



CDC's State of Vaccine Confidence Insights Report

Quarter 4 Report | July 7, 2023

October 1 – December 31, 2022

SPECIAL UPDATE: CDC partners can now report vaccine related rumors directly to CDC. To report a rumor, go to wwwn.cdc.gov/dcs/ContactUs/Form and start the subject line with "Rumors:" and in the question box, give as much information about the rumor as you can, including a description of the rumor, where you heard it, and how many times you have heard it.

**Centers for Disease Control & Prevention,
COVID-19 Response, Vaccine Task Force**
Vaccine Confidence & Demand Team, Insights Unit

The findings and conclusions in this report are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention (CDC).



Summary

Major themes identified from social media, news, and other sources that may impact vaccine confidence:^a

- Some consumers, medical experts, and news outlets were concerned about concurrent surges of COVID-19, influenza, and RSV infections, but are divided about the risks, causes, and implications of the “tripledeemic.”
- Some parents and consumers were concerned about the Advisory Committee on Immunization Practices (ACIP) decision to add COVID-19 vaccines to the recommended child and adolescent immunization schedule.
- Some consumers and social media users were doubtful about the effectiveness of COVID-19 vaccines against circulating variants, coinciding with increasing pandemic fatigue.
- The uptake of updated (bivalent) COVID-19 vaccine remained low due to concerns about safety and effectiveness.
- Some consumers were concerned about COVID-19 vaccine safety, side effects, and adverse events.

Ways public health and partners can take action to improve vaccine confidence:

- Continue to research the impacts of the COVID-19 pandemic on influenza and RSV seasonality and severity.
- Communicate to consumers about vaccines in development that confer protection against illnesses for which there are currently no vaccines to normalize the prospect and benefits of receiving new vaccines as they become available.
- Continue to research safety concerns about variants and COVID-19 vaccines in children and immediately share any pertinent information with the public.
- Continue to share messages about why variants occur and how they are natural and expected as viruses evolve. Consider providing examples from other viruses.
- Continue working with trusted messengers, community leaders, and members of the public to craft and disseminate messages that promote the benefits, availability, eligibility, safety, and effectiveness of the updated COVID-19 vaccine.

For findings and ways to act from our other reports, see previous [Insights Reports](#).

Resources: The following link contains social media resources such as graphics, language, and social media calendars that our partners can use to help educate their constituents and build vaccine confidence by addressing the themes in this report: <https://centersfordiseasecontrol.sharefile.com/d-sfa3361305ba74c2da5c5c60fa8c4f007>

^aThemes for this report come from an integrated and thematic analysis of the data from the sources listed in the appendix.

Contents

3

[Aims and Methods](#)

4

[Theme 1: Some consumers, medical experts, and news outlets were concerned about surges of COVID-19, influenza, and RSV cases, but divided on the risks, causes, and implications of the “tripledeemic”](#)

8

[Theme 2: Some parents and consumers were concerned about ACIP’s recommendation to add COVID-19 vaccines to the child and adolescent immunization schedule](#)

10

[Theme 3: Some consumers were doubtful about the effectiveness of COVID-19 vaccines against circulating variants, coinciding with increasing pandemic fatigue](#)

12

[Theme 4: Uptake of the updated \(bivalent\) COVID-19 vaccine remained low due to concerns about safety and effectiveness](#)

14

[Theme 5: Some consumers were concerned about COVID-19 vaccine safety, side effects, and adverse events](#)

17

[References](#)

22





[Appendix: Inputs and Sources](#)






Aims and Methods

By reviewing and analyzing numerous sources and inputs (see [Appendix](#)), the State of Vaccine Confidence Insights Report emphasizes major themes influencing vaccine hesitancy and uptake. These are characterized by the level and type of threat to vaccine confidence, degree of spread, and directionality. In addition, by examining how consumers think and feel, social processes, and the practical issues around vaccination, the Insights Report seeks to identify emerging issues of misinformation, disinformation, and places where intervention efforts can improve vaccine confidence across the United States.

The information in this report is only a snapshot, and certain populations may be underrepresented. Images and quotes are illustrative examples and are not meant to comprehensively cover all content related to the highlighted themes.

How do you classify this theme/information?			
High risk	Moderate risk	Low risk	Positive sentiment
			
<ul style="list-style-type: none"> May lead to vaccine refusals and decreased uptake Wide reach, pervasive 	<ul style="list-style-type: none"> Potential to trigger hesitancy to vaccination Moderate reach, modest dissemination 	<ul style="list-style-type: none"> Concerning, but low risk to vaccine confidence Limited reach, limited dissemination 	<ul style="list-style-type: none"> Could increase vaccine confidence, intent, or motivation Variable reach and dissemination

How has this theme/idea changed over time (since last report or over the course of multiple reports)?		
		
<p>Increasing</p> <p>Information spreading rapidly</p>	<p>Stable</p> <p>Information remaining constant at prior level</p>	<p>Decreasing</p> <p>Information is not gaining further traction and there has been no indication of additional activity</p>

Themes That Might Impact Vaccine Confidence^b



Theme 1: Some consumers, medical experts, and news outlets were concerned about concurrent surges of COVID-19, influenza, and RSV infections, but are divided about the risks, causes, and implications of the “tripledeemic.”

In addition to ongoing transmission of COVID-19, the 2022-2023 cold and flu season resulted in notable increases and early seasonal peaks for influenza and respiratory syncytial virus (RSV) cases throughout the United States.^{1,2,3} This trifecta of surging respiratory illnesses has been described as a “tripledeemic” by some health experts and media outlets, in line with similar concerns raised in 2020 and 2021 about a potential “twindeemic” of COVID-19 and influenza cases.⁴ In this context, the developing concept of *immunity debt* has gained popularity as an explanation for the “tripledeemic,” especially on social media.

