

COVID Vaccines and Breakthrough Cases

Why vaccine breakthrough cases happen, and why they are expected

The United States is currently navigating a third wave of COVID-19 infections. In some areas of the country, the rates of positive cases are higher than they have ever been, with the highly contagious omicron variant spreading rapidly throughout the population.

Hospitals are once again being pushed to capacity, as COVID-positive patients need additional support. While a vast majority of hospitalized COVID-19 patients are either unvaccinated or are due for an additional vaccine dose, many are also up-to-date on their vaccinations.

When a person who is fully vaccinated against a certain disease still becomes infected, it is called vaccine breakthrough. But why does it happen?

Douglas Kasper, M.D., is the section head of infectious disease at the University of Illinois College of Medicine Peoria, and a leader in the OSF HealthCare response to COVID-19. He defines vaccine breakthrough in this case as someone contracting COVID-19 and needing medical care, despite receiving the full course of the vaccine.

He says for a case to be considered vaccine breakthrough, however, timing between vaccination and infection is the key.

“What’s important to go over in that topic is that a sufficient amount of time has passed from when they received the vaccine,” explains Dr. Kasper. “So if somebody receives the vaccine on a Monday and contracts COVID the following day, that does not count as a vaccine breakthrough. There has not been sufficient time for the body to create the protective immune response that we know will occur as usually two to four weeks pass after vaccine.”

He adds, each person is unique, and will respond to the virus and the vaccine in different ways.

“Any immune response is not uniform. How all of us interact with a virus will be different. So because of that, vaccines or natural immunity are not 100% protective. We strive for 100%, but what we understand is that some number of people, even when they receive the vaccine, may become ill with the virus. What we know is that people who receive the vaccine, even if they become ill, tend to become more mild cases of disease than those who have not received the vaccine,” he says.

The Centers for Disease Control and Prevention (CDC) is monitoring reported vaccine breakthrough cases, and according to data reported by state health departments, currently [49 states](#) have reported at least one vaccine breakthrough infection.

Dr. Kasper maintains, however, that the existence of COVID-19 vaccine breakthrough cases is not a reason for anyone to avoid the vaccine. He says the opposite is true. Continuing research shows fully vaccinated people who are infected tend to have less severe symptoms than unvaccinated people, and are much less likely to be hospitalized or die.

In short, Dr. Kasper says, the benefits of the shot far outweigh the risk of infection.

“The take-home remains: vaccine effectiveness remains well above 90% in real world reporting about adverse effects, which allows us to continually safely deliver vaccine products to those within our community.”

Currently, anyone five and older is eligible to receive the COVID-19 vaccine, and can now self-schedule a COVID-19 vaccination at osfhealthcare.org/vaccine.

Dr. Kasper and others urge everyone to continue following public health guidelines to [slow the spread of COVID-19](#) by getting vaccinated and boosted when eligible, practicing good hand hygiene, using good judgement on where and with whom you gather, and by wearing a mask in indoor public places - especially for those who live in an area with [substantial or high transmission](#) of COVID-19.