

COVID-19 State of Vaccine Confidence Insights Report

Report 17 | October 26, 2021 | Date Range: October 12 – 26, 2021



Summary

Findings. Employees, employers, and consumers continue to struggle with the implementation and enforcement of President Biden's vaccination requirements. Protests and legal challenges persist among those opposed to the requirements, including the use of religious exemptions for the express purpose of circumventing compliance with requirements. On October 7, 2021, Pfizer-BioNTech submitted initial data from their COVID-19 vaccine trial in children ages 5 to 11 years old to the FDA. The anticipation of the vaccine's emergency use authorization has generated mixed feelings among social media users who question the safety and need to vaccinate this population, given the relatively lower rate of severe disease, compared to older age groups. Concern about potential vaccine side effects continues to fuel the spread of misinformation, from misconstruing medical journal reports, to the purported superiority of natural immunity. However, reports, news articles, and social media conversation indicate that, despite the opposition, there are still many people who are in favor of COVID-19 vaccination and vaccination requirements for both children and adults.

Ways to take action. Federal, state, and local partners should continue to work together to explain the rationale for updated guidance, respond to gaps in information, and confront misinformation with evidence-based messaging. The goal of these efforts is to increase confidence in COVID-19 vaccines and expand vaccine uptake more broadly. Employers should develop policies that allow for paid time off for vaccination and recovery from side effects. Pediatricians should discuss potential side effects of vaccination with parents, while explaining the relative risk of an adverse event compared to COVID-19 complications. Public health practitioners should develop and disseminate simple, plain language fact sheets to help consumers choose the COVID-19 vaccine best suited to their individual circumstances and demographic category. Resources should also be developed for healthcare providers, offering guidance for conversations with consumers about natural or infection-acquired immunity versus vaccine-derived protections. All of these policies and communications should be written and disseminated in formats and languages people understand.



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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).




Aims and Methods

By rapidly reviewing and analyzing numerous sources and inputs (see [Appendix](#)), the biweekly COVID-19 State of Vaccine Confidence Insights Report emphasizes major themes influencing COVID-19 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.

Theme Classification

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 Information spreading rapidly</p>	 <p>Stable Information remaining constant at prior level</p>	 <p>Decreasing Information is not gaining further traction and there has been no indication of additional activity</p>

Major Themes



Employees, employers, and consumers continue to struggle with the implementation and enforcement of vaccine requirements.

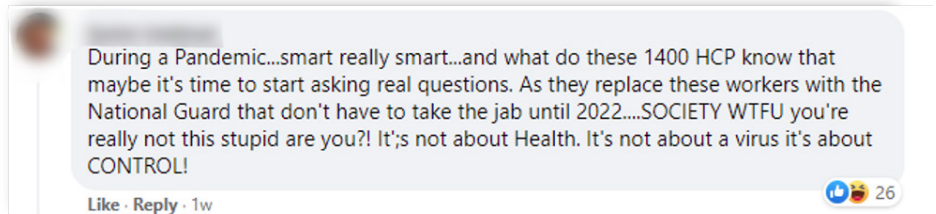
Employees and Employers

Across the United States, employee protests and lawsuits against workplace vaccination requirements continue.^{1,2} Employees such as healthcare workers, airline workers, police officers, and members of the armed forces have filed or plan to file lawsuits to block the implementation of workplace vaccination requirements.^{3,4,5,6,7,8} At least two police unions urged their members to defy vaccination requirements.^{9,10} Even so, some states have also enacted legislation to ban workplace vaccination requirements.^{11,12} Other states support employer vaccination requirements, joining them in appealing court decisions that require employers to offer religious exemptions.^{13,14,15,16}

In addition to lawsuits, employees are organizing protests against vaccine requirements.^{17,18} Some of the protests fuel speculation that explicitly unrelated workplace issues, such as the cancelation of flights, are really protests against workplace vaccination requirements.^{19,20,21}

Employees reached out to CDC-INFO reporting job terminations for failure to receive the second dose of the COVID-19 vaccine because of an adverse event after the first dose.^a Reports of employee firings, as well as fines with workplace vaccination requirements^{a, 22,23} could invigorate vocal vaccine deniers to continue, or even increase, messaging relating vaccination requirements to infringements on people's freedoms.^{24,25,26,27}

Even though reports on employee firings have increased^{28,29,30} reports also indicate employer vaccination requirements positively impacted the number of vaccinated employees, and firings of unvaccinated employees occur at a rate of less than 3%.^{31,32,33,34}