A ‘Tripledeemic’? Flu, R.S.V. and Covid May Collide This Winter, Experts Say

Flu cases are higher than usual for this time of year and are expected to soar in the coming weeks. Another virus, R.S.V., already is straining pediatric hospitals in some states.

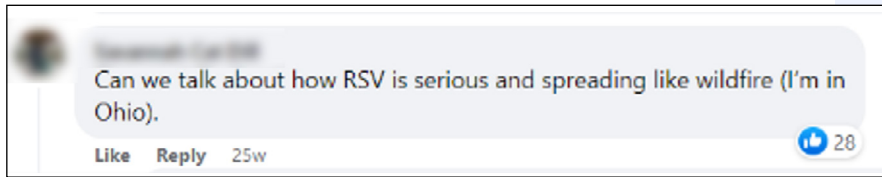
Initially coined in 2021, immunity debt refers to the idea that non-pharmaceutical interventions undertaken during the COVID-19 pandemic, such as mask-wearing and social distancing, have reduced childhood exposure to RSV and other pathogens that would otherwise be regularly encountered in childhood, thus resulting in the surge of RSV infections as pandemic restrictions lifted.^{5,6} Opinions are mixed, however, regarding the validity and implications of the concept, particularly in terms of whether the spike in RSV cases reflects a temporary backlog of immunologically naïve children who are being exposed *en masse* for the first time or that children’s immune systems have been permanently “weakened” due to social distancing, a claim for which no evidence exists.⁷

Perceptions, concerns, and threats to vaccine confidence

- **Concern over rising cases.** Some consumers were concerned about rising numbers of COVID-19, influenza, and RSV cases that occurred during the reporting period.⁸ The December 2022 KFF Vaccine Monitor survey found that approximately half of the parents surveyed said they are worried about their children getting seriously sick from COVID-19, influenza, or RSV.⁹
- **Support for preventative measures.** Despite the easing of pandemic precautions, some consumers support non-pharmaceutical interventions such as masking as a key strategy to reduce transmission and mitigate the burden on healthcare systems.^{10,11} Nearly half of respondents surveyed by the KFF COVID-19 Vaccine Monitor reported that the “tripledeemic” made them more likely to take at least one protective measure during the holiday season.¹²

^bSocial media posts referenced throughout this report can be found in [this online document](#).

▪ **Lack of concern.** Some social media users were not concerned about the recent marked increase in numbers of COVID-19, influenza and RSV cases, perceiving the “tripledeemic” as overhyped, fearmongering, and irrelevant, instead emphasizing the role of individual responsibility to boost one’s immune system.^{13,14,15}



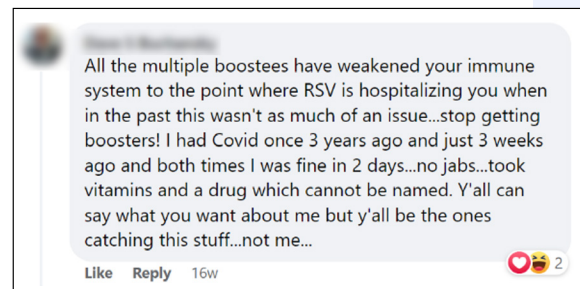
▪ **Increased awareness of RSV.** Google Trends data indicate that search interest for RSV peaked in November 2022 at the [highest level ever recorded](#), more than tripling the previous peak in August 2021 and over five times higher than any interest before the COVID-19 pandemic. Likewise, there was also a rise in Google searches [comparing symptoms between COVID-19, influenza, and RSV](#), suggesting that people are seeking information to determine which respiratory illness they may be experiencing.

▪ **The potential influence of the “tripledeemic” on vaccine uptake.** The reporting period saw increased Google search activity inquiring about the [existence and availability of an RSV vaccine](#), which may indicate consumer interest in and receptivity towards receiving an RSV vaccine once available. Similarly, a recent study examining patterns of COVID-19 vaccination and influenza vaccination found that “among individuals who historically never got the influenza vaccine, those receiving COVID-19 vaccine were substantially more likely to switch toward getting the influenza vaccine,” which “suggests that investing in vaccine acceptance has payoffs beyond the vaccine itself.”¹⁶



▪ **Differing interpretations of immunity debt.** Immunity debt is a theoretical concept that has been defined and used by different audiences to convey competing ideas about the human immune system.

▪ On social media, the term gained traction among vaccine skeptics and refers to the notion that reduced exposure to pathogens (e.g., social distancing) can permanently weaken an individual’s immune system; from this perspective, the “tripledeemic” is evidence that pandemic precautions have caused long-term harm and that the benefits of social distancing during COVID-19 are outweighed by the consequences.^{17,18,19,20,21} This understanding of immunity debt is intuitive “common sense” to some social media users²² and appears to be easily assimilated alongside existing beliefs that may increase or sustain vaccine hesitancy, including opposition to lockdowns, preference for natural immunity, and distrust of public health.²³ In response, some health experts and social media users have publicly rejected the “weakened immune system” hypothesis as misguided and dangerous,²⁴ lacking evidence,²⁵ and unlikely based on current scientific understanding.^{26,27}



▪ By contrast, the alternative interpretation of immunity debt is used to describe the backlog of first-time infections following a period of reduced exposure – not that reduced exposure itself can impair the immune system. This conceptualization is more accepted among media and has some degree of usage in academic literature.^{1,28,29,30,31,32,33}



- **Messaging challenges.** Some health experts are concerned that coverage of the “tripledeemic” could be perceived as alarmist and may undermine future efforts in the event of another public health emergency.³⁴ In addition, the lack of clarity around immunity debt has led to imprecise usage, differing definitions, and misinterpretation to the point where social media users reject the term altogether as false and made up,^{35,36} while others believe that online discussions of immunity debt are being commandeered by disinformation actors and that the media bears responsibility for repeating these misperceptions.³⁷ It is for these reasons that some outlets have cautioned against media using the term entirely.³⁸

Is immunity debt or immunity theft to blame for children's respiratory virus spike?

