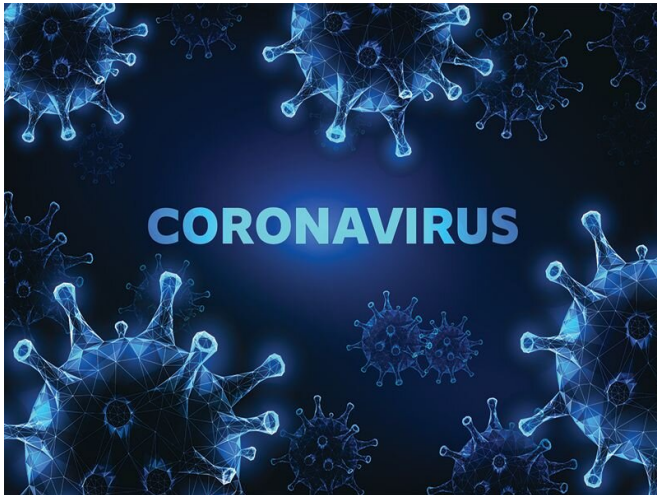


Will vaccines work against the new coronavirus variants?

21 January 2021, by Dennis Thompson



(HealthDay)—Everyone has heard the scary reports about the new, more infectious coronavirus variants that are circulating in countries around the world, but scientists aren't pushing the panic button at this point.

Why? Because the new COVID-19 vaccines should still work on these viral interlopers.

Luckily, the new variants still rely on the coronavirus' "spike protein" to infect cells, and the two COVID vaccines now on the U.S. market specifically target the spike protein to prevent transmission, explained Dr. Kathryn Edwards, scientific director of the Vanderbilt University Vaccine Research Program in Nashville.

"The spike is really critical. It's really what is needed to interact with the cell," Edwards said. "So, I think it would be hard to circumvent the spike in terms of function."

New COVID variants out of Britain, South Africa

and Brazil appear to be more infectious, possibly because the spike protein has mutated to make transmission between people easier, said Dr. Mirella Salvatore, an infectious disease expert and assistant professor at Weill Cornell Medicine in New York City.

"The spike protein is needed to bind to the cell, to allow the virus to enter," Salvatore explained. "If there are a lot of these mutations, maybe this binding is stronger and the virus can enter more easily. This is a possibility why this virus seems to transmit more easily."

But the Pfizer and Moderna vaccines are designed to not only target the spike protein, but to promote the creation of antibodies that will attack it in several different ways, Salvatore said.

Therefore, it's not likely that a mutation would be able to evade the complex immune response created by a [vaccine](#), even if the mutation makes the spike protein more effective at infecting unvaccinated people, the experts said.

"It's not one single antibody, so if there is a mutation that changed a little bit of the structure of the spike protein, then there would be a lot of other substantial antibodies that would be able to stop the virus from attacking the cell and entering the cell," Salvatore noted.

Edwards and Salvatore spoke Thursday during a briefing hosted by the Infectious Diseases Society of America, of which they are both fellows.

There was a bit of bad news delivered during the briefing: The new Brazilian and South African variants do appear to be capable of reinfecting people who've had COVID before, the experts said.

For example, a Brazilian health care worker fell ill from both the original COVID-19 virus and, months later, again from what turned out to be a new

mutation of the virus, Edwards said.

However, the man did not suffer [severe illness](#) either time, so it's possible that his body didn't mount a strong enough [immune response](#) during the first infection to protect him against the second, Edwards said.

"The height of the antibody response may be somewhat proportional to how sick you are in the beginning. Maybe if the patient had been vaccinated or maybe had a more severe disease, he would have had a higher antibody count that would have protected him," Edwards said.

The heightened transmissibility of the new strains and their potential to evade the natural immunity caused by infection has raised concerns about a new wave of coronavirus in the United States, said Michael Osterholm, director of the Center for Infectious Disease Research and Policy at the University of Minnesota.

"I am extremely worried about the U.K. variant," Osterholm said during a HD Live! interview this week. "I think over the course of the next six to 12 weeks we could see the darkest days of this pandemic in this country, with that variant being responsible for greatly increased transmission."

The new variants haven't proven more lethal than the original COVID strain, Salvatore said, but increased infection could increase the number of people who die from the coronavirus.

Public health and infectious disease experts will need to continue to track new variants of COVID and decipher their genetics, just in case a new mutation causes a severe decline in vaccine effectiveness, the experts said.

But if that happens, it likely will be easy to change up the lab-created messenger RNA vaccines to maintain their effectiveness against new mutations, Edwards said.

"That is an advantage of the mRNA vaccines," Edwards said, noting that [public health](#) officials already change the flu vaccine every year to maintain its effectiveness against the much more

mutation-prone influenza virus.

"That process is done so efficiently by the [U.S. Food and Drug Administration] and other regulators that the ability to change is something we do every year," Edwards said. "I think as we are going forward, we are using influenza as the model."

More information: The U.S. Centers for Disease Control and Prevention has more about [COVID-19 variants](#).

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