



CDC's State of Vaccine Confidence Insights Report

Routine Immunizations on Schedule for Everyone Report

November 10, 2022

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**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

- Declines in routine vaccination occurred worldwide in 2021, with 25 million children missing out on diphtheria, tetanus and pertussis vaccinations. This is 2 million more than in 2020 and 6 million more than in 2019.¹ However, most WHO regions, except the South-East Asia region and the Western Pacific region, returned to or exceeded pre-pandemic pediatric vaccination baseline by December 2020.
- In the US, in 2020, coverage was approximately 94% for MMR, DTaP, and varicella vaccines for kindergarten students, approximately one percentage point lower than the previous school year. The exemption rate remained low at 2.2%, based on data from kindergarten vaccination assessments.²
- A study by Avalere, using pre-adjudicated medical benefit Medicare Fee-for-Service (FFS) claims, found that from January 2020–July 2021, monthly vaccine claims decreased on average by 32% for adults and 36% for adolescents when compared to the same months in 2019.³
- Stratification of [CDC FluVaxView](#) data found that after COVID-19 vaccines became widely available in the 2021–2022 season, adult influenza vaccine uptake decreased from 43.7% to 39.2% in states with the lowest COVID-19 vaccine uptake and only decreased after the COVID-19 vaccine was made available.⁴
- A survey (N = 2232) by the American Academy of Family Physicians (AAFP) found that 20.8% of respondents reported decreased vaccine confidence.⁵

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Figure 1. Changes in Claims for All ACIP-Recommended Adolescent and Adult Vaccines Across Markets January 2020–July 2021 Compared to the Same Months in 2019



- Several studies found a decline in rates of routine vaccinations during the COVID-19 pandemic in the US.^{6,7,8,9,10,11} All studies found that routine vaccination rates rebounded to some extent, but most US-centric studies found that they did not return to pre-pandemic levels.



- There are 39 bills in state legislatures that have the potential to loosen workplace vaccination requirements.¹²
- The following are suggested reasons why the COVID-19 pandemic may have affected vaccine confidence and uptake levels of non-COVID-19 vaccines (sometimes referred to as a carryover effect):^a
 - Ongoing concern about going to healthcare settings for fear of contracting SARS-CoV-2.¹³
 - Access to routine healthcare services has not recovered for some individuals and families.¹⁴
 - Decline in trust in government, scientific processes, and the healthcare industry.^{15,16}
 - The proliferation of misinformation about routine immunizations and the fact that vaccine-preventable diseases are rare in the US have contributed to parents second-guessing whether they should vaccinate their children.¹⁷
 - Promotion of beliefs that other protective measures are safer and more effective.^{18,19,20}
 - Pandemic-related increases in political polarization of vaccines and public health and the association between perceptions of COVID-19 vaccination and political affiliation.^{21,22}
- Recommendations to improve vaccination rates include use of evidence-based interventions demonstrated to raise vaccination rates including:²³
 - Home visits to increase vaccination rates
 - Vaccination requirements for childcare and schools
 - Client reminder and recall interventions and provider reminders
 - Client or family incentive rewards
 - Provider assessment and feedback programs, when used alone or combined with additional interventions
 - Vaccination programs in Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) settings
 - Standing orders for vaccinations, to authorize nurses, pharmacists, and other healthcare providers to assess immunization status and administer vaccinations
 - Using a combination of community-based interventions to increase vaccination rates in targeted populations
 - Using a combination of healthcare system-based interventions
 - Reducing out-of-pocket costs