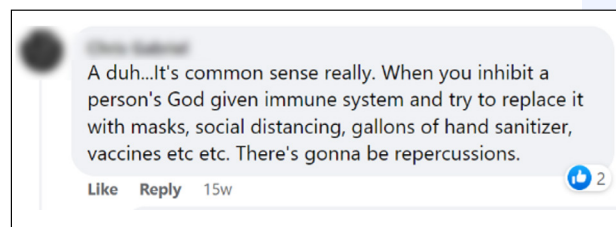
Commonly asked questions and queries from the public

- How can someone distinguish between symptoms of COVID-19, influenza, and RSV?
 - Because all three respiratory viruses can share many similar symptoms, such as coughing, runny nose, and fever, you cannot tell the difference based on symptoms alone and specific testing is needed to confirm a diagnosis. You can learn more about [RSV symptoms](#) as well as the [similarities and differences between influenza and COVID-19](#) on CDC’s website.
- How long is RSV contagious?
 - People infected with RSV are usually contagious for 3 to 8 days and may become contagious a day or two before they start showing signs of illness. However, some infants, and people with weakened immune systems, can continue to spread the virus even after they stop showing symptoms, for as long as 4 weeks.³⁹
- Is an RSV vaccine available?
 - Researchers are working to develop RSV vaccines, but none are available yet. A drug called palivizumab is available to prevent severe RSV illness in certain infants and children who are at high risk for severe disease.⁴⁰ There are several RSV vaccines currently undergoing U.S. trials, meaning that multiple RSV vaccines could be approved for different populations by the U.S. Food and Drug Administration (FDA) by the end of 2023.⁴¹ In May 2023, two RSV vaccines—[GSK’s Arexvy](#) and [Pfizer’s ABRYSVO \(RSVpreF\)](#)—received FDA approval for individuals aged 60 years and older. In June 2023, CDC’s Advisory Committee on Immunization Practices (ACIP) recommended that adults aged 60 and older [be eligible to receive either RSV vaccine](#) after consulting with a healthcare provider; both RSV vaccines are expected to be ready for distribution this fall. On May 18, 2023, FDA’s Vaccines and Related Biological Products Advisory Committee voted in support of the safety and effectiveness of Pfizer’s RSVpreF vaccine to protect infants from RSV through maternal immunization; FDA is expected to make a decision on the potential approval of [RSVpreF as a maternal vaccine](#) in August 2023.



■ Can individuals receive the influenza and COVID-19 vaccines at the same time?

- Yes, you can get a COVID-19 vaccine and an influenza vaccine at the same time if you are eligible and the timing coincides. Studies conducted throughout the COVID-19 pandemic indicate that it is safe to get both a COVID-19 vaccine and an influenza vaccine at the same visit. A recent [CDC study published in JAMA](#) suggests people who received a flu vaccine and an mRNA COVID-19 booster vaccine at the same time were slightly more likely (8% to 11%) to report systemic reactions including fatigue, headache, and muscle ache than people who only received a COVID-19 mRNA booster vaccine, but these reactions were mostly mild and resolved quickly.⁴² The findings of this study are consistent with safety data from clinical trials that did not identify any serious safety concerns with coadministration.⁴³

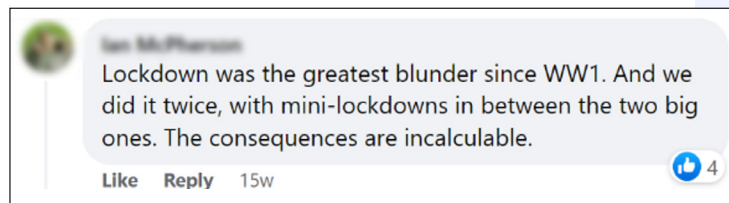


■ How effective is this year’s seasonal influenza vaccine?

- Influenza vaccine effectiveness can vary. The protection provided by a flu vaccine varies from season to season and depends in part on the age and health status of the person getting the vaccine and the similarity or “match” between the viruses in the vaccine and those in circulation.⁴⁴ While data are not yet available for the current 2022-2023 influenza season, this year’s influenza vaccine appear to be “a very good match” according to Dr. Walensky.⁴⁵

Identified inaccurate health information themes that may impact vaccine confidence

- Some social media users believe the “triple-demic” was caused by COVID-19 vaccines.^{46,47}
- Some social media users believe social distancing precautions have suppressed or damaged the immune system.^{48,49,50}



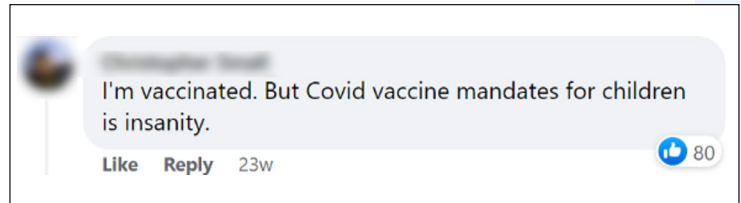
Ways public health and partners can take action to improve vaccine confidence

- Continue to monitor influenza and RSV seasonality and severity in the context of COVID-19.
- Exercise social media literacy by remaining aware of the differing interpretations of immunity debt to avoid inadvertently contributing to the spread of claims lacking scientific support.
- Continue to research the scientific basis for immunity debt and disseminate accurate information in a way that mitigates the potential for conceptual ambiguity and misinterpretation.
- Communicate to consumers about vaccines in development that confer protection against illnesses for which there are currently no vaccines (e.g., universal influenza, norovirus) to normalize the prospect and benefits of receiving new vaccines (e.g., RSV) as they become available.



