



CDC's State of Vaccine Confidence Insights Report

Vaccine Hesitancy Among
Pregnant People

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**Center for Disease Control and Prevention
Immunization Services Division, 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).



Report Summary

This State of Vaccine Confidence Insights Report emphasizes major themes influencing general vaccine confidence and uptake among individuals who are currently pregnant or planning to become pregnant, with a particular focus on COVID-19 vaccination.

Themes with the potential to impact vaccine confidence and demand:

- **Theme 1:** Many pregnant people do not have adequate information about the benefits and risks of vaccination during pregnancy or are susceptible to circulating misinformation about receiving vaccines during pregnancy.
- **Theme 2:** Many pregnant people are concerned about vaccine safety and side effects.
- **Theme 3:** Several factors contribute to differences in vaccine uptake between Black, Hispanic, and White populations among pregnant people.

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

- Develop evidence-based, culturally appropriate materials about vaccination during pregnancy to address common concerns, debunk myths, and provide accurate information about vaccine safety and effectiveness. Use clear language, visuals, and relatable examples to effectively communicate accurate information.
- Collaborate with trusted community leaders, healthcare providers, and organizations that have influence and credibility within pregnant populations.
- Encourage pregnant people to become vaccine advocates within their own communities. Provide them with accurate information, resources, and tools to address vaccine-related misinformation and share their positive experiences with vaccination during pregnancy.
- Actively monitor social media platforms, online forums, and other digital spaces visited by pregnant people where vaccine-related misinformation may circulate. When possible and appropriate, swiftly respond with accurate information, providing correct context and addressing concerns raised.
- Highlight positive experiences and outcomes of pregnant people who have received vaccines during pregnancy. Share stories of healthy pregnancies and positive health outcomes for both the mother and baby.
- Disseminate easily understandable materials that explain the benefits and risks of vaccination during pregnancy. Use multiple communication channels, including community events, social media, and local media outlets.
- Reduce barriers to accessing vaccines by establishing vaccination clinics in easily accessible locations, such as community centers, places of worship, or workplaces. Offer flexible scheduling options and extended hours to accommodate pregnant people's needs.
- Enhance healthcare provider education and training on vaccine benefits, risks and recommendations during pregnancy, cultural competency, and effective communication techniques. Equip providers with the skills and accurate information to address concerns and build trust with pregnant people from diverse backgrounds.
- Communicate how and why FDA-approved vaccine package inserts differ from ACIP and CDC vaccine recommendations.

Resources: The following link contains graphics and assets partners can use to address themes in this report: <https://centersfordiseasecontrol.sharefile.com/d-sd7cc301a41a3402ba8626c1c4ac73387>



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Aims and Methods

By reviewing and analyzing numerous specific sources and inputs, this State of Vaccine Confidence Insights Report emphasizes major themes influencing vaccine confidence and uptake in people that are currently, or planning to become, pregnant. Data for this report was specifically gathered to examine how consumers think and feel, social processes, and the practical issues around vaccination during pregnancy. This Insights Report seeks to identify emerging issues related to the spread of inaccurate health information to help identify where intervention efforts can improve vaccine confidence in pregnant people.

The information in this report is only a snapshot, and specific 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)?		
Increasing	Stable	Decreasing
Information spreading rapidly	Information remaining constant at prior level	Information is not gaining further traction and there has been no indication of additional activity



Theme 1: Many pregnant people do not have adequate information about the benefits and risks of vaccination during pregnancy or are susceptible to circulating misinformation about receiving vaccines during pregnancy.

Many pregnant people^a need more information about vaccination during pregnancy or are exposed to circulating misinformation regarding vaccine safety and effectiveness during pregnancy.¹ Making informed decisions about vaccination during pregnancy is crucial to protect the health of both the pregnant individual and their baby. However, limited awareness, complex and conflicting information (discussed further in Theme 2), and exposure to misinformation can hinder their ability to make informed choices. Understanding the knowledge gaps and addressing misinformation are critical for promoting accurate information, enhancing vaccine literacy, and empowering pregnant people to make informed decisions about vaccination during pregnancy.