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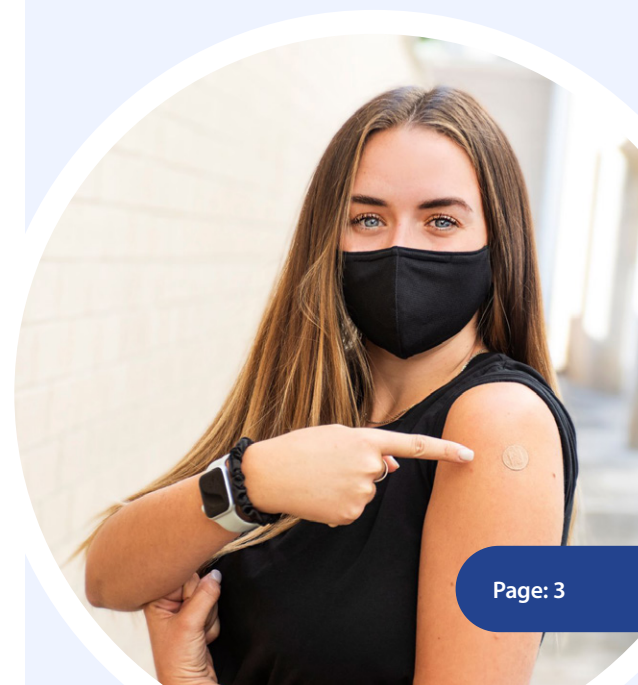
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^aBased on hypothesized reasons cited in the peer-reviewed literature, news stories, and analysis of social media themes.



- Use immunization information systems (IIS). IIS are confidential, population-based, computerized databases that record all immunization doses given by participating providers who live within a certain geopolitical area
- School and organized childcare center-located vaccination programs
- Interventions with on-site, free, and actively promoted influenza vaccinations
- A selection of peer-reviewed literature recommended additional interventions to address the recent decline in routine vaccinations:
 - Expand vaccination sites by adding in-car and in-home vaccination programs to the routine in-clinic immunization or establishing mobile vaccination centers that provide services in strategic places such as marketplaces and social or cultural centers.^{24,25}
 - Implement, improve or increase follow-up activities by schools and immunization programs with under-vaccinated students.²⁶
 - Increase the frequency of well-child care during the next year.²⁷
 - Develop and implement a consolidated and coordinated effort among multiple partners to promote catching up and staying up to date on routine vaccinations through national, state, and local catch-up campaigns.^{28,29,30}
 - Identify and address vaccine misinformation, especially by supporting communities most impacted by misinformation and vaccine inaccessibility or in need of clarification and explanation of circulating misinformation.³¹
 - Craft messages for demographic groups that need to catch up on routine vaccinations with the appropriate messaging modality (See page 7 of this report).³¹
 - Shift equity-based approaches from equity of coverage to equity of resilience.³³

Aims and Methods

The State of Vaccine Confidence Insights Report summarizes major themes influencing vaccine hesitancy and uptake that were identified through rapid review and analyses of numerous sources and inputs (see Appendix). 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.

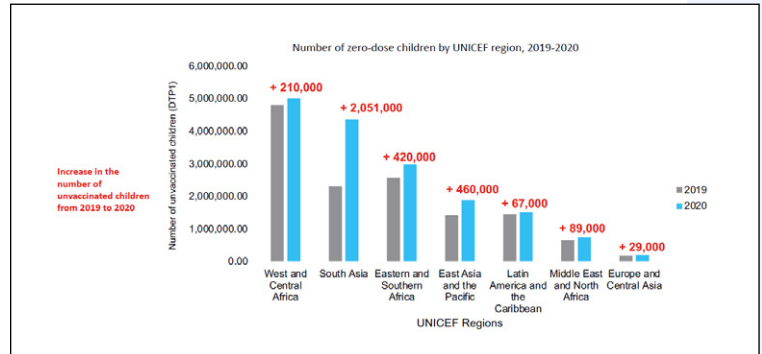
The information in this report is only a snapshot, and certain populations may be underrepresented. Images and quotes are illustrative examples and are not meant to comprehensively cover all content related to the highlighted themes.

Impact of the COVID-19 pandemic on routine vaccinations^b

Global Impact^c

According to a November 2021 UNICEF report, declines in routine vaccination occurred worldwide in 2021, with 25 million children missing out on lifesaving vaccines. This is 2 million more than in 2020 and 6 million more than in 2019.³⁴

