or more, as much space as possible for all in person required and hybrid model. A masking policy. Yes, use it. Older kids particularly. PPE for direct support student services. You've got to have it. We have got to protect our teachers, our staff, anyone having contact with the kids, and that's where supports going to come in, and I realize it's going to be tough to find some of that PPE, but it's important to have it.
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Do not start your schools without it. Build routine hygiene education practices. Help students understand what they can do to be good citizens themselves, to help minimize transmission. That means a lot with junior high and high school. Help these students understand. Their parties may be their parties may be their parties, and they don't care about themselves getting infected, and some may claim that's the case, just remind them what happens when they bring the virus home to mom or dad or grandpa or grandma or to their schoolteachers. You know, nobody wants to be responsible for one of our loved ones dying because of something you did. Now that's a hard language, I know that. I'm not trying to blame kids, but they have to understand the seriousness, just like we tell them don't drive 100 miles an hour on a 55 mile an hour road, that's irresponsible, it's also here we have to give them th
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at sense. Where we can, we need to help our schools with ventilation system improvements. These are going to have to be tweaks. God knows we don't have time to go in and redo HVAC systems, or the money, but can you improve air circulation in a way that you hadn't thought about before. Cleaning, you know, I'm going to talk about that more later with Chris on just what we need to know about cleaning, and what we can and should do. Each school should consider having a COVID-19 program coordinator with the ability to help coordinate everything going on in such a way as to make it seamless, and you know, limit nonessential visitors, volunteers,

external groups. You know, don't let them in. Protect yourself while you're there. Discontinue large gatherings that don't allow for social distancing. You've just got to stop those, and daily health monitoring and adherence to exclusion policies will surely help. Now last week I gave you a number, and talked about what you can consider when you might open your schools.
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The department really has taken this a step further, and I congratulate them, and I had a chance to work with them on this, and I think they have come up with a very thoughtful and reasonable approach. Last week I said that if you had basically looking at 5 cases here per 100,000 new cases per day that you could basically reopen if you had that or less. Well, that's per 100,000. The departments actually did this number of cases per 10,000 for 14 days. So, two things they did. One is for many of the smaller counties in the country, not just in Minnesota, 10,000 is a much more reasonable number to look at, because they don't have hundreds of thousands of people, and also 14 days allows you to smooth things out. You might very well have an area where you have 6 or 7 cases on a day, or two days, and then nothing for the rest of the two weeks, and if you did it for just those two days, you'd have astronomically high numbers, if you do it for the 14 days it gives you a much better average kind of thing.
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So there numbers are 10,000 cases per 14 days, and they say if it's between 0-9, which actually equates to the 5 I gave you last week, the 5 per 100,000 per day, and if it's 0-9 cases in 14 days per 10,000 population, in person learning for all students should really be what is considered. If it's 10-19 case per 10,000 per 14 days, in person learning for all elementary students, but hybrid learning model for secondary students, meaning, you know, basically try to get them out a little bit so they're not as much in the school, but keep those younger kids in if you can. If it's 20-29 cases per 10,000 per 14 days, go with a hybrid learning model for all students. If it's 30-49 cases per 10,000 per 14 days, then use hybrid learning models for elementary students, and use distance learning for secondary students, and if it's over 50 cases per 10,000 per 14 days distance learning for all students.
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Now these are not hard, firm numbers, they should be guidelines, they should basically be general sense of where to go. I don't want anybody coming in here and saying "my number is at 29.964, I'm going to do this," okay. It's just a way to think about it, so we're going to go from in person to hybrid learning with the online capability being something we have to look at very, very carefully, and I think the next thing we have to do is clearly have in place a way to assess cases in school after the reopening. This is where schools cannot be left on their own. They need the help of local and state health departments. They've got to have people who have expertise in doing follow up on potential outbreaks or increased number of cases. They also have to understand it's going to a challenge because in many situations, frankly, you know we may not get quick testing in place,
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but one of the things that has to be done in conjunction with the school district leadership and public health agencies is understanding how many cases are there in my school? Are they close together in time or do they spread out over several weeks? Are new cases traceable to the school community? Are they likely a result of what happened at home or some other location?