Perceptions, Concerns, and Threats to Vaccine Confidence

- One study measuring COVID-19 vaccine hesitancy during pregnancy found the most commonly reported reason for low vaccine confidence was low levels of self-reported knowledge.²
- A KFF COVID-19 Vaccine Monitor survey from November 2021 found about 40% of surveyed adults heard that pregnant women should not get the COVID-19 vaccine and thought this was true (17%) or weren't sure (22%). Among women ages 18-44, 18% believed this to be true and 29% were uncertain.³
- A KFF COVID-19 Vaccine Monitor survey from May 2022 found approximately 29% of women who are pregnant or planning to get pregnant believed at least one of three false statements about pregnancy and COVID-19 vaccines. Specifically, 24% of pregnant or women planning to be pregnant mistakenly believed that it is not advisable for pregnant women to receive a COVID-19 vaccine.⁴
- Many people currently or planning to be pregnant have believed widely circulating misinformation that COVID-19 vaccines cause infertility.^{5,6}
- Social media has played a specific role in the spread of inaccurate vaccine-related information. Due to an initial lack of information regarding the safety of COVID-19 vaccination during pregnancy, misconceptions about negative COVID-19 vaccine side effects took hold in online communities of pregnant people.⁷
- Some common platforms pregnant people use for information and support have users that are vocal vaccine skeptics expressing concerns about the safety of vaccination during pregnancy or limited safety data about vaccination of pregnant people, especially COVID-19 vaccines.⁸

^aThe authors acknowledge that not every person who can become pregnant identifies as a woman; as such, this report uses "pregnant people" throughout except when citing studies or polls that were explicitly conducted among people who self-reported as female.

- Concerns about COVID-19 vaccines may have been amplified because initial COVID-19 vaccine trials did not include pregnant people. Limited safety data among pregnant people and their infants, along with differences in vaccine safety and effectiveness statements from CDC compared to FDA-approved vaccine package inserts, contributes to consumer confusion and the potential spread of inaccurate health information.⁹

Why pregnancy forums are rife with health misinformation

Online pregnancy support groups are teeming with vaccine misinformation. We asked experts what can be done

- A systematic review and meta-analysis of factors influencing vaccine decision-making during pregnancy found that pregnant individuals with general knowledge about influenza vaccination were more than five times as likely to receive an influenza vaccine. This importance of influenza vaccine health literacy was similarly evident across several qualitative studies that identified gaps in knowledge and awareness of vaccine recommendations and benefits during pregnancy.¹⁰ In this study, however, a provider recommendation was the factor most strongly associated with influenza vaccination.
- Low awareness and knowledge may affect vaccine demand for new vaccines, such as respiratory syncytial virus (RSV) vaccines. In May 2023, two RSV vaccines—[GSK's Arexvy \(RSVPreF3\)](#) and [Pfizer's Abrysvo \(RSVpreF\)](#)—received FDA approval for individuals aged 60 years and older. Pfizer's Abrysvo vaccine also [received FDA approval](#) in August 2023 for use during pregnancy to protect infants against RSV and was subsequently [recommended by ACIP and CDC](#) in September 2023. This marks a significant milestone as the first RSV vaccine for pregnant people to protect their newborn from severe RSV illness. (For more information about consumer perceptions of RSV vaccination during pregnancy, refer to Theme 2 of this report.)
 - A June 2023 survey from the Annenberg Public Policy Center 2023 found only 7% of surveyed adults thought there was an FDA-approved vaccine against RSV and 73% were unsure whether there was one.¹¹ Notably, 57% of respondents who were presented with a flowchart detailing FDA's rigorous vaccine approval process were very or somewhat likely to recommend the RSV vaccine, if approved, to a pregnant family member or friend, compared with 40% of respondents in a control group who were not exposed to the flowchart.¹²

Common Questions and Queries from the Public

- Which vaccines should people receive before pregnancy?
 - Live virus vaccines, such as the MMR and chickenpox, should not be given to pregnant people, but should be given to them before or after pregnancy, if indicated. Other vaccinations to consider receiving prior to pregnancy include HPV, hepatitis B, and pneumococcal vaccines. The [American College of Obstetricians and Gynecologists](#) (ACOG) recommends that people of reproductive age should have their immunization status assessed annually to determine which vaccines they need, including Tdap, MMR, hepatitis B, and chickenpox. In addition, ACOG recommends that the need for other immunizations be assessed during a pre-pregnancy visit by reviewing health, lifestyle, and occupational risks of other infections and administering required doses as indicated. People considering getting pregnant should talk to their provider about which vaccines they need to be up to date before getting pregnant.