Employers and employees contacted CDC-INFO for information about obtaining medical exemptions, paying for testing, and incentivizing unvaccinated employees for time spent getting tested, whether it be through paid time off or other forms of incentives.^a Callers were also interested in whether their specific profession or employment status (i.e., temporary, new hire) requires vaccination, how their company can verify employees' vaccination status, what qualifies as a medical exemption, where employees can get a medical exemption form, and if employers can require all new employees to be vaccinated.^a

Ways to act:

- Educate and train workers and supervisors about vaccinations and reducing the spread of COVID-19 in the workplace in accessible formats and language they understand (i.e., plain language, appropriate translations for non-native English speakers).
- Work with local public health authorities to ensure employees have safe and limited barrier access to vaccines and primary care services if side effects are experienced.
- Consult with unions, local health authorities, and medical professionals to establish clearly outlined medical and religious exemptions and a transparent process for reviewing exemptions. The Equal Employment Opportunity Commission provides guidance on mandatory vaccination against COVID-19 and types of exemptions from mandates.
- Develop policies that allow for paid time off for vaccination appointments and recovery from side effects.

^aCDC-INFO

Consumers

Consumers continue to seek information and vocalize support for and against vaccination requirements. In an analysis of Google Trends, the terms ‘mandate,’ ‘religious exemption,’ and other key words related to those topics were common during this reporting period.^b A common topic for callers to CDC-INFO was how to obtain a religious exemption.^c While a recent poll highlights that nearly half of Americans view religious exemptions as valid reasons not to be vaccinated,³⁵ some major religious sects voiced their opposition to religious exemptions.^{36,37}



Battles between consumers and government continue to fuel the divide over the implementation of vaccine requirements. Videos of people protesting in the streets and storming council meetings, as well as calls for lawsuits, bans, and boycotts to stop infringements on people’s ‘health freedom’ highlight the challenges many governments and local entities face when trying to implement requirements.^{38,39,40,41,42,43} Celebrities also continue to fuel public opposition to vaccination, from holding concerts to raise money against vaccination requirements, to using social media platforms to bolster support for anti-vaccination movements, to spreading misinformation by describing COVID-19 vaccines as ‘toxic.’^{44,45,46,47,48} Some consumers also question the viability of the vaccination requirements, citing that because the

requirements were only announced verbally and not written down, they are not enforceable.^{49,50}

Polls indicate Americans are more stressed now compared to before the pandemic started, possibly demonstrating the politicization, information overload, and various public opinions could be weighing on consumers.^{51,52} However, polls also reveal the majority of Americans are now in favor of vaccination requirements, including for adult workers and school-aged children.^{53,54,55,56}

Ways to act:

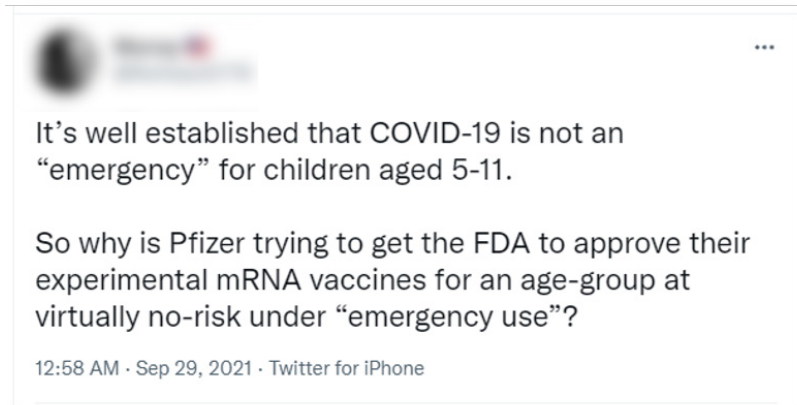
- Develop plain language fact sheets explaining and educating consumers on the topics of religious and medical exemptions.
- Create messaging explaining the process and rationale for establishing national vaccine requirements.
- Continue to converse with people in the “movable middle,” expressing hesitancy, but at least contemplative towards vaccines and vaccination.

^bGoogle Trends
^cCDC-INFO

Continuing and Evolving Themes

The themes below have been noted in previous reports and continue to undermine vaccine confidence. The information highlighted below focuses on what is new or different from previous reports. For additional context and previous recommendations on these themes, see previous [Insights Reports](#).

Pfizer-BioNTech applied for emergency use authorization of their COVID-19 vaccine in children ages 5 to 11 years old.



