

Nationwide study shows link between COVID vaccination and reduced household transmission in Sweden

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As community members increasingly acquire COVID immunity via vaccination or previous infection, people without immunity to COVID-19 are at considerably lower risk of infection and hospitalization. This is shown in a nationwide study performed by

researchers at Umeå University, Sweden.

"The results strongly suggest that vaccination is important not only for individual protection, but also for reducing transmission, especially within families, which is a [high-risk](#) environment for transmission," says Peter Nordström, professor of geriatric medicine at Umeå University.

There is a vast body of research showing that vaccines strongly reduce the risk of COVID-19. However, less is known about the influence of vaccination on transmission of the virus in high-risk environments, such as within families. This is what researchers at Umeå University aimed to investigate in a new study.

In the study, the researchers found that there was a dose-response association between the number of immune individuals in each family and the risk of [infection](#) and hospitalization in non-immune family members. Specifically, non-immune family members had a 45 to 97 percent lower risk of infection and hospitalization, as the number of immune family members increased.

The study is a nationwide, registry-based study of more than 1.8 million individuals from more than 800,000 families. The researchers combined registry data from the Public Health Agency of Sweden, the National Board of Health and Welfare, and from Statistics Sweden, which is the [government agency](#) that oversees statistical data. In the analysis, the researchers quantified the association between the number of [family](#) members with immunity against COVID-19 and the risk of infection and hospitalization in nonimmune individuals. The researchers accounted for differences in age, [socioeconomic status](#), clustering within families, and several diagnoses previously identified as risk factors for COVID-19 in the Swedish population.

"It seems as if vaccination helps not only to reduce the individual's risk

of becoming infected, but also to reduce transmission, which in turn minimizes not only the risk that more people become critically ill, but also that new problematic variants emerge and start to take over. Consequently, ensuring that many people are vaccinated has implications on a local, national, and global scale," says Marcel Ballin, doctoral student in geriatric medicine at Umeå University and co-author of the study.

The study is published in *JAMA Internal Medicine*.

More information: Association Between Risk of COVID-19 Infection in Nonimmune Individuals and COVID-19 Immunity in Their Family Members, *JAMA Internal Medicine* (2021). [DOI: 10.1001/jamainternmed.2021.5814](https://doi.org/10.1001/jamainternmed.2021.5814)

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