- **Rubella.** [Rubella is a contagious disease](#) that can cause a miscarriage or serious birth defects. The best protection against rubella is the [MMR \(measles-mumps-rubella\) vaccine](#). People who are not up to date with the MMR vaccine should get it before getting pregnant. A pre-pregnancy blood test can assess immunity to rubella. Most people were vaccinated with the MMR vaccine as children but should confirm with their doctor or other healthcare professional.¹³ Because of the theoretical risk to the fetus when the mother receives a live virus vaccine, people should be counseled to avoid becoming pregnant for 28 days after receipt of MMR vaccine. People who are pregnant but not immune to rubella can receive the MMR vaccine after delivery.¹⁴
- **Chickenpox.** Because the effects of the varicella virus on the fetus are unknown, pregnant people should not be vaccinated. Nonpregnant people who are vaccinated should avoid becoming pregnant for 1 month after each injection.¹⁴
- Which vaccines should people receive during pregnancy?
 - **Whooping cough.** Pregnant people can give their babies protection against whooping cough (pertussis) before their little ones are even born. To prevent whooping cough in infants, Tdap vaccine is recommended during the 27th through 36th week of each pregnancy, preferably during the earlier part of this time period.¹⁵ For more information, refer to [ACOG's recommendations and considerations for Tdap vaccination during pregnancy](#).
 - **Influenza.** Pregnant people should get an influenza shot and not the nasal spray influenza vaccine.¹⁶ Influenza vaccine can be given during any trimester of pregnancy. September and October are generally good times to be vaccinated each year. Earlier vaccination (e.g., in July or August) can be considered for people who are in the third trimester of pregnancy during those months.¹⁷ For more information, refer to [ACOG's recommendations and considerations for influenza vaccination during pregnancy](#).
 - **COVID-19.** COVID-19 vaccines can be given at any time, including before or during any trimester of pregnancy, as soon the person is eligible. Pregnant people are more likely to get [severely ill with COVID-19](#) compared with non-pregnant people. Pregnant people can receive a COVID-19 vaccine. Getting a COVID-19 vaccine during pregnancy can prevent severe illness from COVID-19. Patients with questions about getting vaccinated can be referred to talk to their healthcare provider.¹⁸ For more information, refer to [ACOG's recommendations and considerations for COVID-19 vaccination during pregnancy](#) and [CDC COVID-19 vaccine recommendations](#).
 - **RSV.** For the first time, an RSV vaccine is now available for pregnant people to protect their newborn from severe RSV illness, which is the leading cause of hospitalization for U.S. infants. In clinical trials, Pfizer's new RSVpreF vaccine (Abrysvo) reduced the risk of RSV hospitalization for babies by 57 percent in the first six months after birth. To maximize protection for babies after birth, CDC recommends seasonal administration (meaning September through January in most of the continental U.S.) of one dose of RSV vaccine for pregnant people during weeks 32 through 36 of pregnancy.¹⁹ For more information, refer to [ACOG's recommendations and considerations for RSV vaccination during pregnancy](#).



