

# 'Breakthrough' COVID infections may be common in vaccinated transplant patients

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New research suggests that many people who've undergone an organ

transplant do not get an immune response from COVID-19 vaccines that's strong enough to ward off a "breakthrough" infection.

In a new review of 14 such cases, these breakthrough COVID-19 infections occurred in 10 recipients of new kidneys, two liver recipients, one lung recipient and one heart recipient, said a research team working in New York City.

Eight of them had completed the Pfizer COVID-19 two-dose [vaccine](#) series, five had completed the Moderna two-dose series and one had gotten the Johnson & Johnson single-dose vaccine, according to the team from NYU Langone.

"We need additional studies to determine why these breakthrough cases may be occurring and how to prevent them, but also want to ensure that [transplant](#) patients continue to take all the proper precautions that have been protecting them through the pandemic," Dr. Robert Montgomery, director of the hospital's Transplant Institute, said in a Langone news release.

Transplant patients typically take immune-suppressing drugs after receiving a donor organ, to help ward off organ rejection. But it's thought that use of the drug could have a side-effect of rendering vaccines less effective.

All of the patients in the new study were taking various immunosuppressant drugs including: prednisone, calcineurin inhibitor (13), antimetabolite agent (13), belatacept (1) and mTOR inhibitor (1), Montgomery's team noted.

Seven patients were hospitalized after their breakthrough infections, with five patients developing severe COVID-19 illness.

The heart transplant recipient, who was among those who developed severe COVID-19, died, according to the study published online recently in the journal *Transplantation*.

"These are troubling findings for [transplant patients](#) who may think they are protected after being fully vaccinated," Montgomery said.

The trials that led up to approval of COVID-19 vaccines had "excluded immunocompromised patients," according to study co-author Dr. Sapna Mehta, an infectious disease specialist and clinical director of the institute.

Furthermore, "a recent report found only 17% of transplant recipients had any detectable anti-spike antibodies after the first mRNA vaccine compared to 100% of non-immunocompromised patients having antibody responses in clinical trials," she said.

Anti-spike refers to the "spike protein" on the SARS-CoV-2 coronavirus that is the prime target of approved vaccines.

"Further follow-up of the same cohort of transplant recipients shows antibody responses improved to 54% after their second vaccine dose," Mehta said, but that level is still "far below response rates in non-immunocompromised patients."

Mehta noted that there are 10 million Americans with compromised immune systems.

More study is needed to determine the best vaccine dosages for these people, "who continue to live under heightened pandemic precautions while their level of vaccine-related immunity remains uncertain," Mehta said.

**More information:** The American Society of Transplantation has more on [COVID-19](#).

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