Medical Xpress

# COVID-19: We can't predict what's next, but here's what we can do now

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Not long after California's June 15 grand reopening, a celebration of the lifting of most of its COVID-19 restrictions, a substantial uptick in cases prompted L.A. County late last week to reinstate its indoor mask

mandate. A number of Bay Area counties quickly followed suit, issuing strong recommendations, including for those who are vaccinated.

The latest hike is being driven by the highly transmissible Delta variant of SARS-CoV-2. The mutation has rapidly spread across the globe and triggered new surges in the U.K. and in Russia. In the U.S., it has ripped through unvaccinated communities, and many vaccinated individuals now question if they're at higher risk of rare "breakthrough" infections.

To learn more about the dangers posed by the Delta variant and its effect on the future of the pandemic, Berkeley News spoke with Maya Petersen, chair of the biostatistics division at UC Berkeley's School of Public Health and an expert in infectious diseases and epidemiology. Petersen's tireless work simulating COVID-19 spread in the Bay Area and providing data-driven recommendations to local officials prompted San Francisco Mayor London Breed to declare June 18, 2021, as "Maya Petersen Day" in the city.

## What do we know now about the Delta variant, both in terms of how quickly it spreads and the severity of disease it causes?

Maya Petersen: We definitely know that the Delta variant is substantially more transmissible than the original variant that was circulating. The best estimates indicate that it is more than twice as transmissible. There's some uncertainty in the exact number, but the fact that it's substantially more transmissible is really not in question, and that's why we're seeing it take over pretty much everywhere at this point.

In terms of severity of disease, I would say there's more uncertainty. There are a couple of studies to suggest that if you are infected with Delta, you may be more likely to be hospitalized. That said, I don't think

there are conclusive data yet. My take is that it seems likely that Delta is more likely to cause severe disease than the original variant, but there's a lot of uncertainty about that, and it's still possible that it's not more severe.

## For those who are unvaccinated, how much more dangerous is the Delta variant compared to other variants that have circulated in the United States?

Leaving aside the question of severity, it certainly poses more danger to those who are unvaccinated. Before Delta came along and became predominant, the levels of vaccination plus prior immunity that we'd achieved in the Bay Area were looking excellent, in terms of driving the epidemic down. Even with the reopening following June 15, it still seemed highly likely that the number of cases and hospitalizations would continue to go down. We really were in this herd immunity setting where, if you were unvaccinated, you would be mostly protected by vaccinated people.

What's happened with Delta, and why the picture's changed so much, is that it's so much more transmissible. And with the higher underlying transmissibility, cases are now going up, and we're expecting that to continue. A large portion of unvaccinated people are now projected to become infected with Delta, and that really wasn't true before because the levels of vaccination and prior immunity were high enough.

## Similarly, how concerned should vaccinated individuals be about the Delta variant? Are public health experts seeing an uptick in "breakthrough" cases?

There's been so much confusing media coverage around this question, so I hope I can help clarify. First, are the vaccines effective against Delta? The answer is yes. If you've gotten both doses of the Moderna or Pfizer vaccines, most data suggest that they will be just as effective against preventing severe disease caused by Delta. Some data do suggest that the vaccines may be moderately less effective against infection with Delta—but all of the data really agree that the vaccines are still highly effective against hospitalization and death. However, if you only got one dose of one of those mRNA vaccines, there's some good data to suggest you are less protected. So, if you've only got one dose, you should get your second dose. For the Johnson and Johnson vaccine, there's just not a lot of data yet, so I would say there's more uncertainty there, although very recent data suggest it may be less effective against Delta.

With that being said, I think another important message is that, even though the vaccines appear to be highly effective against Delta, that doesn't mean vaccinated people shouldn't be concerned. Are we seeing an uptick in breakthrough cases? Yes. But that doesn't mean the vaccines aren't working, and it doesn't mean they're not working as well. Basically, what's happening is we have a very large vaccinated population, and we have a much more infectious virus. And even though the vaccines work really, really well, they're not perfect. There are a lot of vaccinated people now being exposed to this highly infectious virus, so we are going to expect an uptick in the vaccinated cases. And indeed, that's what we're seeing.

Data on severe disease among vaccinated people is more limited. We would expect to have some breakthrough cases that result in severe disease because, again, the vaccines are very, very effective, but they're not perfect. And so, if you have enough virus going around, and it's infectious enough, some vaccinated people are going to get infected, and then some of them—obviously a much smaller percentage—are going to go on to develop severe disease and require hospitalization. I think that's

really important for people to be aware of. It's not a sign that vaccines don't work, and it's not a reason to be less motivated to get vaccinated. If anything, you should be more motivated to get vaccinated. But we're fooling ourselves if we think there are not going to be any breakthrough cases or hospitalizations.

## What impact do you think the Delta variant, and the consequent uptick in COVID-19 cases, will have on reopening plans? Do you think we are headed for another shutdown?

No, I don't think we need to close down again, at this time. And I don't anticipate us needing to close down in the fall. That said, we're fooling ourselves if we think we know what's going to happen next with this virus. So, I think that thinking ahead now to some of the public health measures we want to have in place is prudent.

Personally, I do think the indoor masking in public spaces is a good idea. My husband and I definitely wear masks if we go into public spaces where we don't know the vaccination status of everybody in that space. And I think that's a reasonable precaution. It's a low impact precaution that protects you and also protects, for example, the unvaccinated children that you might live with. Personally, I'm planning on wearing a high-quality mask in public spaces until there's much, much less COVID-19 transmission.

