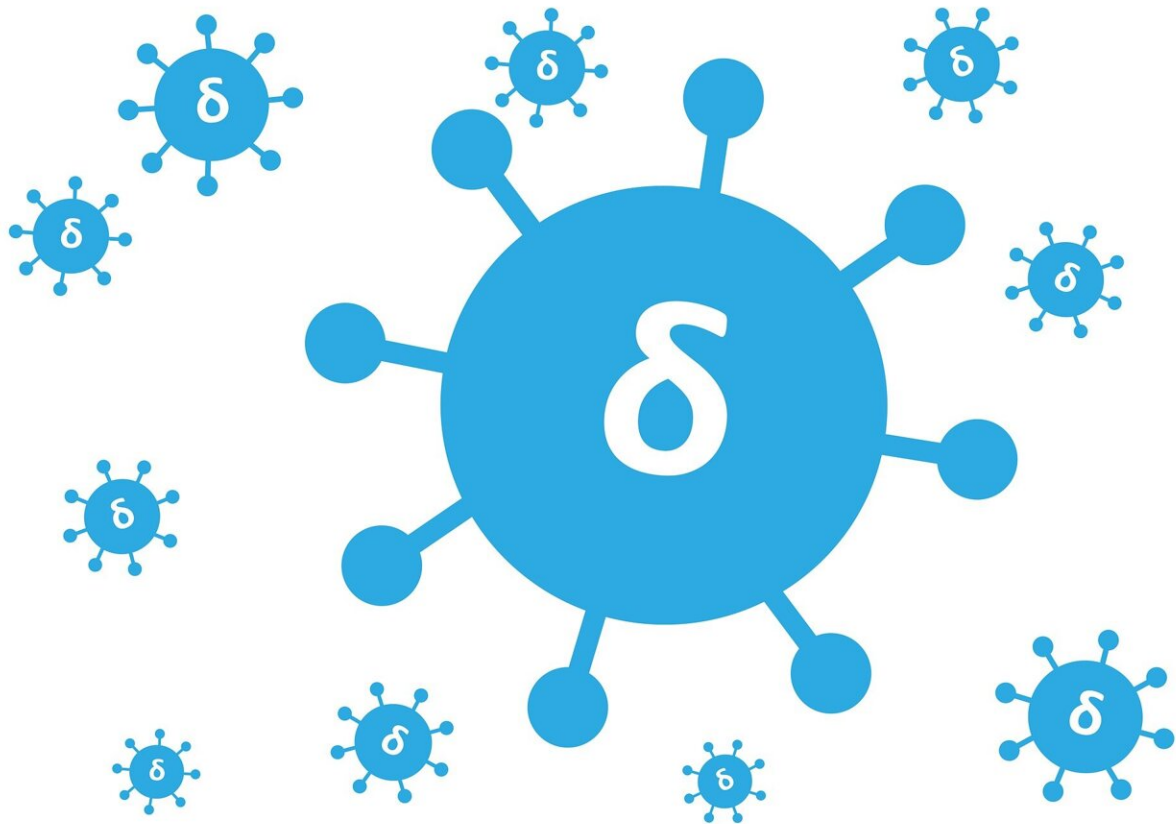


Delta variant doubles risk of COVID-19 hospitalisation compared to alpha variant, new UK study confirms

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People infected with the SARS-CoV-2 delta variant have approximately

double the risk of hospitalization compared with those infected with the alpha variant, a study of more than 40,000 cases from England between 29 March and 23 May 2021, published in *The Lancet Infectious Diseases* journal has confirmed.

The risk of attending hospital for [emergency care](#) or being admitted to hospital within 14 days of infection with the delta variant was also one and a half times greater compared with the [alpha variant](#) (1.45-fold increase in risk).

This new study is the first to report hospitalization risk for the delta versus alpha variants based on cases confirmed by whole-genome sequencing, which is the most accurate way to determine the virus variant.

