

The Erosion of Public Trust and SARS-CoV-2 Vaccines—More Action Is Needed

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As states and health systems prepare to deliver severe acute respiratory syndrome coronavirus 2 vaccines to the American public, a confluence of factors has the potential to interfere with these efforts: misinformation about coronavirus disease 2019, vaccine hesitancy, and the erosion of the American public's trust in the vaccine regulatory process due to recent and ongoing events. Broad action is needed to address these issues, including improved and consistent communication by the Food and Drug Administration, restoration of the Centers for Disease Control as an independent and science-driven institution, and more aggressive policies to counteract misinformation, particularly on social media platforms.

Keywords. FDA; public mistrust; SARS-CoV-2 vaccines.

News that 2 mRNA-based vaccines against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) were highly effective based on interim phase 3 analysis has been met with newfound optimism in a world reeling from coronavirus disease 2019 (COVID-19). A safe and effective vaccine against SARS-CoV-2 would signal a key inflection point in the pandemic. While the recent focus has understandably been on the complex logistical challenges associated with mass vaccination, the erosion of Americans' trust in the regulatory process surrounding SARS-CoV-2 vaccines may prove to be a greater obstacle.

In February 2020, less than 1 month before the World Health Organization

(WHO) declared the SARS-CoV-2 outbreak a pandemic, the WHO called attention to an alarming amount of misinformation about COVID-19 circulating globally. Since that time, COVID misinformation has continued to grow, primarily through social media platforms (SMPs) [1], and is diverse in both scope and appeal. Discouragingly, many false or misleading claims have originated from the statements of public authorities. Although such “top down” misinformation represents the minority of false claims, it garners the majority of social media engagement [2] and is particularly harmful because it adds fuel to a narrative that public health experts and institutions cannot be trusted. Evidence and experience indicate that misinformation about COVID-19 has decreased the public's willingness to support and consistently engage in safety measures designed to mitigate the pandemic [3] and that it may have a similar pernicious effect on Americans' perceptions and actions with respect to SARS-CoV-2 vaccines.

Misinformation about vaccines and antivaccine sentiments existed long before the COVID-19 pandemic. Opposition to smallpox inoculation was documented as early as 1772, with organized resistance emerging immediately after the British

government mandated childhood vaccination as part of the Vaccination Act of 1853, resulting in the founding of the Anti-Vaccination League in London. By 1879, its counterpart in America had been established [4]. This initial movement against mass vaccination has persisted and become more influential.

In 1998, Andrew Wakefield published a controversial article in *The Lancet*, insinuating a link between measles, mumps, and rubella vaccines and bowel disease and autism. Although the article was later retracted and unequivocally disproven, concerns about vaccines causing autism remain among some populations, contributing to vaccine hesitancy, poor vaccination coverage, and infectious disease outbreaks. As a result, the United Kingdom lost its measles-free status in 2008 [4], and the United States nearly did after a large outbreak in New York City in 2019.

SMPs have magnified the impact of antivaccination beliefs and campaigns, owing to a robust antivaccination social media ecosystem that has grown over time, creating a “golden age” for antivaccine conspiracy theories [5]. This has been facilitated by a complex network of factors, including social and psychological dynamics, economic

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incentives, and ineffective moderation. After a measles outbreak in New York City in March 2019, large SMPs introduced measures geared at curbing the spread of antivaccine misinformation. However, a recent report by the Center for Countering Digital Hate indicates that these measures have been easily circumvented [6].

Since 2019, antivaccine SMP presence has grown by 19%, with English language antivaccine social media accounts reaching more than 58 million followers. It was not until October 2020 that Facebook banned all antivaccination advertising on its platform—previously representing a billion-dollar-a-year industry [6]. This well-established antivaccine presence may have implications for widespread uptake of COVID-19 vaccines. As vaccine-related adverse events are inevitable since vaccines are administered to a great number of people, otherwise minor safety events have the potential to be magnified and misconstrued, threatening public trust in the regulatory process for vaccines.

Even before the arrival of COVID-19 vaccines, trust in the Food and Drug Administration (FDA) was eroding. The FDA instituted 3 high-profile Emergency Use Authorizations (EUs) for COVID therapies during the pandemic—hydroxychloroquine, chloroquine, and convalescent plasma—each lacking randomized trial data to support their use. Many in the scientific community voiced concern that such rapid EUs were due to political pressure, a concern reflected in a survey showing that people appear less willing to receive a COVID-19 vaccine approved through an EUA than the FDA [7]. Similarly, a recent poll by CNN found that between October 1 and October 4, only 20% of Americans were “very confident” that ongoing trials for a COVID-19 vaccine properly balance speed and safety; 40% responded “somewhat confident” and 37% “not too confident” or “not at all confident” [8].

Additional political factors have likely contributed to Americans’

distrust of COVID-19 vaccines and left the American public particularly vulnerable to misinformation. Multiple sources have indicated that the executive branch sought to exert political influence over the Centers for Disease Control and Prevention (CDC), an independent, science-driven institution. Guidance documents written by CDC staff were reportedly revised under political pressure from the White House, including the recommendation to refrain from testing asymptomatic individuals following an exposure [9], a decision that was later reversed following pressure from the scientific community; there were also reports of interference with the *Morbidity and Mortality Weekly Reports*, the CDC’s flagship journal [10].

The arrival of effective SARS-CoV-2 vaccines is a remarkable achievement and could signal an end to the pandemic. But as states and health systems prepare for one of the largest mass vaccination campaigns in US history, these efforts appear to be sailing into a headwind of public opinion. According to a recent *Gallup* poll conducted between October 19 and November 1, Americans’ willingness to receive a SARS-CoV-2 vaccine is 58%, whereas 42% of US adults say they would not willingly receive one. Among those who would not get a vaccine, 37% cite concerns regarding the rushed timeline of vaccine development, and 12% lack trust in vaccines in general [11]. Multiple factors undermining public trust—misinformation surrounding COVID-19, a thriving antivaccine movement, lack of trust in the FDA, and the sidelining of the CDC—must be mitigated to ensure that efforts to develop, produce, and distribute these vaccines are not wasted.

We believe that broad action across multiple institutions is needed. First, the FDA must improve its communication with the public regarding EUs for new SARS-CoV-2 therapies and vaccines, and the appearance of political pressure must be removed. Recent communication by the FDA has been encouraging,

including the FDA commissioner’s public commitment to releasing the agency’s reviews of scientific data supporting the issuance or revocation of EUs for therapies or vaccines and the FDA’s subsequent release of Pfizer and BioNTech’s SARS-CoV-2 vaccine efficacy and safety data before the advisory committee meeting [12].

Second, the CDC’s independence must be restored and its presence brought back to the front and center of the government’s public health response and messaging regarding the COVID-19 pandemic and associated vaccines. Third, SMPs must take a more aggressive stance on moderating COVID-19- and vaccine-related misinformation, while curbing the influence of the growing antivaccine movement on their platforms. Recent steps taken—such as Facebook’s new policies to remove misinformation discouraging people from receiving SARS-CoV-2 vaccines [13] and broader initiatives launched by multiple SMPs to comprehensively address misinformation surrounding SARS-CoV-2 [14]—is a good start.

Finally, all of us must do our part to combat misinformation, relying on clear communication that is instilled with compassion and empathy. Physicians and other health care professionals remain among the most trusted groups in our society; now we must use this trust to help ensure that Americans turn to science-based messages and shun misinformation.

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