Testing is also important, and I don't think we should neglect the role of testing just because we have vaccines. The vaccines are fantastic, but actually having laboratory testing that can effectively reach people, combined with effective contact tracing, can go a long way. I think rapid antigen testing is underused in this area. There's good data showing that, yes, it might miss some people who are infected, but it's very good at

picking up people who are infected and can infect other people because they have a higher viral load. It's relatively cheap and very, very fast. You can pick up a rapid test at the drugstore for $10 and do it in 15 minutes. It's totally noninvasive. So, people could do that themselves, but I also think there's potential to use those tests more widely as part of the public health response.

Something else that's been used successfully in other places are vaccine passports. I'm really interested to see where that goes, as well. In France, if you want to go to a nightclub or a bar or restaurant or an event, you have to show proof of vaccination, which I think drove up vaccination rates, but also could act to mitigate transmission.

So, I want to make clear that Delta is a risk, but I also want to make clear that there are actions we can take, both personally and as a society, to manage it. We really just need to put all these pieces together to get the transmission levels down.

## Public health experts have expressed concern that, given the high transmissibility of the Delta variant, we may not be able to reach herd immunity through vaccination. Do you agree, and if so, could you explain what this might mean for the future?

I think we have to be really careful about our use of the term herd immunity. I think it's been used to mean all sorts of different things, which is causing confusion. One definition of herd immunity is that you've vaccinated enough people that the reproductive number stays below one, regardless of behavior and without other mitigation, and the epidemic dies away. If we were just going to rely on vaccination, then, yes, with Delta we almost certainly can't get to that situation purely through vaccination.

That said, it's not as dire as it might seem. What we're looking for is a combination of things that keep the epidemic under good control, while keeping our society and schools open and allowing us to go about our lives. So, we have vaccination, and that's great. We also have natural immunity. Some of the places that have lower vaccine coverage have rates of higher prior infection and vice versa, and we have to take both of those into account together. With Delta, vaccination plus prior immunity gets us a long way toward epidemic control, but not all the way there. Fortunately, we also have actions we can take as individuals and as a society to help control the epidemic and protect the most vulnerable.

If this virus has taught us anything, it's that hubris is our enemy. We thought we had things under control, and then along came Delta. If we don't get another variant that has significant natural and vaccine immune escape—which, fortunately, we do not think Delta does—then I think we are going to have one last substantial wave that will come through in the fall, and then the virus will maybe continue to circulate at low levels with seasonal changes. That said, if a new variant comes in with significant natural and vaccine immune escape, which is not out of the question, then all bets are off, and we're potentially headed off to another round of waves.

## What role do you think vaccine booster shots will play in preventing future infection? Is it even ethical for vaccinated Americans to be considering boosters when so much of the world doesn't have access to the vaccines yet?

First, I think we need to separate the question about the need for boosters from questions of global access to vaccines. In terms of boosters, I don't think we know enough yet about how immunity wanes to know whether or not there will be a role for boosters. I certainly

wouldn't want to rule out that boosters will have an important role to play. For example, the data definitely suggest that immunosuppressed persons are at greater risk for vaccine failure. Better understanding of who is at risk of vaccine failure and may require a booster is a high priority.

In terms of global access to vaccines, this should be an absolute top priority. First, so many parts of the world globally are bearing a huge burden of this disease. We have a profound ethical responsibility to get lifesaving vaccines to these regions as fast as possible. Further, even if one doesn't care about equity—and I care about it deeply—it would still be a very wise investment to support global vaccination. The more uncontrolled epidemics we have globally, the more likely it is that new variants will emerge. Improving global access is the right thing to do for everyone.

## Not all unvaccinated individuals are unvaccinated by choice. Children under 12 and people with certain health conditions are unable to receive the vaccine, while immune-suppressed or immunocompromised individuals may not develop immunity from the vaccine. What can we do to help protect these populations through the next wave?

This is absolutely a pet peeve of mine. There is an assumption that people are unvaccinated by choice, but there are actually a number of other factors at play. On the one hand, we have issues of equity and histories of structural racism and access limiting vaccine coverage, and on the other hand, we have kids who are, as you say, simply not eligible.

I think the No. 1 thing we can do to protect unvaccinated people is to get

vaccinated and to urge all of our friends and contacts to get vaccinated. We can also continue to work to overcome barriers to vaccination that still exist, including working closely with communities to ensure that access is optimized and that very legitimate questions about the vaccines are answered by trusted sources. Societally, all the various things that I mentioned to help mitigate transmission will help protect the unvaccinated, as well: Get yourself vaccinated, make sure people have access to testing, provide supportive response to positive tests, continue contact tracing and expand the use of rapid tests.

And for children, in particular, masking works. I think one thing we don't often hear a lot about is that masks are not all the same, and there are high quality masks available for children. For example, KF94 masks, which are made in Korea, have been shown to have very high performance and are also quite breathable. I have a 6-year-old and a 10-year-old, and that's what they wear to school and indoors in public places and will continue to do so. Rapid testing in the schools I also think has a lot potential, including the ability to rule out COVID fast and to make sure that kids who just have a cold don't miss school unnecessarily. If all goes well, we're expecting vaccines to be available for children in October, so we just need to get them past this window.

## Do you have any final thoughts on what people can expect as we head into the fall?

I know everyone's tired and wants this to be over. Believe me, I want a vacation! But it's important for people to continue to protect themselves and protect their loved ones. It's not all gloom and doom, and it's unlikely that we are going to have to shut everything down for another nine months. But, it's not all cupcakes and roses, either. Maybe the fall will be normal, but I think it's more likely that we're going to have one last wave of cases and hospitalizations. It's going to be better in the sense

that we won't have to shut everything down again, but the wave could still be sizable. I think people deserve to be prepared for that, and pretending that there is any certainty around this is dangerous stuff.

Provided by University of California - Berkeley

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