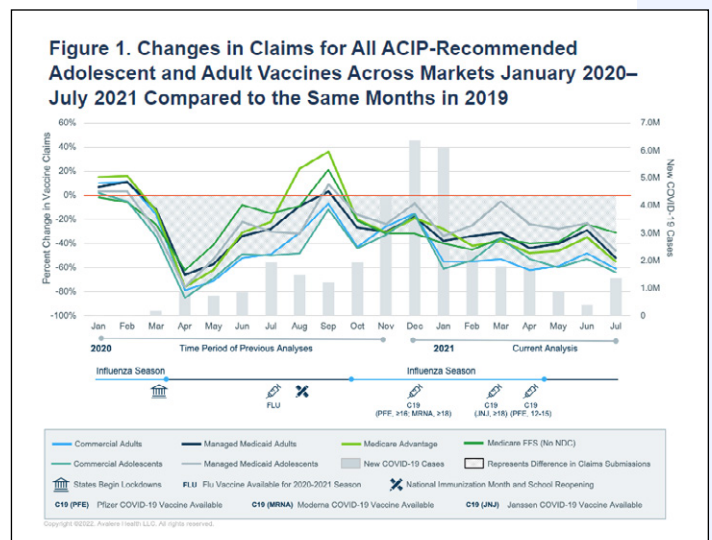
Several studies of vaccination rates in non-US countries also found a decline in adult and childhood routine immunizations during the COVID-19 pandemic.^{6,7,8,9,10,11} A systematic review of country-level studies found that 21 of 26 studies (81%) demonstrated decreased vaccination rates in children during the COVID-19 pandemic.³⁵ A WHO pulse survey found that 45 (69%) of 65 countries showed disruption in vaccination outreach services compared with 27 (44%) of 62 countries with disrupted fixed-post immunization services, with the most significant decline (57%) in diphtheria–pertussis–tetanus-containing vaccine (DTP3) and first dose of measles-containing vaccine (MCV1) occurring in the WHO South-East Asia Region.³⁶ However, the same survey found that most WHO regions, except the South-East Asia region and the Western Pacific region, returned to or exceeded pre-pandemic vaccination baseline by December 2020.



Domestic Impact

Several studies found a decline in rates of routine vaccinations during the COVID-19 pandemic in the US.^{37,38,39,40,41} All studies found that routine vaccination rates rebounded to some extent, but most US-centric studies found that they did not return to pre-pandemic levels.

A study by Avalere, using pre-adjudicated medical benefit Medicare Fee-For-Service (FFS) claims, found that from January 2020–July 2021, monthly vaccine claims decreased on average by 32% for adults and 36% for adolescents compared to the same months in 2019.⁴² Additionally, they found that declines in ACIP-recommended adult vaccinations persisted from December 2020–July 2021. Total vaccine claims in this timeframe were between 7%–64% lower than 2019 claims in adolescents and 15%–62% lower than 2019 claims in adults.

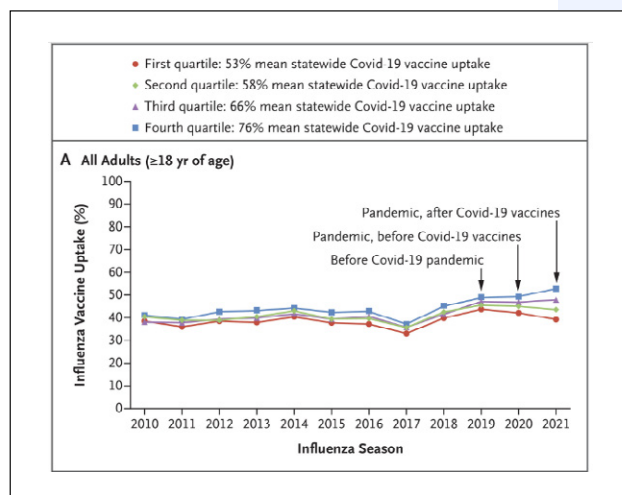


^bCitations in this report are illustrative examples and are not the total number of instances of the corresponding themes.

^cSocial media citations can be found in [this linked document](#).

