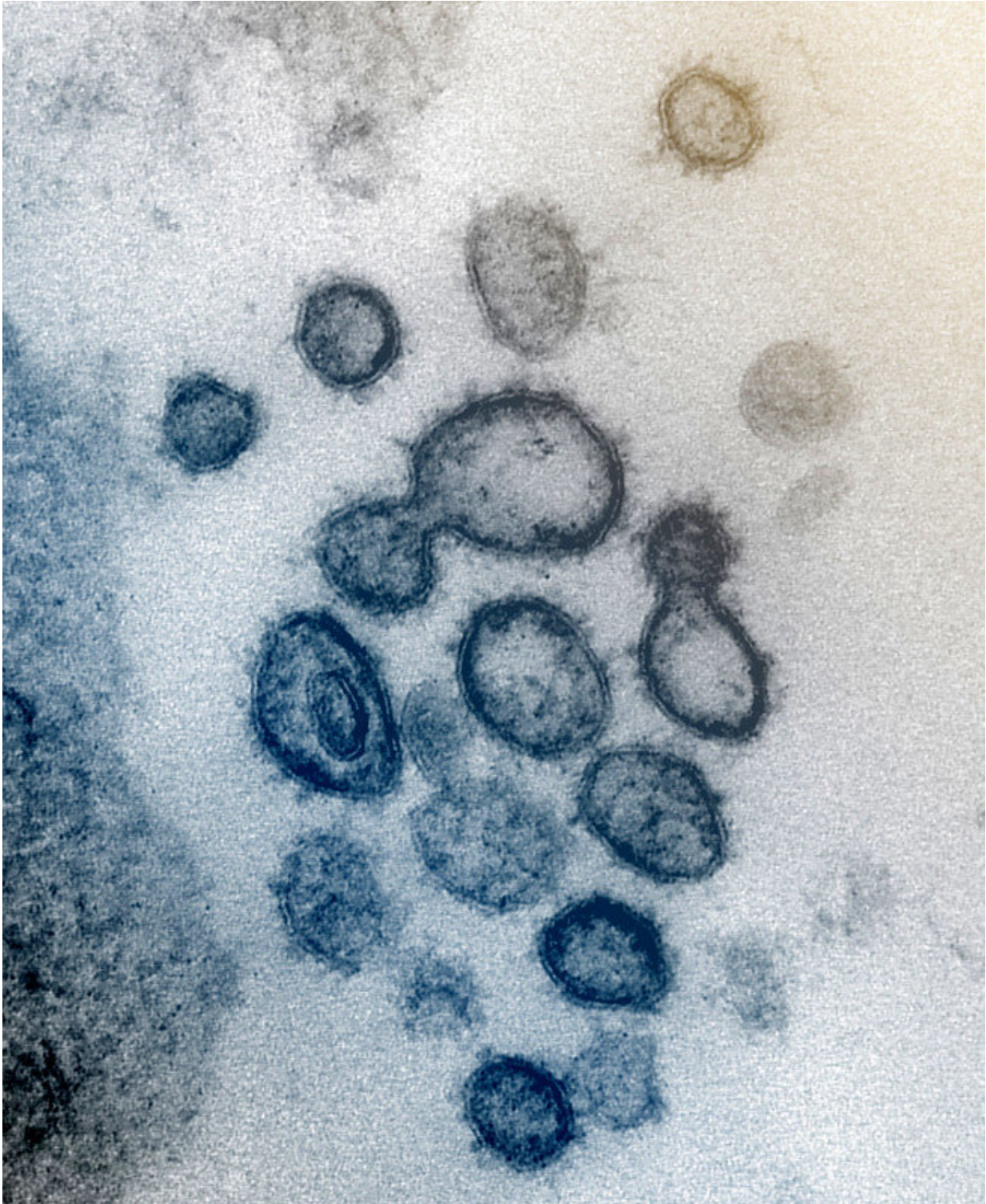


New study shows fewer people die from COVID-19 in better vaccinated communities

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This transmission electron microscope image shows SARS-CoV-2 -- also known as 2019-nCoV, the virus that causes COVID-19 -- isolated from a patient in the US. Virus particles are shown emerging from the surface of cells cultured in the

lab. The spikes on the outer edge of the virus particles give coronaviruses their name, crown-like. Credit: NIAID-RML

A large US study published by *The BMJ* today finds that fewer people die from COVID-19 in better vaccinated communities.

The findings, based on data across 2,558 counties in 48 US states, show that counties with high [vaccine](#) coverage had a more than 80% reduction in [death rates](#) compared with largely unvaccinated counties.

This large benefit complements the growing body of evidence indicating individual level benefits of COVID-19 vaccination. A linked editorial also proposes that encouraging people to keep up to date with vaccination saves lives.

As of 11 April 2022, more than 11 billion COVID-19 vaccine doses have been administered globally and the World Health Organization's target is to vaccinate 70% of the world's population by mid-2022.

Yet while previous vaccine studies have shown benefits at the individual level, the wider population level impact of scaling up COVID-19 vaccination remains largely unknown.

To address this, researchers at the US Centers for Disease Control and Prevention (CDC) set out to estimate how increasing county coverage of vaccines affected population level mortality and incidence of COVID-19.

Their findings are based on more than 30 million cases of COVID-19 and over 400,000 deaths linked to COVID-19 across 2558 counties, which were reported during the second year of the pandemic, between

December 2020 and December 2021.

They measured effectiveness by comparing reported COVID-19 incidence and [mortality rates](#) in counties with very low (0-9%), low (10-39%), medium (40-69%), and high (70% or more) vaccination coverage—defined as the percentage of adults (aged 18 and over) who had received at least one dose of a COVID-19 [vaccine](#).

After taking account of potentially influential factors, the researchers found that increased vaccination coverage in counties was associated with reduced levels of COVID-19 related mortality and cases.

For example, during the first half of 2021, when the alpha variant of coronavirus was dominant, the COVID-19 mortality rate was reduced by 60%, 75%, and 81% in counties with low, medium, and high vaccination coverage, respectively, compared with counties that had very low coverage.

The corresponding figures for the reduction in cases were 57%, 70%, and 80%.

Similar reductions in mortality were also seen during the second half of 2021 when the delta variant became dominant in the US, although with smaller effects on case levels.

This is an observational study, so can't establish cause and the researchers say several limitations should be considered when interpreting these data. For example, additional markers of severe disease, such as hospital admissions, were not explored and they did not control for factors such as rules on wearing a face mask masking and physical distancing at the time, which may have affected their results.

Nevertheless, they point out that results were similar after further

sensitivity analyses, suggesting that they withstand scrutiny. And they say: "Future research may benefit from evaluating macroeconomic effects of improving [population health](#), such as changes in employment rates and [gross domestic product](#) resulting from reopening society."

This study adds to the evidence that vaccination can prevent infection and illness on a large scale, writes Professor Christopher Dye at the University of Oxford in a linked editorial.

"The findings of this study also make clear that many more lives could have been saved, and will be saved, by encouraging people to keep up to date with vaccination in the face of waning immunity and new coronavirus variants and by achieving even higher population coverage," he adds.

"How many lives is a matter for others to explore. Meanwhile, this new study is another confidence booster for COVID-19 vaccines," he concludes.

More information: Public health impact of covid-19 vaccines in the United States: observational study, *The BMJ* (2022). [DOI: 10.1136/bmj-2021-069317](#)

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