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Covid-19: Unvaccinated face 11 times risk of death from delta variant, CDC data show

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Unvaccinated Americans have died at 11 times the rate of those fully vaccinated since the delta variant became the dominant strain, indicate surveillance data gathered over the summer by the US Centers for Disease Control.

Vaccinated people were 10 times less likely to be admitted to hospital and five times less likely to be infected than unvaccinated people, found one study that tracked adults across 13 states and cities.¹

Levels of protection were lower than were conferred by vaccines offered at the end of spring, the study found. Vaccine efficacy has declined since the delta variant became dominant around 20 June. The decline in efficacy against hospital admission or death was small, but the protection offered against infection has slipped more significantly.

From 4 April to 20 June unvaccinated people died from covid-19 at 16.6 times the rate among the fully vaccinated (95% confidence interval 13.5 to 20.4). Between 20 June and 17 July that rate fell to 11.3 (9.1 to 13.9). Before 20 June admissions of unvaccinated people with covid-19 to hospital were running at 13.3 (11.3 to 15.6) times the rate among the vaccinated, but this had fallen to 10.4 (8.1 to 13.3) after that date.

Unvaccinated people were infected at 11.1 (7.8 to 15.8) times the rate of the vaccinated before 20 June but at only 4.6 (2.5 to 8.5) times the rate thereafter.

These figures represent declines in crude efficacy, for all vaccine types combined, from 94% to 91% for death, 92% to 90% for hospital admissions, and 91% to 78% for infection.

The delta variant now accounts for over 99% of new infections in the US. Just over half (54%) of the total population is now fully vaccinated, with 63% having received at least one shot.

The CDC study tracked 569 142 covid-19 cases, 34 972 hospital admissions, and 6132 deaths. Of the vaccinated people, 92% had received mRNA vaccines, the remainder the Janssen (Johnson & Johnson) vaccine.

Efficacy declines with age

The decline in vaccine efficacy was greatest in the over-65 age group, the study found. This might reflect declining immunity in people who were vaccinated early, noted the authors of another CDC study that also found lower protection levels in older vaccine recipients.²

Vaccines were 89% (85% to 92%) effective in preventing covid-19 hospital admissions among adults aged under 75 but 76% (64% to 84%) effective in those over 75, found this study, which reviewed 32

867 emergency department visits that led to coronavirus tests.

The overall level of protection against hospital admission for covid-19 remained high, at 86%. But this study also showed, for the first time, substantial variation between the different vaccines. The Moderna vaccine was 92% effective in preventing emergency care visits for covid-19, while the Pfizer-BioNTech vaccine was 77% effective and the Janssen vaccine 65% effective.

This apparent advantage of Moderna is a new finding but is consistent with another, as yet unpublished study,³ the authors noted.

A third CDC study conducted at five urban Veterans Affairs hospitals, which measured the performance of mRNA vaccines only, picked up some of the same signals.⁴ Vaccine efficacy against hospital admission did not fall as the delta variant arrived but was persistently lower in the over-65s, at 79.8% (67.7% to 87.4%), than in adults under 65, at 95.1% (89.1% to 97.8%).

The Moderna vaccine was 91.6% (83.5% to 95.7%) effective overall at preventing hospital admission and the Pfizer-BioNTech vaccine 83.4% (74% to 89.4%).

There was no difference in vaccine efficacy between white and black Veterans Affairs patients. There was also no difference between people who were vaccinated more than 90 days previously and those whose last shot was more recent.

The data offered “further evidence of the power of vaccination,” said CDC director Rochelle Walensky, presenting the three studies’ findings at a White House briefing. “As we have shown, study after study, vaccination works.”

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- 4 Bajema KL, Dahl RM, Prill MM, et al. Effectiveness of COVID-19 mRNA Vaccines Against COVID-19—Associated Hospitalization — Five Veterans Affairs Medical Centers, United States, February 1–August 6, 2021. *Morbidity and Mortality Weekly Report*, September 10, 2021. https://www.cdc.gov/mmwr/volumes/70/wr/mm7037e3.htm?s_cid=mm7037e3_w.

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