Where are the cases occurring? Do they have common themes? If it's all in the sporting area, you got to know that, and you've got to think, "what am I going to do about that?" How many close contacts does each case have? You know, if you get into one of these situations where 12 new cases each have 12 new contacts, boy that begins to get big fast. How are you going to handle that? Are students, parents, and staff forthcoming about close contacts? You know, nobody wants to quote unquote "rat on their friend." This is not that, this is helping them to identify a friend that may have been exposed, if they're infected they have to know that, and you want to follow up with them. Is there any other significant transmission in surrounding communities that will likely impact families and staff?
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We've seen some of the congregate work areas, where family breadwinners bring home the virus, the kids may pick it up and then they take it to school, then how do we handle that kind of situation so that doesn't happen? And are you able to maintain your current learning model based on staffing? I worry a lot that if we see some teachers who can't teach in the classroom are willing to do the hybrid, anxious to be with students as much as they can be, or they can't be in the classroom because of the risk issues, are we going to have enough of those faculty, those staff that can actually be in the work area? If they get sick, or they're afraid to come to work, then we have a real challenge here. So let me just kind of conclude here on this issue, and just say, remember today some numbers, and this helps give perspective to why I'm concerned about what might happen in the fall with the epidemiology of this disease.
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If one looks at K-12 here in this country, there are 3.7 million teachers. 3.7 million. Thank God, they do God's work. There are 50.8 million students. A lot. If you look at higher ed, 19.9 million students in this country. 1.5 million faculty members. Again, a lot of people. So this is all going to be happening in the next several weeks, and I think if I could conclude this, just let me say one last time, this has to be local. This is all about local. Let's support that. Please do not dictate top-down. Two: consider our COVID year. Be flexible, be creative, be kind. If people are afraid to go to school, if people are challenged by the situation, if they're afraid to work because they think they may be at increased risk, try to understand that as much as you can and chalk it up to your COVID year.
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We'll get through this if we do that. We'll get through it as well as we possibly can, and next year we'll come out stronger for it, and we're going to make up. Expect change. Expect it. Don't worry about whether it's going to happen or not. Dump all of those worries. It's going to happen. Just know that int he process what you want though, is a school district, a health department, a community that's prepared to adapt to the change without it being a crisis. You know, I've always said all along that for many kids you cannot make this an adventure, because it's hardly that, but help them understand this change may be good. You know, it may be fun. It's like a snow day. They love snow days! Okay, that's a change. Support the teachers. Parents, pleases support them. This is tough for them, it's really tough. Teachers, support your parents. This is tough. It's really tough for them,
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and I think if we all do that, and we make administrators, civic leaders all come together on that, we're going to see us all getting through this. It's going to be rocky. It's going to be rocky. I think it's going to be harder than most people think. I know we can get through this. I know we can, we'll come out the other end even better for it. We've got to do whatever we can to catch the disadvantaged, those who need to have school in the way that it has been, not the way that it may be. Particularly on the grade school side, with special needs children from a mental health standpoint, a social-emotional needs standpoint, even from an abuse standpoint, food supply, all these things. Be creative. If we can't provide in-class education, make it a priority to figure out "how am I going to catch these other students?" You know, I mentioned it last week and I thought it was just so clever, when I heard from one of the special ed teachers that I talked to about what they did in northwestern Minnesota, an area that's quite rural, where internet connection still was lacking in some places, they took school busses out and literally created hotspots in rural Minnesota,
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and they had all the distancing on the busses planned so it wasn't kids right on top of each other, but it's things like that. Let's be creative. We've got to be mindful for child care needs. I talked about those third of parents last week that said to me, "if I don't get my kid's in school I don't have a job. If I don't have a job, I don't have money to pay for food, and the only alternative I have is to give my parents the incredibly tough task of trying to take care of my kids, and they're both at risk for having a serious health outcome." So we've got to be creative on how we do that. We've got to learn to navigate the stress. Everybody needs to take a stress reduction pill everyday that's just a good breath and a smell, and just help people know that if it gets tough there.
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Finally, please, our leadership in Washington and in the state where possible, find the leadership and support when schools need. I haven't seen one school asking for anything that was anything beyond just the basics of how can we provide a better educational experience at this time with the conditions we've been handed, and so if schools don't open for another month, if that's what it's going to take Washington to come to some conclusion about what's going to be in the HEROS Act, I don't know how we can start school, before you know what your support is. I just don't know how you can do it, how you're going to pay for it. So I think that's just another place. So I leave it by saying, we've still got a ways to go. I'm more convinced now than ever that it's going to be a challenge, but I'm also more convinced that we can handle this. We can do this. We can do this, and it may be one of our most defining moments of this entire pandemic.