In the US, in 2020, coverage was approximately 94% for MMR, DTaP, and varicella vaccines for kindergarten students in the U.S., approximately one percentage point lower than the previous school year. The exemption rate remained low at 2.2%, based on data from kindergarten vaccination assessments.⁴³

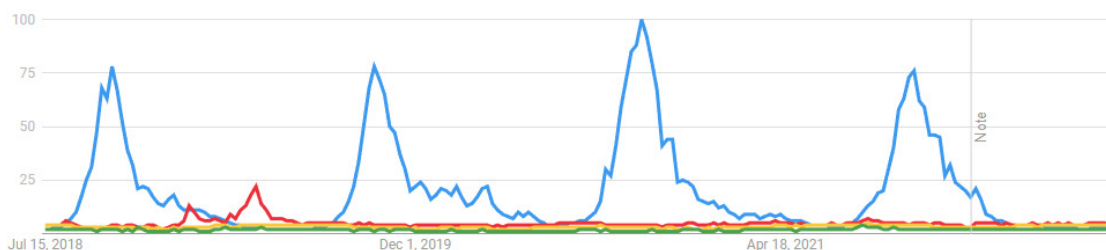
A study using [CDC FluVaxView](#) data found that adult influenza vaccine uptake decreased from 43.7% to 39.2% in states with the lowest COVID-19 vaccine uptake and only decreased after the COVID-19 vaccine was introduced. This suggests that some factors associated with COVID-19 vaccine confidence may have carried over to affect influenza vaccination rates. However, it is important to note that after COVID-19 vaccines became widely available (2021–2022 season), adult influenza vaccine uptake increased within states in the top two quartiles of COVID-19 vaccine uptake. Additionally, pediatric influenza vaccination decreased in all states and influenza vaccination levels increased in adults 65 years and older.⁴⁴



In addition to COVID-19 vaccine hesitancy affecting decreased routine childhood vaccination rates, lockdown and shelter-in-place orders also likely impacted childhood vaccination uptake.⁴⁵ During the early months of the COVID-19 pandemic, patients canceled or postponed visits,⁴⁶ and increased use of online or telemedicine appointments.⁴⁷

Evidence negating an association of hesitancy between COVID-19 vaccines and other vaccines

- Some social media users opposed to the COVID-19 vaccine still support routinely recommended vaccines because of a perception of fewer or less severe side effects,⁴⁸ longer-lasting protection,^{53,54} and more data on the safety of routine vaccines.^{49,50}
- Some social media users state that other vaccines are safe because they were made in a more traditional way than the COVID-19 mRNA vaccines.^{51,52,53,54}
- A Google Trends analysis found no meaningful differences from 2018-2022 in the frequency of searches related to the influenza vaccine, MMR vaccine, tetanus vaccine, or the varicella vaccine.^d



- However, when focusing only on searches related to getting each vaccine (i.e., “get flu vaccine”), searches increased 142% for the influenza vaccine and 16% for the varicella vaccine when comparing the peak annual searches in 2019 and 2021.^e

^d[Google Trends](#). The Y-axis represents the number of searches per week.

^eThe vertical line on the trends graph indicates when Google applied an improvement to their data collection system.



- A study among parents in California during September 2020 and February 2021 (n = 175) found no statistically significant change from before to during the pandemic in how parents perceived the importance of influenza vaccines.⁵⁵
- A survey (N = 2232) by the American Academy of Family Physicians (AAFP), fielded from March 4th and 5th, 2021, found that 33% of respondents had delayed their medical care due to concerns about COVID-19, and 16% of parents had delayed their child's/dependent's medical care. The same survey found that the majority of respondents expressed either no change (39.3%)^f or an increase (29.3%) in vaccine confidence since the pandemic's start.⁵⁶



Evidence supporting an association of vaccine hesitancy between COVID-19 vaccines and other vaccines

