COVID-19 and the new normal: What do cases mean in a vaccinated community?

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For a year, many people watched global COVID-19 case numbers rise and fall as a way of tracking the state of the pandemic and the risk to their lives. A surge in positive cases typically meant that a rise in hospitalizations—and death— was sure to follow.

Then came vaccines. And a sense of a return to normal life began.

Vaccinated people, largely, weren't even getting infected, let alone contracting cases severe enough to be hospitalized or risk death.

But now, across the world, we've seen COVID-19 cases go up again due to the Delta variant. And this time, there have been breakthrough cases in which vaccinated people test positive for COVID-19.

Breakthrough cases have brought more confusion. At Northeastern, the entire community is required to be vaccinated against the coronavirus. So News@Northeastern spoke with healthcare statistician and Northeastern Provost, Dr. David Madigan, to help us make sense of COVID-19 data in the context of a vaccinated community.

"We're in a very different situation than the one we were in at this time last year," Madigan said in a Facebook live interview. "Thanks to vaccines, we are in a different mode. We are now in a mode of living with COVID-19 rather than trying to hide, if you will, or hibernate."

You can watch the interview in its entirety on Facebook or on YouTube, or you can read the interview below. This Q&A has been edited for brevity and clarity.

How concerned should a vaccinated community be about rising case numbers and breakthrough cases?

For vaccinated people, the risk of serious illness or death is very low. It's dramatically smaller than it is for unvaccinated people. It may make you sick. But the morbidity and mortality burden associated with COVID-19 is dramatically reduced with the vaccine. So it's more like a nasty flu is going around. You want to avoid getting it, but we can't put our lives on hold. It's just not appropriate to suspend our lives and suspend normal operations of the world anymore. And so it's a new normal. And really,

our mindset should be living with COVID-19, not hiding from COVID-19.

Are case numbers still the best metric for vaccinated people monitoring COVID-19? Now that we have vaccines, which metric is important to pay attention to, and why?

Number of cases isn't really the appropriate metric anymore. Just like we don't obsess over flu numbers, what we worry about is serious cases. We worry about hospitalizations and, in rare cases, death. And that's what we now need to focus on with COVID-19. And the good news is, despite the rising numbers of the Delta variant and these breakthrough cases, we are not seeing an equivalent rise in serious illness, as measured by hospitalizations and death. There are risks associated with COVID-19, even to a vaccinated person. It's just that those risks are very low. The question is, is a particular risk high enough that you completely alter the way you live? That's the mode we were in last year. That is not the mode we're in now.

What kind of trends are Northeastern officials watching? Should we be concerned if we start to see cases spike over a day or two? Or should we be more worried about longer-term trends?

I think both. There's a group of epidemiologists and statisticians and public health experts here at the university—we're watching all kinds of things all the time. We're paying a lot of attention to countries like Israel and the U.K., countries who are, in some sense, ahead of us in some of these waves. Hospitalization and death are certainly lagging indicators.

Can you talk a little bit about vaccine efficacy and breakthrough cases? Are we seeing vaccine protections wane over time?

It's not a surprise that there will be breakthrough cases. We know the vaccine efficacy is not 100 percent. The good news is, take Israel as an example, infection rates have gone back up in Israel, but what we're not seeing is a rise in rates of hospitalization and death that are anything like they were at the peak.

There's been a lot of debate about waning vaccine efficacy. The Israel study has attracted a lot of attention. In that context, it seems as if the efficacy of the vaccines did seem to be waning. However, if you look closely at the data, efficacy with respect to hospitalization and death has not waned so far.

Let's talk a little bit about testing. Last year, Northeastern was testing people on campus multiple times a week, but now everyone is testing once a week. What has changed?

What's changed is vaccines. We're dealing with a completely different situation here. We're dealing with a virus that can give you a nasty dose, you can have fever and flu-like symptoms for a few days. You want to avoid that. But it's highly unlikely to make you seriously ill.

Last year, we had detailed epidemiological models that suggested that testing every three or four days would be enough to basically avoid serious outbreaks on campus. And the reason for testing last year was to remove people who were positive, thereby preventing them from infecting others. To break the cycle. That was the whole point of testing.

This year it's a little different. Sure, if someone tests positive, we will have them isolate on campus in Wellness housing or ask them to isolate in their off-campus setting, and that will help prevent further spread. But that is no longer the primary objective. The primary objective of our testing this year is knowledge. We want to know how prevalent the virus is in our community. And, perhaps even more importantly, we want to know about what variants are out there. So, for every positive case, we will be checking to see which of the variants it is. We want to know what's going on so that, if needs be, we can pivot.

How contagious is a vaccinated person who tests positive versus someone who is unvaccinated?

It's become clear just in the last few weeks that vaccinated people who become infected, they might not be symptomatic, but yes, they may be contagious. The viral loads of people who are vaccinated are much the same as the viral loads of people who are unvaccinated.

However, there are two differences. First, it lasts for a much shorter period of time. If you're vaccinated and infected, you're likely to be contagious for about half the amount of time as an unvaccinated person. The second thing we now know is that even though the viral load is similar in vaccinated and unvaccinated people who are infected, some of the viruses are active and infections and some of them are not. And in vaccinated people, there are lower levels of infectious virus in their system. So, if you're vaccinated and are infected with the virus, you're probably slightly less infectious for a shorter period of time.

How does having an urban campus embedded in the city around us affect how we relate to the pandemic as a community?

I've been talking about our community as if this were a community within four walls, which, of course, it absolutely isn't. We are Boston, and whatever is going on in Boston is what's going on in our community. So, with our COVID-19 precautions, we certainly have to think about the Boston community writ large, and the communities in which we are operating our various campuses around the country and in Canada and in the U.K. We are embedded in those communities.

What do you see happening going forward? What are the possible futures of this pandemic?

Well, I don't have a crystal ball. But there's some evidence that Delta has peaked and will decline. There could be future waves of Delta. There's some evidence of a two-month cycle, and it's been about two-months since the beginning of the, if you will, Delta epidemic. So there could be future waves of Delta. The big unknown is future variants. The more we can reduce the prevalence of the virus in our society, the less chance there is for future variants to emerge.

What's the best way to do that?

Data. Hence the surveillance testing is extraordinarily valuable in terms of understanding what's going on. Knowing what variants are out there is crucial to taking the appropriate decisions and actions with respect to those.

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