- There are also monoclonal antibody products that can help protect babies and young children from severe disease from an RSV infection. Nirsevimab (Beyfortus) is recommended for all infants younger than 8 months of age born during RSV season or entering their first RSV season, but is not needed, except in rare circumstances, if the infant was born 14 or more days after the mother got RSV vaccine. Nirsevimab is also recommended for some children aged 8 through 19 months who are [at increased risk for severe RSV disease](#) and entering their second RSV season. Side effects after nirsevimab are uncommon and include temporary pain, redness, swelling, or rash. No serious allergic reactions occurred in the clinical trials.²⁰ Note: in October 2023, [CDC issued a health advisory notice](#) to communicate interim recommendations due to the limited supply of nirsevimab for the 2023–2024 RSV season.
- A different monoclonal antibody, palivizumab, is limited to children aged 24 months and younger with certain conditions that place them at high risk for severe RSV disease. It must be given once a month during RSV season. CDC further recommends that providers suspend using nirsevimab in [palivizumab-eligible children](#) aged 8–19 months for the 2023–2024 RSV season. These children should receive palivizumab per [American Academy of Pediatrics \(AAP\) recommendations](#).
- Some people may need other vaccines before, during, or after they become pregnant. For example, for pregnant people who work in a lab or travel to a country where they may be exposed to meningococcal disease, their doctor or healthcare professional may recommend meningococcal vaccination.
 - **Hepatitis A.** For pregnant people who have a history of chronic liver disease, doctors or healthcare professionals may recommend the hepatitis A vaccine.
 - **Hepatitis B.** If not already vaccinated with hepatitis B vaccine (HepB), pregnant people can be vaccinated with HepB in pregnancy, since all adults 19 through 59 years of age are recommended to receive HepB vaccination.¹⁴ Pregnant people should also be screened for hepatitis B infection. The first hepatitis B dose can be given on the same day that a blood sample is taken for screening for infection.
 - **Vaccines for travel.** Pregnant people planning international travel should talk to their doctor or healthcare professional at least 4 to 6 weeks before their trip to discuss any special precautions or necessary vaccines. See [Traveler's Health](#) for additional tips on how to prepare to travel safely.
- Which vaccines should I not get if I am pregnant?
 - Some vaccines are not recommended during pregnancy, such as:
 - [Human papillomavirus \(HPV\) vaccine](#)
 - [Measles, mumps, and rubella \(MMR\) vaccine](#)
 - [Live influenza vaccine \(nasal flu vaccine\)](#)
 - [Varicella \(chickenpox\) vaccine](#)
 - Certain travel vaccines: [yellow fever](#), [typhoid fever](#), and [Japanese encephalitis](#). These travel vaccines should generally not be given during pregnancy, unless your healthcare provider determines that the benefits outweigh the risks.
 - If you get any of these vaccines and then find out you are pregnant, talk to your doctor. Further doses of the vaccines, if needed, should be given *after* your pregnancy has ended.²¹



Ways Public Health and Partners Can Take Action to Improve Vaccine Confidence

- Develop evidence-based, culturally appropriate materials about vaccination during pregnancy to address common concerns, debunk myths, and provide accurate information about vaccine safety and effectiveness. Use clear language, visuals, and relatable examples to effectively communicate accurate information.
- Collaborate with trusted community leaders, healthcare providers, and organizations that have influence and credibility within pregnant populations.
- Utilize resources from ACOG to help inform providers about CDC vaccine recommendations endorsed by ACOG for pregnant people.
- Encourage pregnant people to become vaccine advocates within their own communities. Provide them with accurate information, resources, and tools to address vaccine-related inaccurate information and share their positive experiences with vaccination during pregnancy.
- Actively monitor social media platforms, online forums, and other digital spaces visited by pregnant people where vaccine-related misinformation may circulate. When possible and appropriate, swiftly respond with accurate information, providing correct context and addressing concerns raised.
- Offer training to healthcare providers to ensure they are equipped with accurate and up-to-date information on vaccine safety during pregnancy. Support them in effectively addressing patient concerns and debunking vaccine-related misinformation.

Misinformation About COVID-19 Vaccines and Pregnancy is Widespread, Including Among Women Who are Pregnant or Planning to Get Pregnant

Among This Group, 1 in 4 Wrongly Believe Pregnant Women Shouldn't Get Vaccinated, and Many More Aren't Sure About This and Other Myths

Theme 2: Many pregnant people are concerned about vaccine safety and side effects.

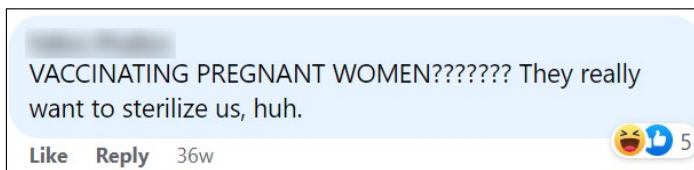
Many pregnant people understand the necessity of vaccines but may have concerns about their safety and potential side effects.²² Because vaccines play a vital role in safeguarding pregnant people or their infants from vaccine-preventable diseases, addressing these concerns is crucial for promoting confidence and informed decision-making. Understanding specific worries regarding vaccine safety and side effects during pregnancy can help tailor communication and education efforts to address these concerns effectively.

