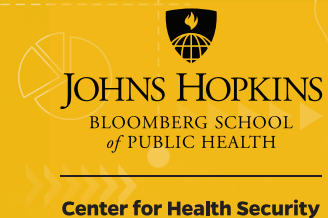


COVID-19 Vaccine Misinformation and Disinformation Costs an Estimated \$50 to \$300 Million Each Day



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The COVID-19 pandemic has shown that false or misleading health-related information can dangerously undermine the response to a public health crisis. These messages include the inadvertent spread of erroneous information (misinformation) or deliberately created and propagated false or misleading information (disinformation). Misinformation and disinformation have contributed to reduced trust in medical professionals and public health responders, increased belief in false medical cures, politicized public health countermeasures aimed at curbing transmission of the disease, and increased loss of life.

As a country, we do not yet have a trusted set of approaches for managing misinformation and disinformation or exact methods for monetizing the costs resulting from their spread. The challenge to assigning an exact, high-confidence monetary cost to them is the lack of detailed data available on this issue. To begin to fill this gap, we have developed an initial conservative estimate of the total monetized costs of one facet of this issue—the misinformation- or disinformation-informed decision to not get a COVID-19 vaccine.

Between 2 and 12 million people in the United States are unvaccinated because of misinformation or disinformation.

Studies establishing causality between voluntary nonvaccination and misinformation and disinformation are limited, and it is important to recognize that nonvaccination may not be necessarily caused by either, even though there is a significant correlation between believing misinformation and disinformation and not being vaccinated.¹ Many other factors—such as lack of access to care, preexisting distrust of the medical system, or instinctive hesitancy to take a novel treatment—can lead to nonvaccination, even in the absence of misinformation or disinformation. More research is needed to include these factors, but the estimate used in this analysis is that misinformation and disinformation cause between 5% and 30% of voluntary nonvaccination in the United States. This is based on experimental studies on misinformation that showed a 6 percentage point decrease in vaccination intent² and comparison of total numbers receiving influenza vaccines compared to those receiving COVID-19 vaccines. About 23% of people not vaccinated against SARS-CoV-2 say they normally get an annual flu shot.³ Even accounting for fear of novelty, it seems plausible that much of this difference is caused by misinformation and disinformation. As of early October 2021, about 22% of the US adult population,⁴ or 43 million people, have chosen nonvaccination, so we estimate that between 2 and 12 million people are unvaccinated because of misinformation or disinformation.





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We calculate that total voluntary COVID-19 nonvaccination has caused at least \$1 billion of harm each day in the United States since vaccines became widely available. This estimate is based on the costs of hospitalizations and the valuation of lives lost and long-term morbidity due to COVID-19 calculated using the standard methodology for US Department of Health and Human Services regulatory impact analysis.⁵ Our conservative estimate, which does not take into account lower transmission in the future,⁶ reflects relatively low levels of disease transmission during June and July 2021. Harms from nonvaccination and associated costs of misinformation were much higher during the Delta surge. Even after the surge in US cases caused by the Delta variant subsides, this level of harm (estimated at 300 deaths, 1,200 hospitalizations, and 20,000 cases per day or more) will continue for at least several months. While most of this measured harm is the monetized value of mortality and morbidity, about \$60 million of the \$1 billion per day total is monetary or financial harm (costs to the healthcare system and economic losses from individuals missing work). These estimates and sources are described in our worksheet.⁷

With a total nonvaccination harm of \$1 billion per day and misinformation and disinformation causing between 5% and 30% of this harm, **misinformation and disinformation have caused between \$50 and \$300 million worth of total harm every day since May 2021**, when the vaccines were freely available to most US adults—underscoring that the costs during the Delta variant surge were much higher. Misinformation and disinformation will likely continue to do this level of harm if they continue to flourish.

It is possible that anti-COVID-19-vaccine beliefs and decisions driven by misinformation and disinformation have solidified and are unlikely to change as a result of public health efforts. However, not everyone's beliefs are fully solidified, which means that reducing the amount of misinformation and disinformation circulating in the future may reduce the levels of voluntary nonvaccination.⁸

A public health effort that reduced or effectively countered misinformation and disinformation and was able to reduce related nonvaccination by 10% would be worth between \$5 and \$30 million per day, or between \$150 and \$900 million per month, while the pandemic continues.

Continued analysis of the economic burden of misinformation and disinformation should be undertaken to further refine the estimated costs and ensure that these costs do not remain invisible to public health and political leadership. We will update our preliminary estimates as new data become available.



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