In anticipation of Pfizer-BioNTech's COVID-19 vaccine's emergency use authorization in children ages 5 to 11 years old, social media users expressed both mixed feelings and questions about the safety and need to vaccinate this population. Some consumers are hesitant to vaccinate this age group due to concerns over potential long-term effects (such as kidney failure, heart issues, or severe illness) and low perceived risk to children stemming from relatively low hospitalization and death rates compared to adults.^{57,58,59,60,61,62,63,64,65,66,67} However, a recent poll found that 42% of respondents stated they plan to get their children vaccinated as soon as it is available, while only 21% reported they would never get their child vaccinated. This may

indicate that despite potential side effects and low perceived risk, many consumers will still vaccinate their children.⁶⁸ Since the submission of Pfizer-BioNTech's data, the delay in announcements to clarify the timeline for the vaccine's emergency use authorization, has led to questions about the vaccine's availability to children.^{69,70} Some consumers are voicing strong opposition to any type of vaccination requirement for this age group, while one state already plans to require the vaccine in school-aged children.^{71,72,73,74,75} This has led to discussion about whether there will be a federal vaccination requirement for this age group.^{76,77,78,79,80}

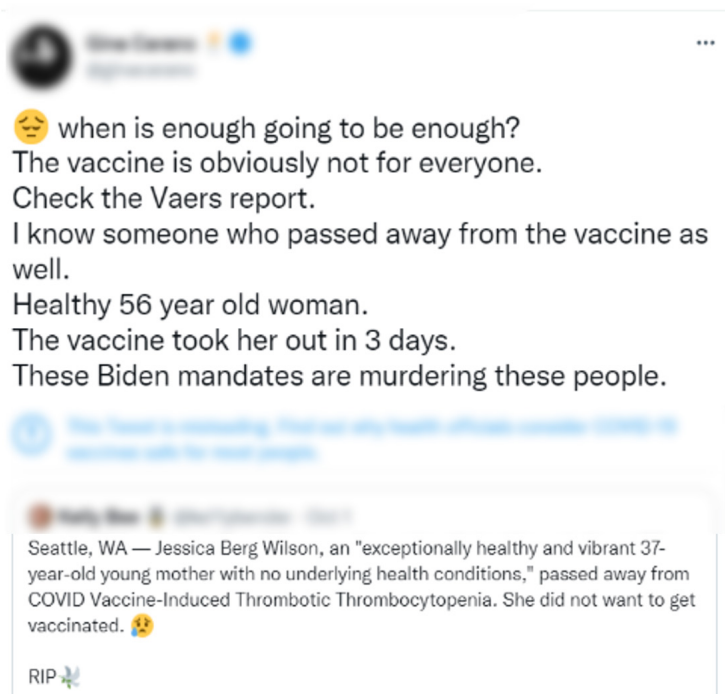
New ways to act:

- Provide schools and parents with educational materials highlighting the importance of COVID-19 vaccination given increased risk of COVID-19 infection in children due to the Delta variant.
- Prioritize creating access points of vaccination in pediatrician offices while also implementing school-located vaccination programs to proactively address access concerns.
- Encourage pediatricians to discuss potential side effects of vaccination with parents and caregivers while explaining the relative risk of an adverse event compared to COVID-19 complications.
- Communicate timelines and plans for vaccination following emergency use authorization.

Consumers remain concerned about vaccine side effects, both actual and speculative

Consumers remain uneasy about known and hypothetical vaccine side effects and continue to express their concerns in web searches, on social media, and via queries to CDC-INFO. Consumer fears were realized when news broke that a vaccine-hesitant 37-year-old mother of two from Seattle, who received Johnson & Johnson’s Janssen vaccine, died of vaccine induced thrombotic thrombocytopenia.^{81,82,83} Her family shared a controversial eulogy⁸⁴ and widely circulated the mother’s obituary, which Twitter artfully labeled “misleading.”^{85,86,87,88,89,90,91}

Her name was one of Google’s top rising search terms the day her story broke nationally, but the very next day, consumers redirected their focus back to the topics of myocarditis^{92,93,94,95,96} and other reactions,^{97,98,99,100,101,102,103,104} potential long-term effects,^{105,106,107} and women’s reproductive health.^{108,109,110,111}