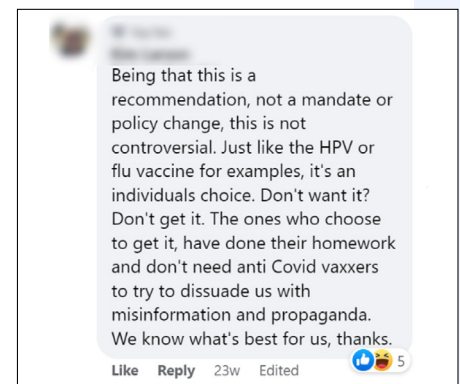
Theme 2: Some parents and consumers were concerned about the ACIP decision to add COVID-19 vaccines to the recommended child and adolescent immunization schedule.

Children as young as 6 months of age have been eligible and recommended to receive either the Moderna or Pfizer-BioNTech COVID-19 vaccine since June 2022.⁵¹ On October 19, 2022, the Advisory Committee on Immunization Practices (ACIP) voted to approve the *Vaccines for Children* (VFC) resolution for COVID-19 vaccines.⁵² The VFC program is a federally funded program that provides vaccines at no cost to children who might not otherwise be vaccinated because of inability to pay.⁵³ The vote was an important step to be able to provide COVID-19 vaccines for the VFC program once the vaccine is no longer available free to anyone in the U.S. The inclusion of COVID-19 vaccines to ACIP's recommended child and adolescent immunization schedule resulted in misinformation on social media among some consumers who believed that ACIP's decision constituted a vaccine mandate for school entry, which is incorrect. While ACIP recommendations are used as guidelines for state and local officials, [states are responsible](#) for determining school immunization requirements.⁵⁴



Perceptions, concerns, and threats to vaccine confidence

- There was an increase in Google searches, including the terms “COVID-19 vaccine” and “vaccine mandate,” following the October 19, 2022, ACIP meeting.^c
- Organizations such as the American Medical Association and the American Academy of Family Physicians support ACIP's decision to include COVID-19 vaccines in the VFC program, which will provide vaccines for children who may not be able to afford them after COVID-19 vaccines are no longer provided free to everyone in the U.S. [54,55](#)
- Some social media users believed COVID-19 vaccine requirements for children are ridiculous and unnecessary.[56,57](#)
- Some social media users expressed concerns about COVID-19 vaccine side effects that may occur in children.[58,59](#)
- Some social media users did not support ACIP's decision to approve COVID-19 vaccines for the VFC program or for the childhood schedule.[60,61](#)
- Many social media users who are parents claimed they will begin homeschooling if COVID-19 vaccines are added to the routine immunization schedule, mistakenly believing that including COVID-19 vaccination in the schedule implies that it will be required for school attendance.[62,63,64](#)
- Some social media users were seeking waivers and vaccine exemptions in light of ACIP's decision because of their belief that including COVID-19 vaccination in the child vaccine schedules may lead to vaccine requirements.[65,66](#)



^cGoogle Trends.

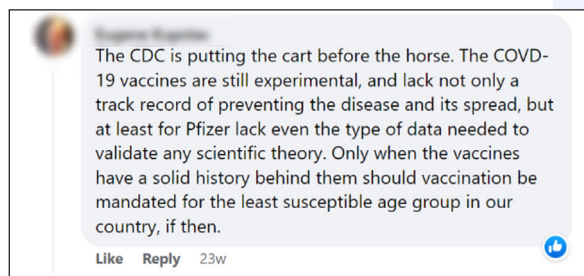
- Some social media users were supportive of ACIP's decision to include COVID-19 vaccines in the vaccine schedules.^{67,68,69}

Commonly asked questions and queries from the public

- What is ACIP, and how are immunization schedules determined?
 - The Advisory Committee on Immunization Practices (ACIP) comprises medical and public health experts who develop recommendations on the use of vaccines in the civilian population of the United States. When FDA authorizes or approves a vaccine, ACIP reviews all available data about the epidemiology of the disease the vaccine prevents, and the safety and effectiveness of the vaccine to determine whether to recommend it and which groups of people who should receive it. These vaccine recommendations are then reviewed and approved by the CDC Director and U.S. Department of Health and Human Services, resulting in the official U.S. adult and childhood [immunization schedules](#). ACIP typically holds three meetings each year at CDC in Atlanta, Georgia; all meetings are open to the public and available online via webcast. More information about ACIP can be found in this [short educational video](#) and on the [ACIP website](#).
- Are side effects in children after COVID-19 vaccination normal?
 - Side effects after COVID-19 vaccination tend to be mild, temporary, and like those experienced after routine vaccinations. They can vary across different age groups.⁷⁰ More detailed information about side effects in children ages 6 months-17 years can be found on CDC's website: [Possible Side Effects After Getting a COVID-19 Vaccine](#).
- Does CDC recommend COVID-19 vaccines for all children?
 - CDC recommends COVID-19 vaccination for everyone ages 6 months and older.⁷¹ More detailed information for children and teens aged 6 months-17 years can be found on CDC's website: [Stay Up to Date with COVID-19 Vaccines](#).
- Where can I find COVID-19 safety data for children?
 - Through continued safety monitoring, COVID-19 vaccination has been found to be safe for children and teens. The known risks and possible severe complications of COVID-19 outweigh the potential risks of having a rare, adverse reaction to vaccination.⁷¹ More information about COVID-19 vaccine safety can be found on CDC's website: [Ensuring COVID-19 Vaccine Safety in the US](#).