- The AAFP survey (N = 2232), however, also found that 20.8% of respondents reported a decrease in vaccine confidence since the start of the COVID-19 pandemic.⁵⁷
- A cross-sectional study in May 2020 of parents and guardians with children ages 6 months through 5 years old found that of the respondents (N = 2,164) whose children did not receive the 2019-2020 seasonal influenza vaccine, 34% reported they were less likely to get their child the 2020-2021 seasonal influenza vaccine due to the COVID-19 pandemic.⁵⁸
- Some social media users,^{59,60,61,62,63} websites⁶⁴ and news outlets^{65,66,67,68,69,70} are explicitly stating that their concern or some patient's and parents' concerns about the COVID-19 vaccine now applies to other vaccines.
- Some social media users leveraged online COVID-19 conversations to amplify their claim that routine vaccines are "just as dangerous" as the COVID-19 vaccines or that "all vaccines are dangerous."^{71,72,73}
- Some social media users claim that the COVID-19 pandemic caused people to learn more about vaccines, including misinformation, causing them to be concerned about all vaccines.^{74,75}
- Some social media users perceive the liability protection of COVID-19 vaccine manufacturers as evidence of likely vaccine harm.^{76,77}
- Some social media users are using conversations of COVID-19 vaccine VAERS data to mention the adverse events reported in VAERS for all vaccines and promoting misinterpretations of VAERS data and conclusions that can be drawn from VAERS.^{78,79}
- Some members of the public asked questions to CDC-INFO looking for more information about how side effects from COVID-19 vaccines might predict side effects from routine vaccinations. Questions like these might indicate that some people might have similar questions that are stopping them from getting vaccinated.⁹

A COVID Silver Lining? More Parents Than Ever Questioning 'Routine' Childhood Vaccines

Children and teen vaccination rates began plummeting with the onset of the pandemic, and as concerns surfaced around the safety of COVID-19 vaccines, some parents also began questioning the need for the long list of other vaccines recommended by public health officials.

By The Defender Staff

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ShannaBanana
@AnnaBan45608178

Replying to @AaronTyshynski @TheGregLongbow and @JamieSale

How can you trust the same system and entities that "vetted" these other vaccines when they all lied so heavily about the covid jab? 🤔 How are you not questioning all previous jabs at this point?? Wakey wakey

7:15 AM · Aug 15, 2022 · Twitter Web App

^fFrom the AAFP study: *It should be noted that no change in confidence could represent people with a high degree of confidence prior to the pandemic remaining confident; however, it could also represent people with a low degree of confidence remaining skeptical.*

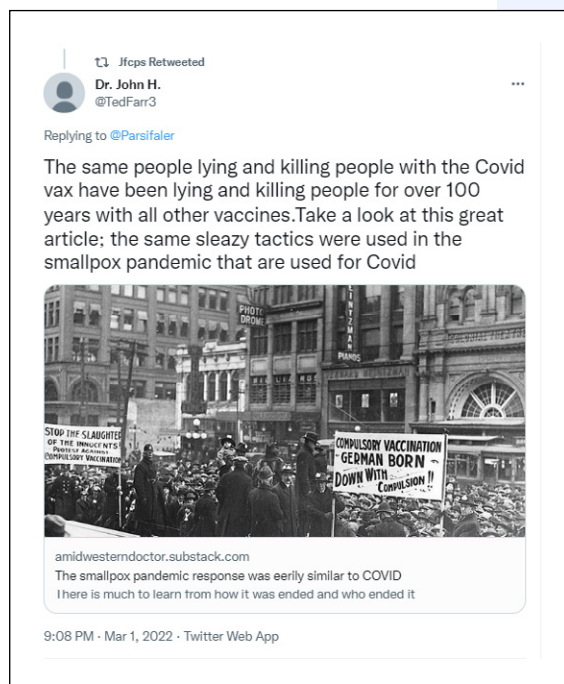
⁹[CDC-INFO](https://www.cdc.gov/cdc-info/)



- Some social media users leveraged COVID-19 conversations to tell others about the [National Vaccine Compensation Injury Program](#) as evidence that all vaccines are unsafe.^{80,81,82}
- Some social media users leveraged COVID-19 vaccine conversations to promote alternatives to all routine vaccinations, such as diet, exercise, and supplements.^{83,84,85}
- Several studies have identified specific demographic groups that require additional support to increase routine vaccination rates. Of those studies that identified groups, the following groups might be more susceptible to lower routine vaccine uptake due to COVID-19 and therefore require targeted vaccination campaigns to improve routine vaccination:^{86,87,88,89}
 - Certain racial and ethnic groups such as non-Hispanic Black children, non-Hispanic Black adults, American Indian or Alaska Native populations, and those who identify as gender non-conforming
 - Younger parents
 - Highly educated parents
 - Families with less education, people of lower socioeconomic status, and people without a primary care provider
 - People who did vaccinate their children with influenza vaccination in the previous season
 - Parents with a history of SARS-CoV-2 infection among their children