Perceptions, Concerns, and Threats to Vaccine Confidence

- The research consistently shows that most pregnant women recognize the significance of vaccination in safeguarding both individuals and the community against infectious diseases.²³ This sentiment is reflected in the high percentage of women expressing their intention to vaccinate their children. Nevertheless, the surveys conducted also revealed that a considerable number of women have reservations regarding vaccine safety. They expressed doubts about the quality and impartiality of information provided by healthcare professionals.²³

- A review of influenza vaccine hesitancy during pregnancy characterizes concerns about vaccine safety as one of the most important factors influencing vaccine decision-making, further noting that safety concerns are commonly expressed not only by pregnant patients but healthcare providers as well.²⁴
- In a recent review examining barriers and facilitators of COVID-19, influenza, and pertussis vaccination during pregnancy, concerns about vaccine safety were the most commonly cited obstacle to vaccination for all three diseases.²⁵
- A circulating regulatory document from the United Kingdom drafted in December 2020 purportedly shows that U.K. health officials recommend against receiving Pfizer's COVID-19 vaccine during pregnancy and while breastfeeding due to safety concerns. However, this is an outdated version of the document that was subsequently updated once safety data became available.²⁶ Nonetheless, many social media users have shared this document claiming the Pfizer COVID-19 vaccine is unsafe for people who are pregnant or breastfeeding.^{27,28,29,^b}
- During the initial COVID-19 vaccine rollout in early 2021, pregnant people faced conflicting vaccine guidance from CDC (advising for vaccination) and WHO (advising against, except in high-risk individuals). Because pregnant people were not included in vaccine clinical trials, both physicians and pregnant people had to consider COVID-19 vaccination during pregnancy with little to no information on safety or effectiveness.³⁰ Soon after, WHO changed their recommendations to align more closely with CDC's guidance.³¹
- A KFF COVID-19 Vaccine Monitor from May 2022 showed 16% of women who are pregnant or plan to become pregnant say they've heard and believe COVID-19 vaccines can cause infertility. Additionally, 17% of women who are pregnant or planning to become pregnant say they have heard and believe it is unsafe for women who are breastfeeding to receive a COVID-19 vaccine.⁴
- Research from the Annenberg Public Policy Center from April 2023 shows a majority (53%) of women ages 18-49 are aware that the seasonal influenza vaccine is safe for pregnant women. However, 17% of women in this group hold the incorrect belief that it is not safe. A substantially higher proportion of women of childbearing age (17%) have doubts about the vaccine's safety for pregnant women compared to women aged 50 and older (4%).³²

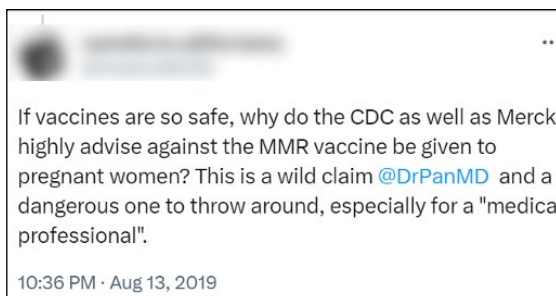
 - According to panel survey findings published by the Annenberg Public Policy Center in February 2023, 49% of adults in the U.S. do not know whether it is safe to receive an influenza shot during pregnancy, including 10% who believe it is unsafe and 39% who are unsure.³³
- Pregnant people who had received a COVID-19 vaccine are using social media to share their experiences of miscarriages that they attribute to the vaccine.^{34,35,36}



