

# Vaccination has changed the profile of hospitalized COVID-19 patients and those who die from the disease

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For those patients who had been fully vaccinated, being over 60 and having kidney failure were the sole predictors of hospitalization and death from COVID-19. Credit: Fábio Rodrigues Pozzebom/Agência Brasil

Vaccination has changed the profile of hospitalized COVID-19 patients and people who die from the disease in Brazil. A study conducted in São

José do Rio Preto, in the state of São Paulo, Brazil, reports on the start of this process.

Researchers affiliated with the Virology Laboratory at São José do Rio Preto Medical School (FAMERP) retrospectively analyzed data for 2,777 patients treated between January 5 and September 12, 2021, at the region's base hospital. The Gamma variant (P.1) of SARS-CoV-2 was then predominant in the state, and most fully vaccinated Brazilians (two doses at that time) were over 60.

The patients were divided into vaccinated and non-vaccinated, and the researchers compared the characteristics of the two groups, from age, sex and comorbidities to symptoms, clinical conduct in hospital and outcome (recovery or death). The results are reported in a letter to the editor of the *Journal of Infection*.

"The aim of our study was to discover the best predictors of death in COVID-19 vaccine breakthrough infections," Maurício Lacerda Nogueira, a professor at FAMERP and corresponding author of the article, told Agência FAPESP.

The average age of the 2,518 non-vaccinated participants was 51, and 71.5% had one or more comorbidities, mostly heart disease, diabetes and obesity. The average age of the 259 participants who had received two [vaccine doses](#) was 73, and 95% had comorbidities.

The researchers used statistical techniques to analyze the data for these patients and found that the factors that correlated with a heightened risk of hospitalization and death among the non-vaccinated were being over 60 and having one or more of the following conditions: heart disease, liver, kidney and neurological disorders, diabetes, and immune deficiency. In the vaccinated group, being over 60 and having kidney failure were the sole predictors of mortality.

"This is clear evidence that vaccination is effective as protection and saves lives," Nogueira said.

For Cássia Fernanda Estofolete, first author of the article and a member of FAMERP's Virology Laboratory, vaccine rollout has "drastically" changed the profile of patients hospitalized for treatment of COVID-19, as well as the natural history of the disease (how it evolves).

"With the resumption of elective surgeries, immunization of a large proportion of the population and the emergence of Omicron, we're seeing a different picture in hospitals," she said. "Many patients don't go to hospital because of the virus but discover they have COVID-19 on admission for a scheduled operation or due to injury. Also, many older people with [comorbidities](#) are hospitalized because COVID-19 exacerbates an underlying disease, leading to decompensated diabetes or kidney failure, for example. Most patients are no longer hospitalized for SARS [[severe acute respiratory syndrome](#)] as they were at the time the study was conducted."

**More information:** Cassia Fernanda Estofolete et al, Predictors of death in COVID-19 vaccine breakthrough infections in Brazil, *Journal of Infection* (2022). [DOI: 10.1016/j.jinf.2022.01.040](https://doi.org/10.1016/j.jinf.2022.01.040)

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