Identified inaccurate health information themes that may impact vaccine confidence

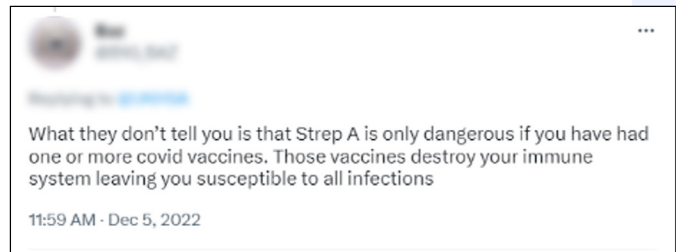
- Some social media users believe ACIP did not approve the COVID-19 vaccines for the VFC program through the usual process.⁷²
- Some social media users believe children are not at risk for COVID-19.^{73,74}
- Some social media users believe the COVID-19 vaccines are experimental.^{75,76}
- Some social media users believe COVID-19 vaccines compromise children's immune systems, leading to increased Strep A cases in children.^{77,78,79}






Ways public health and partners can take action to improve vaccine confidence

- Create informational materials for schools and daycares explaining the difference between the vaccine schedule and vaccine requirements.
- Encourage primary care providers and other medical professionals who care for children to explain and emphasize the benefits of COVID-19 vaccination to parents and guardians.
- Continue to research ongoing safety concerns about COVID-19 vaccines in children and immediately share any pertinent information with the public.

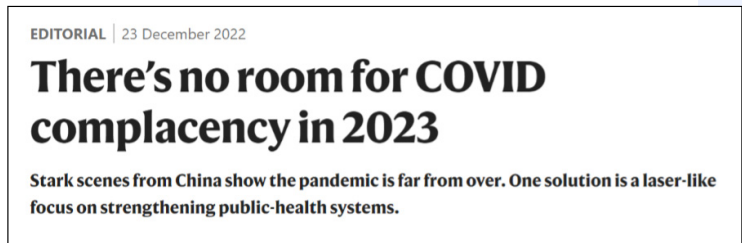


 **Theme 3: Some consumers and social media users were doubtful about the effectiveness of COVID-19 vaccines against circulating variants, coinciding with increasing pandemic fatigue.**

SARS-CoV-2, the virus that causes COVID-19, is constantly changing and new variants of the virus are expected to occur. All variants of the SARS-CoV-2 virus are being tracked in the United States and globally during this pandemic. Some new variants emerge and disappear, while others may persist and circulate for some time. During the final week of this reporting period, Omicron subvariants BQ.1.1, BQ.1, and XBB.1.5 accounted for 38.2%, 20.2%, and 15.8% of all U.S. cases, respectively.⁸⁰

Perceptions, concerns, and threats to vaccine confidence

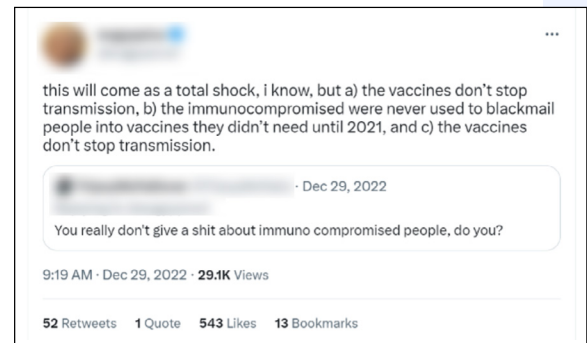
- Consumers are concerned about the immunity evasion capabilities of Omicron subvariants due to the insufficiency of certain [monoclonal antibody treatments](#) such as Evusheld in preventing COVID-19 infection among individuals with compromised immune systems.⁸¹ Note that as of January 2023, Evusheld is [not currently authorized](#) for use in the U.S. due to its reduced effectiveness against circulating SARS-CoV-2 variants.
- Some consumer concerns centered around perceptions that the CDC’s approach to mitigating the spread of variants is too lax and should include more rigorous guidelines about proper masking and PCR testing.^{82,83}
- Some social media users are continuing to not support vaccination in light of new variants, claiming that mRNA COVID-19 vaccines do not meaningfully mitigate severe disease or death and that vaccination is futile since there will never be a vaccine that confers immunity universally to all variants of the virus that causes COVID-19.^{84,85}
- Social media users are worried that emerging new variants will result in constant, ongoing cycles of sickness on top of the potentially debilitating effects of long COVID.⁸⁶





Commonly asked questions and queries from the public

- Is there a COVID-19 vaccine that protects against the Omicron variant BA.5?
 - The updated (bivalent) COVID-19 vaccine includes the addition of Omicron BA.4 and BA.5 spike protein components to previous COVID-19 vaccine formulations, helping to [restore protection](#) that has waned since previous vaccination by targeting newer variants.
- Do COVID-19 vaccines cause variants?
 - COVID-19 vaccines do not create or cause variants of the virus that causes COVID-19. New variants arise because the virus that causes COVID-19 constantly changes through a natural ongoing process of mutation (change). As the virus spreads, it has more opportunities to change.⁸⁷
- Do COVID-19 tests check for Delta, Omicron, and other variants?
 - The SARS-CoV-2 virus, which causes COVID-19, has mutated over time, resulting in genetic variants throughout the COVID-19 pandemic. COVID-19 diagnostic tests are designed to detect all known variants. However, they are typically unable to identify the specific type of SARS-CoV-2 variant (such as Delta or Omicron) present in a patient sample. The FDA continues to conduct analyses to identify tests for which performance may be impacted for known SARS-CoV-2 variants.⁸⁸
- What is CDC doing to track SARS-CoV-2 variants?
 - In the United States, CDC uses genomic surveillance to track emerging SARS-CoV-2 variants that cause COVID-19. CDC established multiple pipelines to connect genomic sequence data from CDC, public health laboratories, and commercial diagnostic laboratories within publicly accessible databases maintained by the National Center for Biotechnology Information (NCBI) and the Global Initiative on Sharing Avian Influenza Data (GISAID). As part of the CDC National SARS-CoV-2 Strain Surveillance (NS3) System, public health laboratories ship deidentified specimens to CDC to provide a representative set of viruses for sequencing. There are four main stages in the process of generating SARS-CoV-2 genetic sequence data from these specimens and making it available in public repositories.⁸⁹



