Understanding omicron, the new COVID-19 variant

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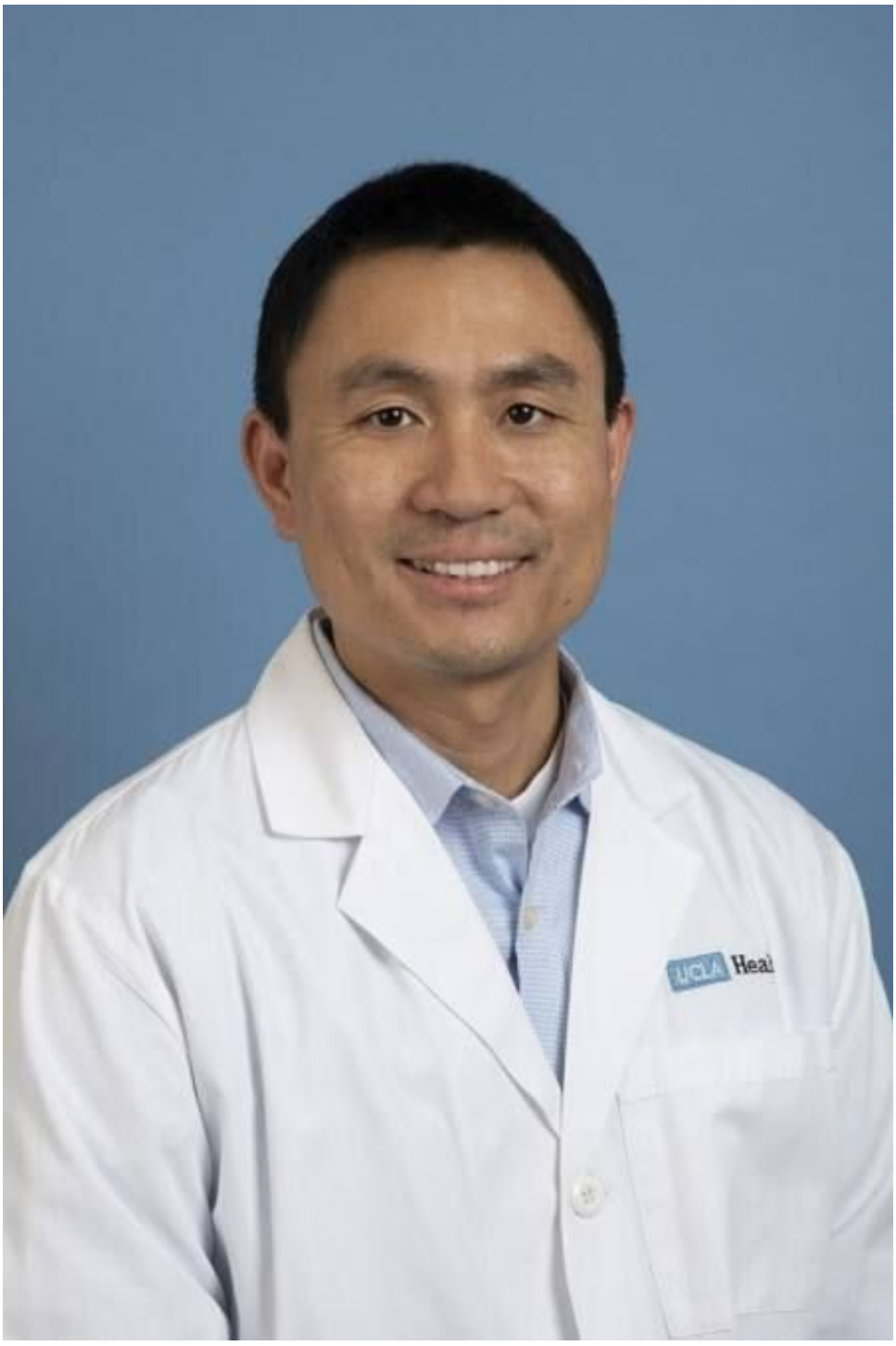

Shangxin Yang. Credit: University of California, Los Angeles

Countries around the world are making preparations against omicron, a

new variant of the novel coronavirus that causes COVID-19. Although it hasn't yet been detected in the United States (as of Nov. 29, 2021), health officials are once again cautioning the public about getting vaccinated, frequent testing and potentially stepping up tried-and-true measures to prevent transmission such as mask-wearing and hand-washing.