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One day 20, 30, or 40 years from now when our kids and grandkids are reading about 2020, how we handle schools in the next several months, how we handle our kids, how we handle our teachers, how we handle our parents, will all be a defining moment of how we handle this pandemic. Now it's up to us to do that.
CHRIS DALL: With the country having so much difficulty controlling the spread of the coronavirus, everyone's eyes are on the work that's going into vaccines, and we have an email this week about vaccines from one of our listeners, Roger, who writes, "It would be interesting to know more about the landscape of vaccine development. Which show promise, why, and what

to expect and watch for as the vaccine development progresses?" So Mike, let's start with the Moderna vaccine. Moderna is enrolling volunteers for a big phase 3 trial starting this week. What should people be watching for?
DR. OSTERHOLM: Well, let me just back up for a moment and say that I know that a lot of this is very confusing to people. You hear it takes 10 years or more to develop a vaccine, and now you're hearing it's being developed in months,
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so you're saying wait a minute now, that's like saying, you know, I build a new house, and normal times it takes 6 months to get it done, but you're telling me you can get it done in a week and a half? You know, what's going on here? And it has raised questions about how good can a vaccine like that be, iff somehow time is the measure? And in part it is, it is a measure, because we have to have certain things happen before we can feel comfortable that it's either effective or safe, but I will have to say right now, I don't think there are any shortcuts that I see that are in fact threatening either our way to measure the vaccine's effectiveness or making sure that it's safe. There's going to be unanswered questions that if we had 10 years we would've answered before we put this vaccine out there, but I don't think they are the showstoppers and I'm going to explain why in a moment, against this pandemic.
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If we can knock this pandemic in the head, you know, a good left jab, then that's what we need to do, so let me just say that and I'll come back to that. The Moderna vaccine is actually an interesting one, it's actually takes a part that codes for the protein spike. If you can imagine, the coronavirus got its name because it actually looks kind of like a crown around it with all these little spikes that come out, and they're very important in the virus entering into a cell, and we can make antibodies specifically to that we call neutralizing antibodies, then we can lock up that spike, and it can't connect to the cell and get in. The vaccine, which actually takes the genetic material for this protein spike and incorporates it into a type of material that's called mRNA 1273, the particular material,
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where then it takes this genetic material, gets it to the immune cell, it gets absorbed into the immune cell, and your own immune cells start producing the antibody and stimulates hopefully the t cells and other parts of the immune system by actually being exposed to that protein without ever seeing the live virus. Doesn't even seen, it's just injecting parts of it in, putting in just a part of the genetic material, and it's actually a modern vaccine that has every reason to work very well with limited side effects initially, so I think at this point this vaccine trial, which is now part of a process we go through phase 1, phase 2, and phase 3 trials. Phase 1 is the most basic, do you get an antibody at all if you put it in animals, maybe some humans? Is it safe for the animals? Then you move to phase 2 trials, you put it in humans in limited numbers, in this case it was 45 individuals that got it,
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the other vaccines in phase 2 saw the same thing where they look for acute reactions when you give a vaccine, and do you make antibodies? So 30,000 people around the United States will be part of the phase 3 trial for this mRNA vaccine by Moderna. Half will get a placebo, something that is indistinguishable from the vaccine itself, you don't know which you got, and half will get

the vaccine. Then over the course of the upcoming months these people will be monitored very closely to see who comes down with COVID-19 and who doesn't, and we'll look at see at some point where it's clear, "Oh my, this vaccine is really highly protective." It also is showing all the safety features we're asking for. If that be the case, we could very well have definitive information by the fall saying that, in fact, this vaccine is X percent effective. Now we're going to have some challenges because, and looking for a vaccine for a population like ours, we want to have data on age, we want to have data on underlying risk factors, we want to have it on other potential genetic related issues.
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We're not going to likely have all that much information on all those different things, so does it work well in older people for example, when the vast majority of people being enrolled are not older people? And we'll have to wait and see what we get for that kind of information. Will it last for a long time? We're not going to know. I don't want to wait 5 years to find out how long this vaccine lasts to then know whether or not to use it, so that's one of those questions that will have to be answered at a later date, but we'll want to look at that. So I think the overall technology, the overall approach we're taking is the right thing. Remember, it takes 2 doses, so if you have 200 million doses of vaccine that's only 100 million people getting vaccinated, and so we're not going to have vaccine for everybody initially, nor should we if you've already had the disease and recovered, we hope you'll be protected from that.