Identified inaccurate health information themes that may impact vaccine confidence

- Some social media users, noting that COVID-19 vaccines do not stop transmission, believe that the health risks to immunocompromised people were used to blackmail the public into being vaccinated.⁹⁰
- Some social media users believe that health authorities are “boosting” young people with a vaccine that has serious side effects, does not stop transmission, and has diminishing effectiveness against new variants.⁹¹



Ways public health and partners can take action to improve vaccine confidence

- When data on new variants' transmissibility and severity of symptoms are available, quickly disseminate findings and limitations of the data to the public.
- Amplify messages that promote the benefits of vaccination for all eligible people and explain how vaccination helps reduce the spread to the broader community.
- Continue to share messages about why variants occur and how they are natural and expected as viruses evolve. Consider providing examples from other viruses.

Theme 4: Uptake of the updated (bivalent) COVID-19 vaccine remained low due to concerns about safety and effectiveness.

To increase protection against the evolving variants of SARS-CoV-2, updated formulations of the Moderna and Pfizer-BioNTech COVID-19 vaccines were authorized by the FDA in August 2022. These newly updated (bivalent) formulations contain two messenger RNA (mRNA) components to protect against the initial SARS-CoV-2 virus and newer variants.⁹² In September 2022, the White House announced an updated COVID-19 vaccine initiative, which included the procurement of 170 million doses of the updated COVID-19 vaccines for distribution to the American public.⁹³ However, uptake of the updated COVID-19 vaccine remains low; as of May 11, 2023, 17% of the U.S. population had received an updated vaccine compared with 69.5% of the population who completed the primary series.⁸⁰

Most Americans Still Say They Plan to Get an Updated COVID-19 Booster. But Willingness Is Waning

Meanwhile, over 2 in 5 vaccinated adults who haven't gotten an updated booster say a reason for holding out is that they do not see the point of another shot

In December 2022, CDC published a State of Vaccine Confidence Insights Report focusing solely on the [updated COVID-19 vaccines](#).

Perceptions, concerns, and threats to vaccine confidence

- Consumers' perceptions of the updated COVID-19 vaccine are centered around side effects as well as pandemic fatigue, lack of awareness, time and trust in the shots, all of which contribute to low vaccine uptake.^{94,95}
- Roughly 40% of vaccinated adults who have not received an updated vaccine indicated that they have not yet done so because they do not see the point of another shot, are not worried about getting COVID-19, and do not trust that the updated vaccine works.⁹⁶
- Some consumers believe that the updated COVID-19 vaccine will cause severe adverse reactions such as cancer, heart attacks, strokes, and blood clots.^{97,98}
- Some consumers believe that the updated vaccine is ineffective against Omicron and the newest variant (XBB).⁹⁹

CORONAVIRUS

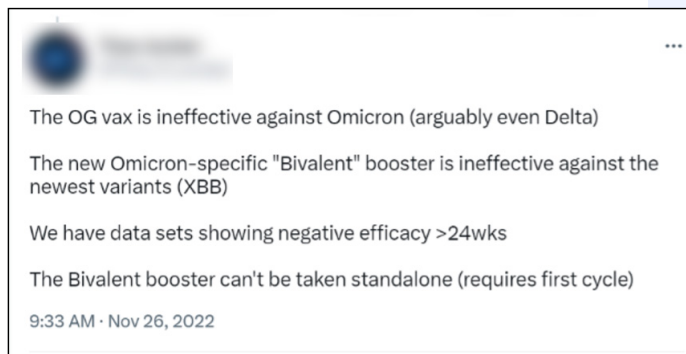
Around 85% of recent Covid deaths were among people over 65. Why have so few gotten boosted?

Experts maintain that the new bivalent booster shot offers important protection. But less than a third of the most vulnerable age group has gotten it.



Commonly asked questions and queries from the public

- Are there long-term symptoms after receiving a COVID-19 vaccine?
 - Serious side effects that could cause a long-term health problem are rare following any vaccination, including COVID-19 vaccination. Side effects after a COVID-19 vaccination tend to be mild, temporary, and like those experienced after routine vaccinations. They can vary across different age groups. Reactions reported after getting an updated COVID-19 vaccine are similar to those after the two-dose or single-dose primary shots. The most commonly reported side effects are fever, headaches, fatigue, and pain at the injection site.⁷⁹ Rare cases of [myocarditis and pericarditis](#) have been observed following receipt of monovalent mRNA COVID-19 vaccines, as described later in this report.
- How can I report adverse reactions to vaccines?
 - Severe allergic reactions to vaccines are rare but can happen. If you get a COVID-19 vaccine and you think you might be having a severe allergic reaction after leaving the vaccination provider site, seek immediate medical care by calling 911. A severe allergic reaction can cause difficulty breathing or wheezing, a drop in blood pressure, swelling of the tongue or throat, or a generalized rash or hives, which may include mucus membranes. If you had a severe allergic reaction after a dose of an mRNA COVID-19 vaccine or if you have had a severe allergic reaction to any ingredient in an mRNA COVID-19 vaccine, you may be able to get the Novavax COVID-19 vaccine, which is not an mRNA-based vaccine. If you have had an immediate allergic reaction (a reaction that started within 4 hours) to any vaccine other than a COVID-19 vaccine or any injectable therapy, you may still be able to get a COVID-19 vaccine. However, your doctor may refer you to an allergy and immunology specialist for additional care or advice.¹⁰⁰
- Does CDC recommend COVID-19 vaccines for children under 4 years old?
 - CDC recommends COVID-19 vaccination for everyone ages 6 months and older. Through continued safety monitoring, COVID-19 vaccination has been found to be safe for children and teens. Millions of children and teens ages 5 through 17 years have already received at least one dose of a COVID-19 vaccine. The known risks and possible severe complications of COVID-19 outweigh the potential risks of having a rare, adverse reaction to vaccination.¹⁰¹
- Can I get a Novavax booster vaccine? Should I start with a Novavax primary series and then a booster?
 - You may get a Novavax booster **if** you are unable or unwilling to receive a Pfizer or Moderna updated COVID-19 vaccine **and** you meet the following requirements:¹⁰¹
 - You are 18 years of age or older
 - You completed a COVID-19 vaccine primary series at least 6 months ago
 - You have **not** gotten any other COVID-19 vaccine