Suggested reasons for how impacts of the COVID-19 pandemic carried over to other routine immunizations:^h

- Some believe that economic stability, including access to routine healthcare services, has not recovered for some individuals and families since the start of the pandemic which may impact access to care and routine vaccination services.⁹⁰
- Some authors, social media users and news stories report that pandemic-related increases in lack of trust in government, scientific processes, and the healthcare industry continue to impact vaccination rates.^{91,92}
- Some authors and news outlets suggest possible contributors to routine vaccine hesitancy include medical mistrust, an increase in the availability of vaccine misinformation and concerning factual vaccine information due to newly developed and expanded vaccine skeptic networks, especially with political extremist groups, which led to more people believing vaccines are neither safe nor effective.^{93,94,95}
- Some social media users frequently shared and promoted their beliefs that other protective measures are safer and more effective, including a healthy diet, exercise, sunlight, and a variety of vitamin and mineral supplements.^{96,97,98}
- Some social media users promoting the COVID-19 vaccines may have unintentionally highlighted that some people opposed to COVID-19 vaccination were supportive of other routine vaccinations. This may have supported the reevaluation of previously held vaccine beliefs by people with low vaccine confidence.⁹⁹



^hBased on hypothesized reasons cited in the peer-reviewed literature, news stories, and analysis of social media themes.



- Some news outlets and thought leaders believe a cause for the transfer of low COVID-19 vaccine confidence to other vaccines is at least partly caused by increased political polarization.^{100,101}

Proposed vaccine legislation drafted in response to COVID-19ⁱ

Legislative efforts continue across the country to codify vaccine exemptions in law, outlaw all vaccine requirements altogether, and/or hold employers liable for vaccine injury when they require or promote vaccination for workers. Some consider this as evidence that concern about the COVID-19 vaccines has been applied to routine vaccinations. Although these laws were generally written in response to COVID-19 vaccination requirements, the following examples of legislation were written broadly enough to apply to all vaccines.

Bills that **guarantee** exemptions from all or multiple vaccine requirements

- Alaska House Bill 274 was referred to the Health & Social Services Committee on January 18, 2022
- Minnesota House File 2347 was referred to the Health Finance and Policy Committee on March 22, 2021.
- Montana House Bill 702 bill was signed into law on May 7, 2021, and took effect immediately.
- Nebraska Legislative Bill 643 was re-introduced on January 5, 2022, as a carryover bill from the previous session.
- New Hampshire House 1210, pending Senate approval as of March 17, 2022

Bills that **guarantee** exemptions from workplace vaccine requirements

- Iowa House File 902 was signed into law on October 29, 2021.
- Missouri House Bill 1641 underwent a public hearing on January 12, 2022.
- Missouri House Bill 1485 received a “do pass” recommendation from the House on January 31, 2022.
- Nebraska Legislative Bill 906 was approved by the Governor on February 28, 2022
- Pennsylvania Senate 1004, pending Senate Veterans Affairs and Emergency Preparedness Committee as of January 11, 2022

Bills that **outlaw** all or multiple vaccine requirements

- Arizona Executive Order 2021-18 took effect on August 16, 2021
- Florida Senate 734 failed after three attempts.
- Georgia Senate Bill 345 was introduced on January 14, 2022
- Idaho House Bill 431 was referred to the Health and Welfare Committee on November 15, 2021.
- Indiana Senate Bill 114, was referred to the Committee on Health and Provider Services on January 4, 2022.

ⁱThese legislative efforts are tracked by the Insights Team at the law firm of Husch and Blackwell and [can be found here](#).

- Minnesota House File 1245 and Senate File 2394 were referred to the Health Finance and Policy Committee by April 12, 2021.
- New Hampshire House Bill 1224 underwent a public hearing on February 1, 2022.
- Pennsylvania Senate 471 was set for reconsideration on January 26, 2022.