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So there's still a lot of things to work out about how it will be manufactured in sufficient quantities and distributed. Remember as I said time and time again, a vaccine is just that. It's nothing until is a vaccination, it's in your arm, and we'll be fine with that. So we're in phase 3 trials right now, we should know in months ahead whether this vaccine is actually protecting us from this terrible, terrible disease.
CHRIS DALL: Mike, I mentioned the nation's continuing problems with testing in the into and we received another email this week about testing issues, this one from a nurse named Mark, who said his healthcare system, which he noted is the third largest in the U.S., is discussing an algorithm to limit COVID-19 testing because of a shortage of reagents and he wanted to know how to approach testing with these kinds of shortages. Mike, between the reagents and testing delays, this just continues to be a problem.
DR. OSTERHOLM: Yeah, this is a challenge. Let me just say at the outset that this is something that I've been talking about in these podcasts from day 1.
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We've published several pieces on it, in fact we have one in our Viewpoints on COVID testing and the challenges thereof. I wrote an op-ed piece in the New York Times with Mark Olshaker back last April in which we talked about all the challenges of testing, supply chain issues, etc. So first of all, why are we in this position and many other countries are not? Well first, it is the sheer number of cases right now. We are doing more testing than we've ever done, but we're outstripping that testing capacity with the need for more and more testing because of all the cases. But the other thing that's happened is we set up a system in this country where we're counting on really a few companies Cepheid, Hologic, Roche, and Abbott to provide all the

testing machines, reagents, all the types of plastic vials, and they're all proprietary to each one of these,
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so if you have one thing missing from one of these companies, you're done, you can't do the testing. So where there's a reagent, a chemical you need, whether it's part of the way the sample has to be presented in the machine, or the machine breaks down, and so what's happened is that other areas of the world actually have less automated testing. I mean these are highly automated where, you know, you literally just put it in, it comes out and gives you an answer, and that's made us really captured by these companies, and so we have a number of hospitals right now that have bought 3 or 4 different kinds of machines just so that they can have, hopefully, something from one of the companies that will complete the entire needs of what they have, whether it be reagents, whatever. So one of the problems we had is no one really put together a national plan,
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something we called for in April where we sit down and say "what are our needs? Who can supply them? If I'm one of these four companies, am I going to spend millions and millions and millions of dollars to increase capacity to make part of my machine or part of my materials I need to run the test only to have it all go away in a year, year and a half from now when the pandemic is over, and I'm going to be sitting here holding all this manufacturing capacity and it's going to be dark," and so what happened was there was no grand plan, and now we're caught in that very kind of situation where we don't have it, so it's the painful irony right now as the infection rates literally are increasing nationwide. We have a whole lot of labs out there that aren't running anywhere near capacity because of those supply chain challenges meaning that they don't have enough of that chemical, or the particular plastic tubes, they don't have enough something for that part of the machine,
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and so it's as if somehow all it takes is that one thing to be absent, if they supply chains can't supply it, so be it. So we have to look at this system and ask ourselves one day, is this the position of vulnerability we want to be in for future testing situations? And I fear that if that's the case there that there's going to be a challenge, and I don't think there's one single simple solution at this point, there's just not. We've got to keep working with these companies, that's all that we have access to. We are not like China or Canada or any other countries that have much less automated testing and therefore they're not captured by one company. You know, it's like what if you could only buy gasoline from one kind of gas station in the whole country and they were limited, or you could buy gas at any gas station? Well many of the countries run the tests as if they could buy gas at any gas station.
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We have to find that particular brand of gas before we can buy it for these lab tests. So it's a challenge, I don't think it's going to get better soon, and as you know, we've said over and over again, a test that comes back 8-10 days later is a wasted tested, absolutely a wasted test, and we've got to address that. There's been a new group formed at the White House to advise the administration on testing, I've been asked to serve on that, we'll wait and see what comes of it. I fear that any solution now is going to be so late in the process that even if companies are able

to increase or enhance their capabilities to provide a lot of these reagents and aspects of the test, by the time we get them, hopefully the pandemic will be long over.
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CHRIS DALL: Mike, finally, there's an interesting article this week in the Atlantic that suggests the emphasis on decontaminating and sanitizing surfaces as a way to reduce the spread of the coronavirus is misguided. So do we really need to be obsessively cleaning our counters and doorknobs at home, or is surface transmission something we really don't need to worry about that much?