We spoke with Shangxin Yang, a pathologist at UCLA Health, about the new variant and what everyone needs to know.

How is the omicron variant different from the delta variant and others?

It has a lot of mutations in its genome. Compared to the original coronavirus, the delta variant has fewer than 20 genetic changes to the gene for the spike protein. The omicron variant has more than 30 genetic changes. It's almost double.

The more changes there are in the spike protein gene, the more likely the vaccines and the therapeutic drugs could lose their efficacy. It's not good news, especially for those who have not been vaccinated.

It's no surprise that we're seeing this at the starting point of the winter. The outbreak really intensifies during the holiday season because places become more crowded due to travel and shopping. It's the perfect time for omicron to start emerging and it has the potential to become another big variant.

Is the omicron variant more dangerous or more contagious than delta?

There are not enough data or cases reported to know yet.

The danger is that we are always two steps behind the virus. First of all, the variant is already circulating in the population by the time we detect it. The second reason we are behind is because we have to then characterize the virus' behavior. We're trying to assess how infectious it is and that takes a longer time. By the time we figure these answers out, the virus is already widespread.

The good thing is we learned a lot from delta, so we've had a more proactive response to the omicron variant. But to put a stop to other variants emerging, people have to get vaccinated and reduce transmission, which is what enables the mutations.

Do our current vaccines protect against it (including the booster)?

Most likely, yes, and here's why. The vaccine creates two "arms" of immunity: the humoral arm and the cellular arm. The humoral immune response triggers the creation of antibodies to neutralize the virus. But changes to the virus can impact the effectiveness of the antibodies, which means that the vaccinated can still get COVID-19 and spread it.

Now, cellular immunity is different. It's more important when it comes to preventing severe disease. Our cells are trained to recognize the virus, and they help keep the virus from causing severe damage to our bodies. Those who are vaccinated will likely not get that sick if they contract the variant.

The problem is we have a vaccine that was created almost two years ago for a virus that appeared two years ago. Once we have a vaccine that is based on the current variant, we can catch up with the virus.

Should we prepare for states and cities to shut down

again?

I think it is highly unlikely, being that people are so tired of being locked down. Also, we have other preventive measures. We can have people get vaccinated and get the boosters, and we can have people wear masks. We know those measures work beautifully.

Why are countries from Australia to Israel closing their borders so quickly?

It's more political than anything. Closing borders can only slow down the virus for a few weeks or a couple of months. The problem is once you've identified the virus, it's already too late. It's already widespread. So, closing the borders is not effective. The virus is already there.

Can we expect to have COVID variants from now on?

Yes, until we are able to get the entire human population vaccinated. It's not just about the United States. We're talking about the entire human population. A lot of the new variants come from areas where there are not a lot of vaccines available.

Hypothetically speaking, if the whole world got vaccinated, would that keep other variants from forming?

I believe it will most likely go away or it will become a very mild virus. It will not cause severe disease anymore. It will become like the common cold.

I feel like the latter is more of a possibility, considering that the virus has

already widened its spread and has already adapted to humans. I think it will likely be here to stay even if you vaccinate the entire population, but it will not cause severe sickness or death anymore.

What are the symptoms of omicron?

It's not much different than those of the other variants: cough, loss of smell, diarrhea, fever, runny nose and headache. The symptoms may vary, but we don't have enough data yet to know how.

What is the most sensible thing for people to do at this point?

We should continue doing what we have been doing. We should continue to wear masks and get vaccinated. Those who have already been vaccinated should make sure they get their booster. Make sure your kids are vaccinated and continue to protect our loved ones and ourselves. We just can't let down our guard at this point.

Provided by University of California, Los Angeles