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Are Vaccines Fueling New Covid Variants?

The virus appears to be evolving in ways that evade immunity.

By

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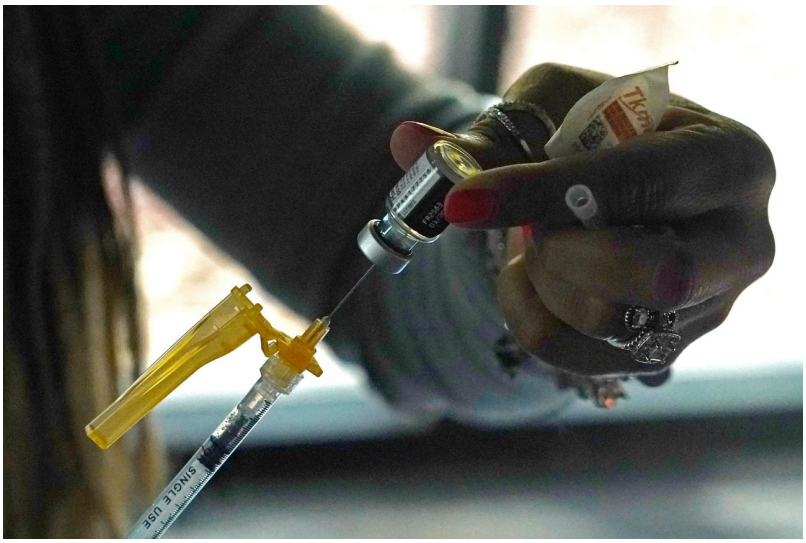

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Public-health experts are sounding the alarm about a new Omicron variant dubbed XBB that is rapidly spreading across the Northeast U.S. Some studies suggest it is as different from the original Covid strain from Wuhan as the 2003 SARS virus. Should Americans be worried?

It isn't clear that XBB is any more lethal than other variants, but its mutations enable it to evade antibodies from prior infection and vaccines as well as existing monoclonal antibody treatments. Growing evidence also suggests that repeated vaccinations may make people more susceptible to XBB and could be fueling the virus's rapid evolution.

Prior to Omicron's emergence in November 2021, there were only four variants of

concern: Alpha, Beta, Delta and Gamma. Only Alpha and Delta caused surges of infections globally. But Omicron has begotten numerous descendents, many of which have popped up in different regions of the world curiously bearing some of the same mutations.

"Such rapid and simultaneous emergence of multiple variants with enormous growth advantages is unprecedented," a Dec. 19 study in the journal Nature notes. Under selective evolutionary pressures, the virus appears to have developed mutations that enable it to transmit more easily and escape antibodies elicited by vaccines and prior infection.

The same study posits that immune imprinting may be contributing to the viral evolution. Vaccines do a good job of training the immune system to remember and knock out the original Wuhan variant. But when new and markedly different strains come along, the immune system responds less effectively.

Bivalent vaccines that target the Wuhan and BA.5 variants (or breakthrough infections with the latter) prompt the immune system to produce antibodies that target viral regions the two strains have in common. In Darwinian terms, mutations that allow the virus to evade common antibodies win out—they make it "fitter."

XBB has evolved to elude antibodies induced by the vaccines and breakthrough infections. Hence, the Nature study suggests, "current herd immunity and BA.5 vaccine boosters may not efficiently prevent the infection of Omicron convergent variants."

A New England Journal of Medicine study published last month provides more evidence of the vulnerability caused by immune imprinting. Neutralizing antibodies of people who had received the bivalent were 26 times as high against the original Wuhan variant as they were against XBB and four times as high as

they were against Omicron and the BA.5 variant.

Similarly, a study this month in the journal Cell found that antibody levels of people who had received four shots were 145 times as high against the original Wuhan strain as the XBB variant. A bivalent booster only slightly increased antibodies against XBB. Experts nevertheless claim that boosters improve protection against XBB. That's disinformation, to use their favored term.

A Cleveland Clinic study that tracked its healthcare workers found that bivalent vaccines reduced the risk of getting infected by 30% while the BA.5 variant was spreading. But, as the study explained, the reason might be that workers who were more cautious—i.e., more likely to wear N95 masks and avoid large gatherings—may have also been more likely to get boosted.

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Notably, workers who had received more doses were at higher risk of getting sick. Those who received three more doses were 3.4 times as likely to get infected as the unvaccinated, while those who received two were only 2.6 times as likely.

"This is not the only study to find a possible association with more prior vaccine doses and higher risk of COVID-19," the authors noted. "We still have a lot to learn about protection from COVID-19 vaccination, and in addition to a vaccine's effectiveness it is important to examine whether multiple vaccine doses given over time may not be having the beneficial effect that is generally assumed."

Two years ago, vaccines were helpful in reducing severe illness, particularly among the elderly and those with health risks like diabetes and obesity. But experts refuse to concede that boosters have yielded diminishing benefits and may even have made individuals and the population as a whole more vulnerable to new variants like XBB.

It might not be a coincidence that XBB surged this fall in Singapore, which has among the highest vaccination and booster rates in the world. Over the past

several weeks a XBB strain has become predominant in New York, New Jersey, Connecticut and Massachusetts, making up three-quarters of circulating virus, according to a Centers for Disease Control and Prevention estimate. The variant has been slower to take off in other regions, making up only 6% of the Midwest and about 20% in the South. The Northeast is also the most vaccinated and boosted region in the country.

Hospitalizations in the Northeast have risen too, but primarily among those over 70. One reason may be that the T-Cell response—the cavalry riding behind the front-line antibodies—is weaker in older people. The virus can't evade T-Cells elicited by vaccines and infections as easily as it can antibodies. Because of T-Cells, younger people are still well-protected against new variants.

Another reason may be that monoclonal antibodies are ineffective against XBB, and many older people who catch Covid can't take the antiviral Paxlovid because they have medical conditions such as severe kidney disease or take drugs that interfere with it.

The Biden administration's monomaniacal focus on vaccines over new treatments has left the highest-risk Americans more vulnerable to new variants. Why doesn't that seem to worry the experts?

Correction

An earlier version mischaracterized the CDC estimate of XBB prevalence in Northeastern states.

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