

US COVID death toll would be 4X higher without vaccines, modeling study finds

Shots also cut millions of hospitalizations and \$1.5 trillion in medical bills.

Beth Mole - Dec 13, 2022 4:51 pm UTC



[Enlarge](#) / A woman watches white flags on the National Mall on September 18, 2021, in Washington, DC. Over 660,000 white flags were installed here to honor Americans who have lost their lives to COVID-19.

[Getty | Chen Mengtong](#)

Without COVID-19 vaccines, the US would have seen four times more deaths from the pandemic virus—an additional 3 million lives lost—as well as nearly four times more hospitalizations, 1.5 times more infections, and an additional \$1.5 trillion in medical bills since December of 2020.

Those are the top-line results from [a new modeling study by the Commonwealth Fund](#), which simulated the unmitigated effects of COVID-19 in the US from December 2020 to November 2022.

The age-stratified model accounted for US demographics, the prevalence of disease-enhancing comorbidities, social networks, limited social contact during pandemic restrictions, COVID-19 case data, hospitalization rates, vaccination administration eligibility and rates, vaccine efficacy estimates, waning protection from vaccination and infection, and the characteristics of five SARS-CoV-2 variants (Iota, Alpha, Gamma, Delta, Omicron). The model was calibrated to replicate real-world data of cases, hospitalizations, and deaths before the researchers removed vaccines from the scenario.

The researchers behind the model—from the University of Maryland, York University, and Yale—[published an earlier version of the model](#) in the Journal of Global Health, which estimated the effects of vaccination through March 2022. The new estimates extend to November and have refined parameters, including waning immunity.

In all, the modeling estimated that COVID-19 vaccination prevented 3.25 million deaths, with a 95-percent confidence interval of 3.1 million to 3.4 million. Averted hospitalizations were estimated at 18.6 million, with a confidence interval of 17.8 million to 19.35 million. For infections, the model estimated a dodge of 119.85 million, with a confidence interval of 112.7 million to 127.1 million.

Since December 2020, when vaccines first became available, there were 798,000 deaths, 4.8 million hospitalizations, and 82 million infections. Overall in the pandemic, there have been [1.08 million US deaths from COVID-19](#), according to the Centers for Disease Control and Prevention.

"The unprecedented pace at which vaccines were developed and deployed has saved many lives and allowed for safer easing of COVID-19 restrictions and reopening of businesses, schools, and other activities," the study authors concluded. "Moving forward, accelerating uptake of the new booster will be fundamental to averting future hospitalizations and deaths."

So far, only 13.5 percent of eligible Americans have gotten their updated (bivalent) booster, including 34 percent of people age 65 and older.



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