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



- Some social media users have concerns about FDA package inserts for certain vaccines that include language stating that the vaccines’ safety and effectiveness “have not been established in pregnant women” and feel it is unethical to recommend these vaccines to pregnant people without more clinical data.^{37,38} Literature indicates that differing information between CDC/ACIP statements of vaccine safety and FDA-approved vaccine package inserts can contribute to vaccine hesitancy and consumer confusion.^{39,40} In a 2019 survey of 321 ACOG members, providers “expressed the need for clearer and succinct wording, and emphasized the need for evidence-based vaccine package inserts that comply with ACOG and ACIP recommendations” to help reduce confusion and improve vaccine uptake during pregnancy.⁴⁰



- GSK’s maternal RSV vaccine application for use during pregnancy was withdrawn and clinical trials halted because of preterm birth concerns, which could impact consumer risk perceptions of maternal RSV vaccination overall (only Pfizer’s RSV vaccine, Abrysvo, is approved for use in pregnant women).^{41,42} In Pfizer’s clinical trials, more preterm births were observed among Abrysvo vaccine recipients than among placebo recipients, although the differences were not statistically significant. To reduce the potential risk of preterm birth and complications from RSV disease, FDA approved Pfizer’s maternal RSV vaccine for use during weeks 32 through 36 of pregnancy while additional studies are conducted.⁴³ Some social media users are choosing to wait until long-term data is available before electing to receive the maternal RSV vaccine.^{44,45}

Inaccurate Health Information Themes

- Some social media users believe Tdap, influenza, and COVID-19 vaccines during pregnancy cause miscarriages.^{46,47,48,49}
- The belief that the maternal RSV vaccines are experimental and lack evidence from long-term studies is circulating on social media.^{50,51,52}
- Some consumers believe the COVID-19 vaccines will cause infertility.^{53,54,55}



Commonly Asked Questions and Queries from the Public

- Are vaccines safe during pregnancy?
 - Specific vaccines are safe and recommended for pregnant people [before, during, or after pregnancy](#) to help keep them and their babies healthy. Vaccination of pregnant people with influenza and Tdap vaccines, for example, has been shown to [prevent influenza and pertussis hospitalizations](#) in infants. The antibodies pregnant people develop in response to these vaccines not only protect them, but also cross the placenta and help protect their babies from serious diseases early in life. Vaccinating during pregnancy also helps protect pregnant people from getting a serious disease and then giving it to their newborn.²¹



- Can vaccines harm developing pregnancies?
 - Risk to a developing fetus from vaccination of the mother during pregnancy is theoretical. No evidence exists of risk to the fetus from vaccinating pregnant people with inactivated virus or bacterial vaccines or toxoids. Live vaccines administered to pregnant people pose a theoretical risk to the fetus; therefore, live, attenuated virus and live bacterial vaccines generally are contraindicated during pregnancy.¹⁴ On this basis, certain vaccines, especially live vaccines, should not be given to pregnant people because they may theoretically be harmful to the pregnancy. Keep in mind that [vaccine recommendations for pregnant people](#) are developed with the highest safety concerns for both mothers and babies.²¹
- Is it safe to receive vaccines while breastfeeding?
 - Yes. It is safe to receive routine vaccines right after giving birth, even while you are breastfeeding. However, yellow fever vaccine is not recommended for people who are breastfeeding unless travel to certain countries is unavoidable and a healthcare provider determines that the benefits of vaccination outweigh the risks. Talk with your provider if you are considering yellow fever vaccine.²¹
- Is the COVID-19 vaccine safe for pregnant people?
 - COVID-19 vaccination is recommended for all people aged 6 months and older. This includes people who are pregnant, breastfeeding, trying to get pregnant now, or those who might become pregnant in the future. Data show that COVID-19 vaccination before and during pregnancy is safe, effective, and beneficial to both pregnant people and their babies.⁵⁶ A summary of the scientific evidence can be found on CDC's website: [COVID-19 Vaccines While Pregnant or Breastfeeding](#) For more information on COVID-19 vaccine safety during pregnancy, visit CDC's [Vaccine Safety Publications](#) webpage.
- What are the side effects of receiving a COVID-19 or influenza vaccine during pregnancy?
 - Side effects after receiving a COVID-19 or influenza vaccine tend to be mild, temporary, and like those experienced after routine vaccinations. People who are pregnant have not reported different side effects from people who are not pregnant after vaccination with mRNA COVID-19 vaccines (Moderna and Pfizer-BioNTech vaccines).⁵⁶ [Common side effects](#) include pain, redness, and/or swelling at the injection site, tiredness, headache, muscle pain, chills, fever, and nausea. If side effects occur, they usually begin soon after the shot is given and generally last for 1-2 days.¹⁷
 - An influenza shot, like other injections, can occasionally cause fainting. Rarely, influenza shots can cause serious problems like severe allergic reactions. Anyone with a severe, life-threatening allergy to any of the vaccine ingredients should not get the shot.¹⁷
 - Fever during pregnancy, for any reason, has been associated with adverse pregnancy outcomes. Fever in pregnancy may be treated with acetaminophen as needed, in moderation and in consultation with a healthcare provider.⁵⁶
- What are the possible side effects of the maternal RSV vaccine?
 - In the clinical trials, the side effects most often reported by pregnant people who received the maternal RSV vaccine (Abrysvo) were pain at the injection site, headache, muscle pain, and nausea. Although not common, a dangerous high blood pressure condition called pre-eclampsia occurred in 1.8% of pregnant people who received the maternal RSV vaccine compared to 1.4% of pregnant people who received a placebo, but this difference was not statistically significant.