DR. OSTERHOLM: Well, as you know Chris, I've been actually saying this on this podcast from almost day 1, and I continue to say it at work all the time, you know, as somebody who deals with a lot of other infectious diseases that involve hands, such as food borne disease, I think hand washing is next to godliness, but when it comes to COVID-19, it's not critical at all, and I worry that we have added an additional level of almost paranoia in the public's mind of that they have to be afraid of everything they touch, and that's simply not the case, and we will bare that out with time, the working we're doing right now on infectious dose issues, etc. I think will help share that very piece of information, and so I understand how people got here, they wanted to tell the public that these are the things you can do,
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and unfortunately in doing that, we didn't really realize that yes, we were given something to do, but that also created a real challenge in terms of emotionally how they felt about their environment, and we shouldn't have given that advice to them if it wasn't really clear that this virus is being transmitted in that kind of contact way. I mean, I've heard horror stories from friends and colleagues, you know, of leaving groceries out on the front porch for days so that they could quote unquote "naturally decontaminate." It's crazy. So, I'm happy to report to you the good news is today, wash your hands anyway, for the food borne disease and fecal-oral transmitted disease, etc., also upper respiratory, common cold viruses, etc. They are a challenge, but not this one, but rest assured you're not going to put yourself at harms way if you don't wash your hands every 10 minutes, because of COVID-19,
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and this article did a wonderful job of laying out exactly the science behind this and why we can feel so confident about that.
CHRIS DALL: So, Mike, what are your parting words of wisdom for us this week?
DR. OSTERHOLM: Oh my, thank you. Thank you very much, it was an amazing response to last week's podcast. I appreciate you all very, very much. We really have become kind of a thing. It means a great deal to all of us. Many of the CIDRAP staff have been able to read the many emails you send us, as I said I've tried to get back to as many of you as I can, but it's become impossible on their shear numbers, but we read them, we appreciate them. Please, not just the good news, but if you also have challenges or questions please don't hesitate to let us know about them, but I just can't thank you enough for what you do and how you do it,
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and I had several emails this week from people who felt tentative, they just felt afraid of where they're at, and they felt like they like the power to do what they needed to do, and I think they found some comfort in these podcasts as a way to come together, but you know when I hear

about what so many of you are doing out there right now, you know, you're amazing. You really are, and I don't think you fully realize who and what you are. Not only to yourself but to others, and so this week I picked a song, and I have to again thank Evan and Lisa for this song, it was written by Mariah Carey and Walter Afanasieff, written in 1999, and I think it speaks to you, to each one of you, and the song is Hero.
1:01:00
"There's a hero if you look inside your heart. You don't have to be afraid.There's a hero. If you look inside your heart. You don't have to be afraid. Of what you are. There's an answer. If you reach into your soul. And the sorrow that you know. Will melt away. And then a hero comes along. With the strength to carry on. And you cast your fears aside. And you know you can survive. So when you feel like hope is gone. Look inside you and be strong. And you'll finally see the truth. That a hero lies in you. It's a long road. When you face the world alone. No one reaches out a hand. For you to hold. You can find love. If you search within yourself. And that emptiness you felt. Will disappear. And then a hero comes along. With the strength to carry on. And you cast your fears aside. And you know you can survive.
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So when you feel like hope is gone. Look inside you and be strong. And you'll finally see the truth. That a hero lies in you. Lord knows. Dreams are hard to follow. But don't let anyone. Tear them away. Hold on. There will be tomorrow. In time you'll find the way. And then a hero comes along. With the strength to carry on. And you cast your fears aside. And you know you can survive. So when you feel like hope is gone. Look inside you and be strong. And you'll finally see the truth. That a hero lies in you. That a hero lies in you. That a hero lies in you." Thank you all very much, to my heroes out there, we're just going to keep taking this one week at a time, we will keep together as a group, understanding how important this is in getting the information out, and please, our pandemic of kindness, please keep it going.
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Hopefully within the next week or two I'll have some news for you all on some very good things happening in spite of this pandemic that I've alluded to in the past that I've been working on right now, but in the mean time be safe, be well, and be kind. Thank you.
CHRIS DALL: 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. The Osterholm Update is produced by Maya Peters, Cory Anderson, and Angela Ulrich.