A BMJ editorial¹¹² urging that reports of menstrual changes following COVID-19 vaccination be systematically investigated continues to be misrepresented by some news outlets and social media users as ‘proof’ that vaccination is harmful.^{113,114,115,116,117,118} Similarly, a preprint of a non-peer-reviewed study about vaccine myocarditis risk was withdrawn due to a miscalculation that “vastly” inflated myocarditis risk according to a statement from the University of Ottawa Heart Institute, where the study was conducted. Before its withdrawal, the study was widely shared on social media and websites known to spread vaccine misinformation.^{119,120,121,122,123} Although hate, misinformation, and obstinacy continue to shape the discussions around COVID-19 vaccines and their real or imagined side effects, there are indications that consumer mood may be shifting, although modestly and tentatively possibly due to implementation of requirements and concern over spreading the virus to vulnerable populations and those that are unable to get vaccinated. Social media users seem increasingly unwilling to let spreaders of misinformation control the online narrative, and apparently

vaccinated consumers are answering falsehoods with fact checks, level-headed rebuttals, and compelling firsthand testimony about vaccine need, utility, and effectiveness.^{124,125,126,127,128,129,130,131,132,133,134,135}

New ways to act:

- Develop and disseminate plain language fact sheets to help consumers choose the best COVID-19 vaccine for their individual circumstance and demographic category (i.e., age, sex, medical history, current health status, job, travel plans, etc.)
- Create and disseminate a fact sheet for healthcare professionals and vaccine providers to help guide consumers through the decision-making process about vaccinating themselves and their families.

Consumers continue to promote the belief that “natural immunity” is superior to vaccination.

Search engine metrics and media analysis specified elevated consumer interest in infection-induced, or “natural”, immunity.¹³⁶ Politicians and online consumers cited studies illustrating protection from natural immunity may be equal to or greater than vaccine-derived protection.^{137, 138,139,140}

Multiple consumers called on CDC and other domestic health authorities to recognize natural immunity as providing protection against reinfection of COVID-19.¹⁴¹ Consumers also emphasized the claim that antibodies from previous infection should exempt individuals from vaccination.^{142,143} Sources supporting natural immunity claims often oppose population-wide vaccination in favor of targeting high-risk individuals for vaccinations and increased testing.¹⁴⁴

Consumers considered spokespersons or role models such as athletes, politicians, and alleged pharmaceutical insiders, have appeared to have renewed the discussion of natural immunity compared to vaccine-derived protection in the context of



vaccine requirements and exemptions.^{145,146,147} Some

social media users shared reports of a former pharmaceutical employee claiming that natural immunity may produce a stronger, more robust immune response against subsequent COVID-19 infection than vaccine-derived immunity.^{148,149,150,151} On multiple occasions during the reporting period, politicians noted the exclusion of natural immunity from domestic discussions of effective exemptions for COVID-19 vaccination requirements.^{152,153,154}

Recently, federal judges have denied two requests to block COVID-19 vaccination requirements on the basis of natural immunity.^{155,156,157} Establishing ‘natural immunity’

as equivalent or superior to vaccine-derived immunity could undermine the necessity of requiring vaccinations of all eligible consumers, as well as population-level immunity. Public health officials maintain that antibody protection against COVID-19 is not fully understood^{158,159} and that some research demonstrates vaccine-derived immunity is stronger and longer-lasting than natural immunity.^{160,161}

New ways to act:

- Support research that investigates the differences between natural or “infection-acquired” immunity and vaccine-mediated immunity in protecting people from COVID-19 by publicizing the process and results.
- Develop a plain language fact sheet defining the term ‘natural immunity’ and explaining the differences between natural immunity versus vaccine-derived protection.
- Develop healthcare provider resources to provide guidance for conversations with consumers about natural or “infection-acquired” immunity.
- Promote testing and increase availability and access to COVID-19 tests.

Appendix: Inputs and Sources

Type	Input	Cadence	Sources	Tactics for Utilization
Social Media Listening & Media Monitoring	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 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 Reports	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	Poll Review	Weekly	<ul style="list-style-type: none"> Harris Poll, PEW research, Gallup Poll, KFF 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 New data related to vaccine hesitancy 	<ul style="list-style-type: none"> Identify current vaccination intention Identify barriers to vaccination
Third Party Reports	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
	CrowdTangle content insights report	Biweekly	<ul style="list-style-type: none"> Facebook 	<ul style="list-style-type: none"> Top pages (voices), groups General trends/sentiment analysis News analysis through posts
	First Draft News Vaccine Misinformation Insights Report	Monthly	<ul style="list-style-type: none"> Proprietary methods 	<ul style="list-style-type: none"> Media trends analysis Emerging threats and data deficits Online 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
	Virality Project	Weekly	<ul style="list-style-type: none"> Proprietary methods 	<ul style="list-style-type: none"> Mis- and disinformation trends related to COVID-19 vaccine