- In the clinical trials, more preterm births were observed among maternal RSV vaccine recipients than among placebo recipients, although the differences were not statistically significant. It is not clear if this is a true safety problem related to the RSV vaccine or if this occurred for reasons unrelated to vaccination. To reduce the potential risk of preterm birth and complications from RSV disease, FDA approved the maternal RSV vaccine Abrysvo for use during weeks 32 through 36 of pregnancy while additional studies are conducted. FDA is requiring the manufacturer to do additional studies that will look more closely at the potential risk of preterm births and pregnancy-related high blood pressure issues in mothers, including pre-eclampsia. Additionally, CDC will monitor the safety of maternal RSV vaccination using [multiple vaccine safety systems](#).^{43,57}
- What are vaccine package inserts, and how do they differ from CDC's recommendations for vaccination during pregnancy?
 - A vaccine package insert is a legal document provided by the vaccine manufacturer and approved by the FDA that contains information about a vaccine, including its administration guidelines, dosage, storage, and all potential side effects. Package inserts are not intended to assess the likelihood of an adverse reaction and generally tend to include all adverse events that were temporally associated with a vaccine during clinical trials, whereas CDC's [vaccine information statements](#) tend to emphasize those believed to be causally linked to the vaccine. Package inserts are not typically updated to convey current clinical guidelines or scientific safety data but instead reflect the data from clinical trials, which usually exclude pregnant people from early phases of testing as a precautionary measure. Public health authorities such as CDC do not rely solely on clinical data when making recommendations for vaccines during pregnancy and consider a broader scope of evidence (including observational studies and post-licensure data), expert opinion, and consideration of the potential risks and benefits for both the pregnant individual and the developing fetus. To learn more about package inserts, visit the [Voices for Vaccines](#) website or refer to Meissner et al.'s 2018 *Pediatrics* article on [Understanding FDA-Approved Labeling and CDC Recommendations for Use of Vaccines](#).

Ways Public Health and Partners Can Take Action to Improve Vaccine Confidence

- Provide opportunities for pregnant people to have open and honest conversations with healthcare providers. Allow ample time for discussions, addressing specific concerns and tailoring information to individual needs.
- Highlight positive experiences and outcomes of pregnant people who have received vaccines during pregnancy. Share stories of healthy pregnancies and positive health outcomes for both the mother and baby.
- Continue to monitor [vaccine safety](#) and effectiveness during pregnancy in real-world settings to provide ongoing reassurance and inform public health policies.
- Communicate how and why FDA-approved vaccine package inserts differ from ACIP and CDC vaccine recommendations.

Theme 3: Several factors contribute to differences in vaccine uptake between Black, Hispanic, and White populations among pregnant people.

Vaccine uptake among pregnant people varies across different racial and ethnic groups, with disparities observed between Black, Hispanic, and White communities.⁵⁸ These differences in vaccination rates can have significant implications for the health and well-being of both pregnant people and their infants. Understanding the factors that contribute to these discrepancies is crucial for developing tailored interventions and strategies to promote equitable vaccine access and uptake. Various factors contribute to the differences in vaccine uptake among pregnant racial and ethnic minority populations.