Dr. Gavin Dabrera, one of the study's lead authors and a Consultant Epidemiologist at the National Infection Service, Public Health England, said: "This study confirms previous findings that people infected with Delta are significantly more likely to require hospitalization than those with Alpha, although most cases included in the analysis were unvaccinated. We already know that vaccination offers excellent protection against Delta and as this variant accounts for over 98% of COVID-19 cases in the UK, it is vital that those who have not received two doses of vaccine do so as soon as possible. It is still important that if you have COVID-19 symptoms, stay home and get a PCR test as soon as possible."

The delta variant was first reported in India in December 2020 and [early studies](#) found it to be up to 50% more transmissible than the variant of COVID-19 that had previously gained dominance worldwide, known as the alpha variant, first identified in Kent, UK.

A preliminary study from Scotland previously reported a doubling in risk

of hospitalization with the delta variant compared with the alpha variant and it is suspected that delta is associated with more severe disease. The previous study used patients' initial PCR test results and determined which variant they had by testing for a specific gene that is more common in the delta variant.

In the latest study, researchers analyzed healthcare data from 43,338 positive COVID-19 cases in England between 29 March and 23 May 2021, including information on vaccination status, emergency care attendance, hospital admission, and other demographic characteristics. In all cases included in the study, samples of the virus taken from patients underwent whole genome sequencing to confirm which variant had caused the infection.

During the study period, there were 34,656 cases of the alpha variant (80%) and 8,682 cases of the delta variant (20%). While the proportion of delta cases in the study period overall was 20%, it grew to account for around two thirds of new COVID-19 cases in the week starting 17 May 2021 (65%, 3,973/6,090), indicating it had overtaken alpha to become the dominant variant in England.

Around one in 50 patients were admitted to hospital within 14 days of their first positive COVID-19 test (2.2% alpha cases, 764/34,656; 2.3% delta cases, 196/8,682). After accounting for factors that are known to affect susceptibility to [severe illness](#) from COVID-19, including age, ethnicity, and vaccination status, the researchers found the risk of being admitted to hospital was more than doubled with the [delta variant](#) compared with the alpha variant (2.26-fold increase in risk).

Multiple studies have shown that full vaccination prevents both symptomatic infection and hospitalization, for both alpha and delta variants. Indeed, in this study, only 1.8% (794/43,338) of COVID-19 cases (with either [variant](#)) had received both doses of the vaccine; 74%

of cases (32,078/43,338) were unvaccinated, and 24% (10,466/43,338) were partially vaccinated. The authors note it is therefore not possible to draw statistically significant conclusions about how the hospitalization risk differs between vaccinated persons who later develop alpha and [delta](#) infections. The results from this study therefore primarily tell us about the risk of hospital admission for those who are unvaccinated or partially vaccinated.

Dr. Anne Presanis, one of the study's lead authors and Senior Statistician at the MRC Biostatistics Unit, University of Cambridge, said: "Our analysis highlights that in the absence of vaccination, any Delta outbreaks will impose a greater burden on healthcare than an Alpha epidemic. Getting fully vaccinated is crucial for reducing an individual's risk of symptomatic infection with Delta in the first place, and, importantly, of reducing a Delta patient's risk of severe illness and hospital admission."

The authors note several limitations to the study. Some demographic groups may be more likely to seek [hospital](#) care, which could have biased the results, and there may have been changes in [hospital admission](#) policy during the period of the study, although adjustment for demographics and calendar time should have minimized such bias. In addition, the authors did not have access to information about patients' pre-existing health conditions, which are known to affect the risk of severe illness from COVID-19. They accounted for this indirectly using age, gender, ethnicity, and estimated level of socioeconomic deprivation.

More information: Hospital admission and emergency care attendance risk for SARS-CoV-2 delta (B.1.617.2) compared with alpha (B.1.1.7) variants of concern: a cohort study, *The Lancet Infectious Diseases* (2021). [doi.org/10.1016/S1473-3099\(21\)00475-8](https://doi.org/10.1016/S1473-3099(21)00475-8) , [www.thelancet.com/journals/lan ... \(21\)00475-8/fulltext](https://www.thelancet.com/journals/lan.../fulltext)

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