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Vaccine efficacy against severe COVID drops slightly

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COVID-19 vaccines appear to have become slightly less effective in preventing severe disease and death as the omicron variant spreads, but they do provide "significant protection," the World Health Organization said on Tuesday.

The variant first detected in South Africa and Hong Kong last month has now been reported by 77 countries and is probably present worldwide, but should not be dismissed as "mild," WHO Director-General Tedros Adhanom Ghebreyesus said.

"Omicron is spreading at a rate we have not seen with any previous variant," Tedros told an online briefing. "Even if omicron does cause less severe disease, the sheer number of cases could once again overwhelm unprepared health systems."

"Evolving evidence suggests a small decline in the effectiveness of vaccines against severe disease and death, and a decline in preventing mild disease or infection," he said without giving specifics.

Pfizer-BioNTech's COVID-19 vaccine has been less effective in South Africa at keeping people infected with the virus out of hospital since the omicron variant emerged last month, a real-world study published on Tuesday showed.

Mike Ryan, WHO's emergencies director, said that the vaccines are not failing and do provide significant protection against severe disease and death.

"The question is how much protection are the current vaccines that we are using, which are currently life-saving against all the variants, and to what extent do we lose any protection against severe illness and death against omicron. The data is pointing towards there being significant protection."

Ryan said the peak of this wave of infections remains "a number of weeks" away given the very rapid spread of the omicron variant, which has outpaced the globally dominant delta strain.

Vaccine booster shots can play a role in curbing the spread of COVID-19 as long as people most in need of protection also get access to shots, Tedros said.

"It's a question of prioritization. The order matters. Giving boosters to groups at low risk of severe disease or death simply endangers the lives of those at high risk who are still waiting for their primary doses because of supply constraints.

"On the other hand, giving additional doses to people at high risk can save more lives than giving primary doses to those at low risk," he said.

Tedros noted that the emergence of omicron had prompted some countries to roll out COVID-19 booster programs for their entire adult populations, even while researchers lack evidence for the efficacy of boosters against this variant.

"WHO is concerned that such programs will repeat the vaccine hoarding we saw this year, and exacerbate inequity," he said.

Meanwhile, a study released Tuesday in the U.S. showed that the vaccines from Pfizer-BioNTech, Moderna and Johnson & Johnson appear to be significantly less protective against omicron in laboratory testing but that a booster dose likely restores most of the protection.

The study from researchers at Massachusetts General Hospital (MGH), Harvard and MIT, which has not yet been peer reviewed, tested blood from people who received one of the vaccines against a pseudovirus engineered to resemble the omicron variant.

The researchers found "low to absent" antibody neutralization of the variant from the regular regimens of all three vaccines — two shots of the Moderna or Pfizer-BioNTech vaccines or one of J&J's single-dose vaccine. But the blood from recent recipients of an additional booster dose exhibited potent neutralization of the variant, the study found.

The scientists also suggested that omicron is more infectious than previous variants of concern — about twice as transmissible as the currently dominant delta variant, which may soon be overtaken by omicron.

The results are in line with other studies recently published. Researchers at the University of Oxford said on Monday that they found the two-dose Pfizer and AstraZeneca vaccine regimens do not induce enough neutralizing antibodies against the new variant.

BioNTech and Pfizer said last week that a three-shot course of their COVID-19 vaccine was able to neutralize the omicron variant in a laboratory test but that two doses resulted in significantly lower neutralizing antibodies.

A separate study from South Africa has shown that J&J's vaccine produced virtually no antibody protection against omicron in a laboratory experiment. The vaccine appears to provide some defense against omicron, perhaps via other means such as stimulation of immune cells, according to Penny Moore, a South African virologist.

Moore, a professor at Johannesburg's University of The Witwatersrand, said that laboratory experiments were conducted on blood plasma samples from people who had had two doses of the Pfizer Inc. and BioNTech SE vaccine and those or the J&J singleshot inoculation.

A measure of antibody levels, called geometric mean titers, fell from 1,419 against the original coronavirus strain to 80 against omicron among people who received Pfizer shots. The same measure fell from 303 against the original strain to undetectable levels against omicron in those who had received J&J's shot, Moore said in an online presentation on Tuesday.

The as-yet unpublished research Moore presented to an African health conference ties in with early experiments by South Africa's Africa Health Research Institute and Pfizer's own research. Omicron's discovery was announced by South African scientists on Nov. 25.

Still, Moore stressed, the body has other protection against the virus.

"Reduced antibody titers will likely result in decreased ability of vaccines to prevent infection but protection against severe disease likely to be preserved," she said on one of her presentation slides.