COVID-19 vaccine effectiveness dips, but remains potent disease deterrent

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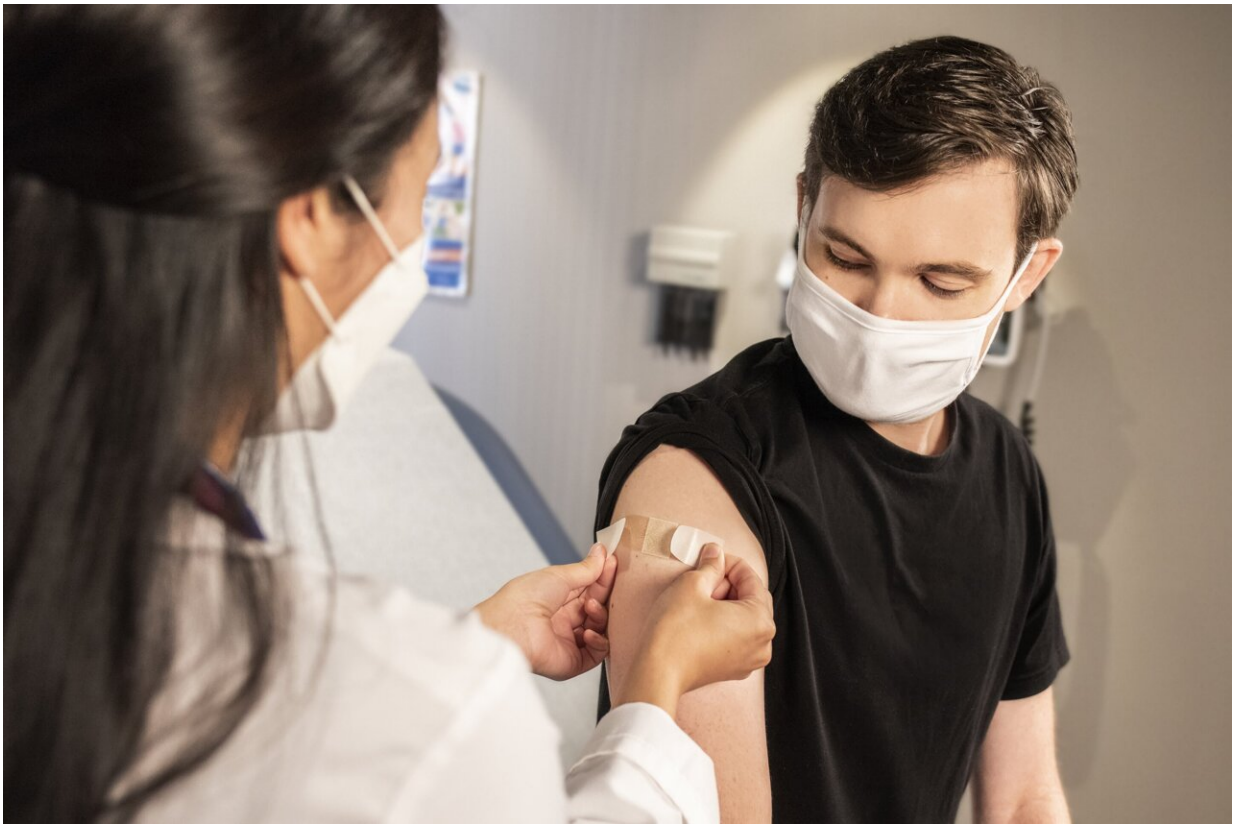

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COVID-19 vaccines remain effective, but their potency has diminished in recent months, according to a nationwide study at eight sites, including Salt Lake City, Utah.

Scientists calculated vaccine effectiveness to be 80% in a large group of fully vaccinated frontline workers between December 2020 and August 2021, compared to 91% in earlier surveys. The estimates were based on COVID-19 RT-PCR testing and did not measure whether there were changes in efficacy in protecting against severe disease, including hospitalization and death.

The authors say one reason for the change could be waning immunity, a decrease in the strength of the body's vaccine-activated defenses against the virus. The difference may also reflect the fact that the vaccines are not as effective against the highly contagious Delta variant of the SARS-CoV-2 virus, which since June 2021, has become the most common cause of COVID-19 in the U.S.

"The vaccines are still helping save lives and keep people from getting sick despite a slight diminishing return over many months," explains Matthew Thiese, Ph.D., associate professor at the University of Utah Rocky Mountain Center for Occupational and Environmental Health (RMCOEH). "These data, combined with other data, demonstrate that vaccinated people are much less likely to get COVID-19 and are much less likely to be hospitalized." Thiese is co-investigator and RMCOEH assistant professor Sarang Yoon, D.O., is primary investigator of the HEROES-RECOVER (Research on the Epidemiology of SARS-CoV-2 in Essential Response Personnel) study site in Utah.

The study published on August 24 in the Morbidity Mortality Weekly Report (MMWR) from the Centers for Disease Control and Prevention (CDC). Additional study sites in the HEROES-RECOVER network are Phoenix, Tucson, and other areas in Arizona; Miami, Florida; Portland, Oregon; Duluth, Minnesota; and Temple, Texas.

The network followed 4,136 health care personnel, first responders, and essential workers who had not previously had COVID-19. Study

participants submitted samples for RT-PCR testing on a weekly basis and 2,976 participants were fully vaccinated within the study period, receiving either the Pfizer-BioNtech (65%), Moderna (33%), or Johnson & Johnson (2%) vaccines. Test results from these groups between December 14, 2020, to August 14, 2021, show that:

- Among unvaccinated study participants, 194 infections occurred in 181,357 person-days (combined total of number of days of testing for this group).
- Among fully vaccinated participants, 34 infections occurred in 454,832 person-days.

During that time period, the vaccines were 80% effective for all fully vaccinated study participants, but preliminary data indicate that vaccines may wane in intensity over time with lower effectiveness after five or more months following full vaccination. In addition, the vaccines appeared to be less effective during the last 43 days of the study period when Delta became the predominant virus variant. However, because sample sizes were small, these results were not statistically significant. These trends will be investigated further in future studies.

"These data show that the vaccine is still quite effective against the different strains of COVID-19, including the Delta variant," Thiese says. "The protection people get from the vaccine is keeping people from getting COVID-19 at a ratio of 14 to 1. As these data continue to come in, they are going to help chart recommendations for masking, social distancing, and booster shots."

Provided by University of Utah Health Sciences

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