Bills that outlaw workplace vaccine requirements

- Hawaii House Bill 241 was carried over to the 2022 regular session on December 10, 2021.
- Indiana Senate Bill 30, Senate Bill 31, and Senate Bill 286, Senate Bill 330 were referred to the Committee on Health and Provider Services on January 4, 2022.
- Kentucky House Bill 28, House Bill 52 and House Bill 93 were introduced on January 4, 2022.
- Michigan Public Act No. 82 was signed into law on September 29, 2021, and took effect immediately.
- Minnesota House File 2541 and companion Senate File 2424 were referred to the Labor, Industry, Veterans and Military Affairs Finance and Policy Committee on April 17, 2021, and the Labor and Industry Policy Committee on April 15, 2021, respectively.
- New Jersey Assembly Bill 781 and its counterpart Senate Bill 125 were referred to the Community Development and Affairs Committee and the Health, Human Services, and Senior Citizens Committee on January 11, 2022, respectively.
- New York Assembly Bill 4602 and Assembly Bill 7100 were re-introduced to the Health Committee on January 5, 2022.
- North Dakota House Bill 1465 was signed into law on May 7, 2021, and took effect immediately.
- Oklahoma Senate Bill 1128 was referred to the Business, Commerce and Tourism Committee on February 8, 2022.
- Oklahoma Senate Bill 1296 was referred to the Judiciary Committee on February 8, 2022.
- Pennsylvania Senate Bill 1004 was referred to the Veterans Affairs and Emergency Preparedness Committee on January 11, 2022.
- South Carolina House Bill 4560 were referred to the Committee on Judiciary on January 11, 2022
- Tennessee Act No. 6 was signed into law November 12, 2021, and took effect on November 18, 2021.

Bills that hold employers liable for injuries associated with workplace requirements or by incentivizing vaccinations

- Alaska House Bill 16 was referred to the Committee on Judiciary on January 11, 2022
- Alaska House Bill 29 referred to the Committee on Judiciary on January 11, 2022
- Arizona Senate Bill 1494 was approved by Governor on July 6, 2022

Education Week @educationweek

Loopholes could allow parents in virtually every state to opt their children out of routine vaccines required for school attendance for religious or philosophical reasons.

Here's a look at how these exemptions could affect COVID mandates for kids.
edwk.it/3mldZAR

Non-Medical State Exemptions from School Immunization Requirements, 2021

NOTE: States provide varying exemptions from laws that require routine childhood vaccines for school attendance. No state has yet mandated the COVID-19 vaccine for students.
 SOURCE: National Conference of State Legislatures



- Oklahoma Senate Bill 1106 was referred to the Judiciary and Appropriations committees on February 8, 2022.
- South Dakota House Bill 1008 was referred to the Judiciary Committee on January 13, 2022.
- West Virginia House Bill 4030 was referred to the Workforce Development Committee on January 12, 2022.

Select suggestions for increasing routine vaccinations from the data sources:

The following suggestions for increasing routine immunization rates were identified in a selection of peer-reviewed literature specifically related to increasing routine vaccinations caused by the decline in routine immunizations during the COVID-19 pandemic. The suggestions are ordered based on the frequency they were recommended:

Peer-reviewed suggestions for providers and at point-of-care

- Consider evidence-based practices highlighted in [The Community Guide](#). Some evidence-based strategies recommended by the Community Preventative Services Task Force include:¹⁰²
 - Worksite vaccinations sites
 - Home vaccination visits
 - Vaccination requirements for child care, school and college attendance
 - Reducing client out-of-pocket costs
 - Schools and organized child care centers vaccination sites
 - Clinic-based client education
- Expand vaccination sites by adding in-car and in-home vaccination programs to the routine in-clinic immunization or establishing mobile vaccination centers that provide services in strategic places such as marketplaces and social or cultural centers.^{103,104}
- Develop or build healthcare provider capacity to use electronic medical records to identify skipped pediatric [and adult] vaccinations.^{105,106}
- Healthcare providers can implement Reminder/Recall systems allowing patients to be informed of vaccine appointments via email, text messages, or phone calls.^{107,108}
- Implement, improve or increase follow-up activities by schools and immunization programs with under-vaccinated students.¹⁰⁹
- Health care providers should assess the vaccination status of both pediatric and adolescent patients and contact those who are behind schedule to ensure that both groups are fully vaccinated.¹¹⁰
- Recommend increasing the frequency of well-child care medical visits during the next year.¹¹¹
- Creating devoted places and times for vaccination-only services, using safety protocols by the vaccinators, limiting the number of people in clinics, and changing public perception of vaccination and the consequences of the delay in routine vaccinations.¹¹²
- Increase outreach by schools and immunization programs to first-time students, including kindergartners and first graders.¹¹³
- Recommend offering patient incentives to vaccinate.¹¹⁴