For more information, please visit CDC's website on [staying up to date with COVID-19 vaccines](#).



Identified inaccurate health information themes that may impact vaccine confidence


- Some social media users believe that there is a pharmaceutical ploy created to profit from COVID-19 relief dollars.¹⁰²
- Some social media users believe myocarditis is more common in young men following vaccination than after SARS-CoV-2 infection.¹⁰³

Really, why did CDC Director’s husband get a \$5 Million HHS grant?!
Posted on August 8, 2021 by State of the Nation

CDC Director’s husband scored \$5 million in HHS grants; has ties to group that tried to debunk lab-leak theory

Ways public health and partners can take action to improve vaccine confidence

- Continue to work with researchers and community leaders to ensure any serious side effects or adverse events from the updated COVID-19 vaccines are reported. Monitor the Vaccine Adverse Event Reporting System ([VAERS](#)) for similar data.
- Continue working with trusted messengers, community leaders, and members of the public to craft and disseminate messages that promote the benefits, availability, eligibility, safety, and effectiveness of the updated COVID-19 vaccine.
- Create or promote communication tools and resources to help health providers discuss COVID-19 vaccines with patients in a [respectful and empathetic manner](#).

 **Theme 5: Some consumers were concerned about COVID-19 vaccine safety, side effects, and adverse events.**

Concerns about vaccine safety—one of the strongest correlates of vaccine refusal¹⁰⁴—continue to circulate in the United States. In light of ongoing research assessing the potential (albeit rare) risks of heart-related adverse events following COVID-19 vaccination,^{105,106} many consumers are worried that the COVID-19 vaccines are unsafe and are responsible for a rise in myocarditis, blood clots, and other cardiac-related issues.^{107,108} Reports of young athletes and other prominent individuals experiencing heart-related events or unexpected deaths have led some consumers to believe that these events are connected to COVID-19 vaccines.¹⁰⁹ These concerns were amplified in part due to the November 2022 release of *Died Suddenly*, a far-right conspiracist documentary alleging that adverse events from COVID-19 vaccines are part of a deliberate plot by global elites to depopulate the planet.¹¹⁰ While the film’s claims are easily refutable and have even been criticized by vaccine skeptics for being poorly researched,¹¹¹ narratives about seemingly healthy individuals who “died suddenly” gained traction on social media during the reporting period.¹¹²

‘Died suddenly’ posts twist tragedies to push vaccine lies



Perceptions, concerns, and threats to vaccine confidence

- Despite consumer fears that COVID-19 vaccines are causing an increase in heart-related adverse events, the risk of myocarditis from SARS-CoV-2 infection is seven times greater than the risk associated with COVID-19 vaccination.¹¹³
- Some consumers continue to believe natural immunity is better and safer given the rare risk of blood clotting from the Johnson & Johnson COVID-19 vaccine, which is [no longer available](#) in the U.S.^{114,d}
- Increased reporting about myocarditis, blood clots, and heart-related adverse events has been used as an opportunity for some political figures to garner support from their base by exaggerating the risks of COVID-19 vaccination.^{115,116}
- Some consumers have attributed non-cardiac symptoms, such as mouth sores and respiratory problems, to COVID-19 vaccines.^{117,118}



Commonly asked questions and queries from the public

- Do mRNA COVID-19 vaccines cause blood clots?
 - There is no indication that the Pfizer-BioNTech and Moderna mRNA COVID-19 vaccines are associated with a risk of blood clots,¹¹⁹ and research has shown that the risk of blood clotting is much higher following SARS-CoV-2 infection than COVID-19 vaccination.¹²⁰ Rare cases of blood clots were associated with the J&J COVID-19 vaccine, which is not an mRNA vaccine and is no longer available in the U.S. The J&J COVID-19 vaccine—which is not an mRNA vaccine—was associated with rare cases of blood clots; however, this vaccine is no longer available in the U.S. and its use has been [limited since May 2022](#) due to safety concerns.
- Can mRNA COVID-19 vaccines cause myocarditis?
 - While absolute risk remains [small](#), an elevated risk for myocarditis and pericarditis has been observed among mRNA COVID-19 vaccine recipients, particularly in males ages 12–39 years, more often after the second dose and usually within a week of vaccination. Most patients with myocarditis or pericarditis who received care responded well to medicine and rest and felt better quickly.¹²¹
 - Some evidence^{122,123} suggests that the risk of myocarditis and pericarditis might be higher following vaccination with Moderna COVID-19 vaccine relative to Pfizer-BioNTech COVID-19 vaccine; however, findings are not consistent in all U.S. monitoring systems.¹²⁴
 - [Extending the interval to 8 weeks](#) between the first and second doses for some people might reduce the rare risk of vaccine-associated myocarditis and pericarditis.¹²⁴
 - For more information, refer to the latest guidance on the [Interim Clinical Considerations for Use of COVID-19 Vaccines web page](#).