Perceptions, Concerns, and Threats to Vaccine Confidence

- Disparities in vaccination rates persist in racial and ethnic minority populations, especially among Black and Hispanic consumers.^{59,60} A study measuring influenza, Tdap, and COVID-19 vaccination coverage among pregnant women in 2022 found that influenza and Tdap vaccination coverage for both Black and Hispanic women has remained stagnant for three seasons, and in the 2021-22 season, decreased for White women.⁶¹
- Several studies have found that certain factors contribute to lower vaccination rates in Black and Hispanic adults, including negative attitudes and beliefs towards vaccines, limited knowledge of and access to vaccines, and a lack of trust in healthcare providers and vaccines.^{59,62,63} Historical instances of medical injustices and ongoing experiences of mistreatment and racial discrimination contribute to a lack of trust in the healthcare system.^{62,64} Additionally, Black and Hispanic women are also less likely to trust information provided by healthcare providers and public health authorities.⁶³
- A February 2022 study of 435 pregnant women found an average COVID-19 vaccine hesitancy rate of 46 percent. The highest level of vaccine hesitancy, 52 percent, was among non-Hispanic Black pregnant people.⁶⁵
- The COVID-19 pandemic may have contributed to low vaccine uptake in minority pregnant populations due to disrupted prenatal care, therefore providing fewer opportunities for healthcare workers to discuss the benefits of vaccination.^{66,67}

Women of Childbearing Age More Doubtful About Safety of Flu, Covid-19 Vaccines During Pregnancy

Commonly Asked Questions and Queries from the Public

- What are some factors that create challenges to vaccination access and acceptance among racial and ethnic minority groups?
 - There are many social, geographic, political, economic, and environmental factors that create challenges to vaccination access and acceptance, and that often affect racial and ethnic minority groups. Some of these factors include:
 - Education, income, and wealth gaps
 - Job access and working conditions
 - Racism and other forms of discrimination



- Gaps in healthcare access
 - Transportation and neighborhood conditions
 - Lack of trust as a result of past medical racism and experimentation⁶⁸
- Why should pregnant people belonging to racial and ethnic minority groups trust CDC or other federal agencies?
 - CDC is leading vaccine equity efforts with national, state, tribal, territorial, local, and community partners to ensure that Black/African American, Hispanic/Latino, tribal, refugee, and immigrant populations have fair and just access to COVID-19 vaccination. To support vaccine equity, CDC continues to communicate with and listen to all communities affected by COVID-19. CDC is working to build trust, increase collaboration, and create tools and resources to respond to the concerns and feedback from all communities affected by COVID-19, especially those disproportionately impacted. These activities, along with messages supported by science, can help to increase COVID-19 vaccine acceptance and make it easier to get vaccinated.⁶⁸

Ways Public Health and Partners Can Take Action to Improve Vaccine Confidence

- Direct partners to CDC's [Working Together to Reduce Black Maternal Mortality](#) site to help stakeholders identify strategies to reduce black maternal mortality, including vaccination.
- Disseminate easily understandable materials that explain the benefits and risks of vaccination during pregnancy. Use multiple communication channels, including community events, social media, and local media outlets.
- Partner with community leaders, healthcare providers, faith-based organizations, community centers, and other influential stakeholders to disseminate vaccine information and address concerns within the community.
- Reduce barriers to accessing vaccines by establishing vaccination clinics in easily accessible locations, such as community centers, places of worship, or workplaces. Offer flexible scheduling options and extended hours to accommodate pregnant people's needs.
- Enhance healthcare provider education and training on vaccine benefits, risks, and recommendations during pregnancy, cultural competency, and effective communication techniques. Equip providers with the skills and accurate information to address concerns and build trust with pregnant people from diverse backgrounds.
- Continuously monitor vaccination coverage and uptake rates among pregnant racial and ethnic populations to identify trends and areas for improvement. Conduct research studies to better understand the specific factors influencing vaccine hesitancy and uptake within these populations.



References

Note: omitted numbers are social media citations, which can be found in [this online document](#).

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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