

In transplant recipients, COVID-19 vaccines reduce infection and mortality risks

August 12 2021



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Vaccination against SARS-CoV-2 substantially lowers the risks of "breakthrough" infections and death due to COVID-19 in adult organ transplant recipients, according to a pair of research letters in

Transplantation, the official Journal of The Transplantation Society and the International Liver Transplantation Society.

Transplantation Editor-in-Chief Jeremy R. Chapman, MD, comments that "these studies show that vaccine protects transplant patients and cuts mortality by about half, but sadly deaths are still much higher in [transplant patients](#) than in the vaccinated general population. The message to patients is clear—get vaccinated, but carry on being very cautious, wear masks, maintain distances and don't get into crowds."

Vaccination 'critically important' for organ transplant patients

A research letter by Rommel Ramanan FRCP and associates of NHS Blood and Transplant, Bristol, reports on their analysis of UK registry data on 48,213 transplant recipients (solid organ or islet cell), 39,727 of whom had received two doses of SARS-CoV-2 vaccine (Pfizer/BioNTech or Oxford/AstraZeneca). The rate of COVID-19 [infection](#) decreased from 51 percent in unvaccinated patients, to 19 percent in those receiving one vaccine dose, to 0.36 percent in those receiving two doses.

Fully vaccinated transplant recipients were also at significantly lower risk of death from COVID-19. Among patients who tested positive for SARS-CoV-2, mortality was 7.7 percent for those who had received two vaccine doses, compared to 12 percent for those who were unvaccinated or received only one dose.

This UK study provides the first national registry-based analysis of real-world data on SARS-CoV-2 vaccine effectiveness among organ transplant recipients. Dr. Ramanan and colleagues conclude: "We believe this information will provide some assurance to vaccinated patients and

help clinical teams target interventions to encourage currently unvaccinated patients to take up the offer of both [vaccine](#) doses at the earliest opportunity."

The reduced but still significant infection and mortality risks among vaccinated transplant recipients is reinforced by a second research letter. Dr. Dorry L. Segev and colleagues of Johns Hopkins University School of Medicine, Baltimore, analyzed the rate of breakthrough infections after SARS-CoV-2 vaccination in 18,215 adults who had undergone solid organ transplantation (kidney, liver, heart, etc.) at 17 transplant centers. All patients had received two doses of mRNA vaccines (Pfizer/BioNTech or Moderna).

Overall, 151 patients developed breakthrough infections: a rate of 0.83 percent. In this group, there were 87 cases of COVID-19 requiring hospitalization and 14 deaths. The breakthrough infection rate varied between hospitals: from 0.23 percent to 2.52 percent.

Although a breakthrough infection rate of less than one percent in organ transplant recipients is good news, risk is substantially higher than in the general population. In a CDC report of more than 101 million fully vaccinated US adults, the breakthrough infection rate was just 0.0102 percent. Dr. Segev and coauthors write that "compared to the general population, solid organ transplant recipients in our study had an 82-fold higher risk of breakthrough infection and 485-fold higher risks of breakthrough infection with associated hospitalization and death."

While the study does not include data on infection rates among non-vaccinated [transplant](#) recipients, the authors cite previous studies showing protective effects of COVID-19 vaccines. Most patients produce at least some antibodies against SARS-CoV-2, with evidence of decreased breakthrough infections and mortality rates. "As such, vaccination is critically important and should be prioritized in all solid

organ [transplant recipients](#)," Dr. Segev and colleagues write.

More information: Rommel Ramanan et al, Two Doses of SARS-CoV-2 Vaccines Reduce Risk of Death Due to COVID-19 in Solid Organ Transplant Recipients, *Transplantation* (2021). [DOI: 10.1097/TP.0000000000003908](#)

Caroline X. Qin et al, Risk of Breakthrough SARS-CoV-2 Infections in Adult Transplant Recipients, *Transplantation* (2021). [DOI: 10.1097/TP.0000000000003907](#)

Provided by Wolters Kluwer Health

Citation: In transplant recipients, COVID-19 vaccines reduce infection and mortality risks (2021, August 12) retrieved 20 April 2024 from <https://medicalxpress.com/news/2021-08-transplant-recipients-covid-vaccines-infection.html>

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