Peer-reviewed suggestions for partnerships and collaborations

- Develop and implement a consolidated and coordinated effort among multiple partners to promote catching up and staying up-to-date on routine vaccinations through national, state, and local catch-up campaigns.^{115,116,117,118}
- Identify and address vaccine misinformation, especially by supporting communities most impacted or in need.¹¹⁹
- Establishment of an observatory for collecting and analyzing misinformation jointly with national and international health organizations.¹²⁰
- Provide additional support to those communities that were at higher risk before the pandemic, such as communities with children who are not immunized or defined as zero dose with several risk factors for poor health outcomes.¹²¹

Peer-reviewed suggestions for public health communication strategies

- Public health authorities should work with providers and the general public to ensure messages clearly and more consistently communicate the importance, value and safety of routine immunization, and increase knowledge of recommended vaccines (including the rationale for use and safety aspects) to help alleviate concerns and address vaccine hesitancy.^{123,124}
- Craft messages for demographic groups that need to catch up on routine vaccinations with the appropriate messaging modality (See page 7 of this report).¹²⁵
- Identify, engage, and work with trusted leaders in the community to craft and disseminate public health messages about the value of routine vaccines that resonate with the community. This is especially important when the discussion around public health becomes tainted with political and/or non-medical aspects.¹²⁶
- Leverage social media to create awareness regarding the need for and importance of routine immunization and encourage people to vaccinate.¹²⁷

Peer-reviewed suggestions of systemwide strategies

- Develop health-system resilience features when developing or restructuring health programs and establishing best practices to ensure strong primary health care would more efficiently address future pandemics and benefit societal health.¹²⁸
- Shift equity-based approaches from equity of vaccine coverage to equity of community resilience. As an illustration, similar vaccination coverage in two individual communities might belie true health equality if one community is more vulnerable to disruption and less able to recover from serious health system incursions.¹²⁹
- Expand vaccination requirements. This may help close gaps that emerged during the COVID-19 pandemic. Additionally, there is strong evidence that school-related vaccine requirements support and maintain high immunization coverage in K-12 schools.¹³⁰

Suggestions from the American Academy of Family Physicians Report

Surveying the Effect of the COVID-19 Pandemic on Public Confidence in Vaccines and Vaccine Messengers: Lessons Learned and Challenges Ahead:5

- Increase funding for primary care training programs to expand the primary care workforce.
- Increase compensation for public health and preventive health care services.



- Increase funding and support for health care professionals who work in rural and underserved communities.
- Return vaccines and vaccine conversations back into the hands of primary care clinicians through funding for clinic-based vaccine programs.
- Encourage the role of primary care clinicians and representative organizations, including the AAFP, in public vaccine messaging and in the news media.
- Increase representation of people from racial and ethnic minority groups in the fields of science, medicine, and public health.
- Focus on the inclusion of people from racial and ethnic minority groups and other underrepresented populations in research trials.
- Partner with leaders and community members from racial and ethnic minority groups to provide better education, nutrition, technology, and access to medical care on an ongoing basis, not just in times of crisis.
- Value and promote public representatives and government officials with a scientific or medical background.
- Encourage governmental organizations, such as the National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), and the US Food and Drug Administration (FDA), to have a more public presence and to increase transparency and improve communication with the general public to garner trust.



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
AAFP Report	One time	<ul style="list-style-type: none"> ▪ Web-based survey 	<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
UNICEF Impact of COVID-19 Report	One time	<ul style="list-style-type: none"> ▪ Country-level data 	<ul style="list-style-type: none"> ▪ National and international trends in routine vaccine uptake