^dCDC-INFO.

- How do the risks of myocarditis compare between the updated COVID-19 vaccine and the original formulations of mRNA COVID-19 vaccines?
 - Adverse reactions are rare, typically mild, and comparable to the monovalent COVID-19 booster dose.¹²⁵ For adolescents and young adults, the risk for myocarditis and pericarditis after an updated mRNA COVID-19 vaccine appears generally **similar to or lower than** the risk after a second mRNA COVID-19 vaccine primary series dose.¹²⁴
- Will the updated COVID-19 vaccine cause me to “die suddenly”?
 - Deaths related directly to vaccines are extremely rare and unlikely.¹²⁶ Vaccines are a proven and safe means to prevent and stop the spread and infection of dangerous diseases, including COVID-19.¹²⁶ Vaccine safety is extremely important and must be treated with utmost seriousness; the claims made in films such as *Died Suddenly* are unfounded, misleading, and easily refutable.¹¹⁰



Identified inaccurate health information themes that may impact vaccine confidence

- The release of the documentary *Died Suddenly* has led some consumers to believe that the adverse events from COVID-19 vaccines are much more common and serious than they really are.¹²⁷
- Echoing sentiments from *Died Suddenly*, some social media users believe COVID-19 vaccines will cause sudden death as part of a deliberate attempt to reduce the world's population.^{109,110,128}

Ways public health and partners can take action to improve vaccine confidence

- Provide easy-to-read clinical findings showing the safety of all U.S approved vaccines, including information about the possibility of rare adverse events.
- Depoliticize health by using neutral, trusted messengers to explain the risks and benefits of the updated COVID-19 vaccine.
- Avoid reliance on politically controversial figures to promote vaccine safety.
- Keep literature consistent and available for medical professionals to stay up to date.
- Promote positive vaccine experiences, emphasize vaccine safety, and communicate the rarity of severe adverse events from the updated COVID-19 vaccines.

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Note: omitted numbers are social media citations, which can be viewed [here](#).

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Appendix: Inputs and Sources

Social Media Listening & Media Monitoring Data Sources

Input	Cadence	Sources	Tactics for Utilization
Communication Surveillance Report	Daily on weekdays	<ul style="list-style-type: none"> Google news Meltwater CrowdTangle Native platform searches 	<ul style="list-style-type: none"> Share of voice topic analysis to identify themes Emerging topics
Meltwater	Daily	<ul style="list-style-type: none"> Facebook, Twitter, Instagram Blogs News media Online forums 	<ul style="list-style-type: none"> Share of voice topic analysis Emerging theme topics Identify high reach/velocity topics
OADC (Office of the Associate Director of Communication) Channel COVID-19 Post metrics	Weekly	<ul style="list-style-type: none"> Sprout Social Native OADC (Office of the Associate Director of Communication) account analytics 	<ul style="list-style-type: none"> Analyze # of posts, topics Success of messages, # of impressions, reach, # engagements
OADC Channel Comment Analysis	Daily on weekdays	<ul style="list-style-type: none"> Native platform searches 	<ul style="list-style-type: none"> Sentiment analysis Identify message gaps/voids

Direct Report Data Sources

Input	Cadence	Sources	Tactics for Utilization
CDC-INFO Metrics	Weekly	<ul style="list-style-type: none"> CDC-INFO inquiry line list Prepared response (PR) usage report 	<ul style="list-style-type: none"> Cross-compare PR usage with inquiry theme analysis Sentiment analysis Identify information gaps/voids
VTF Media Requests	Weekly	<ul style="list-style-type: none"> Media request line list 	<ul style="list-style-type: none"> Leading indicator for news coverage Identify information gaps/voids
Web Metrics	Weekly	<ul style="list-style-type: none"> Top pages Google search queries Top FAQs Referring domains 	<ul style="list-style-type: none"> Identify information gaps/voids, Identify keywords/search terms, changes in web traffic



Research and Literature Data Sources

Input	Cadence	Sources	Tactics for Utilization
Poll Review	Weekly	<ul style="list-style-type: none"> ▪ Harris Poll, PEW research, Gallup Poll, KFF, Annenberg Public Policy Center ▪ New data related to vaccine hesitancy 	<ul style="list-style-type: none"> ▪ Identify socio-behavior indicators related to motivation and intention to vaccinate
Literature Review	Weekly	<ul style="list-style-type: none"> ▪ PubMed, LitCovid, ProQuest Central, Altmetric ▪ New data related to vaccine hesitancy 	<ul style="list-style-type: none"> ▪ Identify current vaccination intention ▪ Identify barriers to vaccination

Third Party Report Data Sources

Input	Cadence	Sources	Tactics for Utilization
Tanaq Social Listening +Media Monitoring Report	Weekly	<ul style="list-style-type: none"> ▪ Meltwater ▪ Sprout Social ▪ First Draft ▪ Native platform searches 	<ul style="list-style-type: none"> ▪ Trending topics ▪ Demographic and geographic conversation monitoring
Washington St. Louis iHeard	Weekly	<ul style="list-style-type: none"> ▪ Proprietary methods 	<ul style="list-style-type: none"> ▪ Survey results ▪ Emerging threats and data deficits ▪ Vaccine narratives
Project VCTR	Weekly	<ul style="list-style-type: none"> ▪ Proprietary methods 	<ul style="list-style-type: none"> ▪ National and regional trends in negative attitudes toward vaccination ▪ Conversations around Legislation