

VACCINATION DURING PREGNANCY TO PREVENT SERIOUS RESPIRATORY ILLNESS

Vaccination during Pregnancy to Prevent Serious Respiratory Illness

"The end and aim of all medical practice is prevention; and failing that, cure; and failing that, amelioration." ~Dr. John Ballantyne, Perinatologist, 1902

Ensuring the health of pregnant people and their newborns is a primary goal of prenatal care. And vaccination against respiratory pathogens is an important part of the prenatal care plan. However, some pregnant people and newborns remain vulnerable to respiratory infections for several reasons, including lack of awareness that vaccines are recommended, concerns about the safety of vaccines administered during pregnancy, and lack of access to care.¹

Respiratory illnesses can be severe in pregnant people and newborns, but there is good news. Vaccines against influenza, COVID-19, respiratory syncytial virus (RSV), and whooping cough (pertussis) are not only safe during pregnancy but lower the risk of infection-related complications and hospitalization during pregnancy and for infants after birth.¹

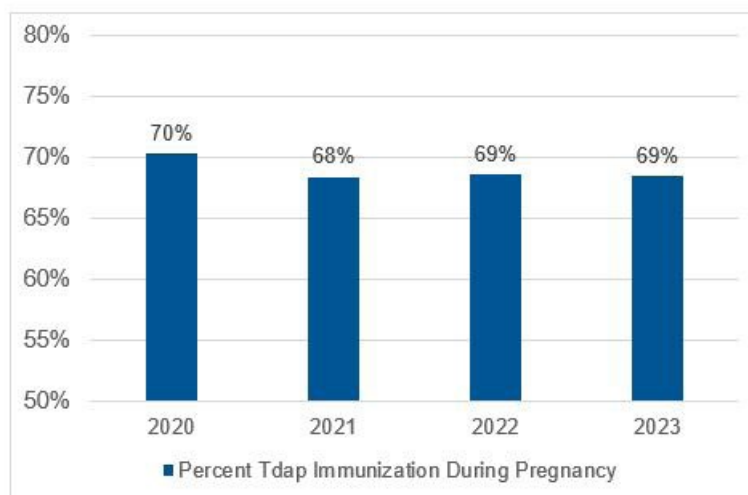
Why Immunize during Pregnancy?

Two reasons: the health of the mother and the health of the baby. During pregnancy, the maternal immune system adjusts to prevent an immune response against the fetus; the heart and lungs work harder to circulate an increased blood volume; and the enlarging uterus exerts pressure on organs in the chest cavity. These stressors increase risk for complications associated with respiratory infections.² A meta-analysis found that the odds of admission to an intensive care unit with COVID-19 was 2.6 times as high in pregnant and recently pregnant women than in non-pregnant women of reproductive age.³

Babies are born with immature immune systems and small lungs and airways, putting them at increased risk for severe respiratory illness.² In fact, about half of infants younger than 1 year old who get pertussis are hospitalized, and 7 in 10 deaths from pertussis occur among infants younger than 2 months old.⁴

Through vaccination, the pregnant person develops antibodies that are actively transferred across the placenta to the baby. The antibodies provide protection for the newborn

FIGURE 1. PERCENT OF INFANTS BORN TO MOTHERS WHO RECEIVED TDAP IMMUNIZATION DURING THE PREGNANCY—OREGON, 2020–2023.



up to 6 months after birth—before they are protected by vaccines typically given at 2, 4, and 6 months of age.⁴

Oregon Rates and Trends

In 2024, Oregon recorded 1,253 pertussis cases. Eighty were infants and only eleven of their mothers were documented to have received the recommended dose of Tdap during pregnancy. Tdap vaccination coverage among pregnant people in Oregon ranged between 68% and 70% during 2020–2023, leaving about 3 in 10 babies without protection against pertussis during the first months of life (Figure 1).

There are disparities by race and ethnicity in Oregon for both Tdap and RSV vaccination during pregnancy. In 2023, Tdap coverage was 6 percentage points lower for American Indian/Alaska Native populations than for the state overall (Figure 2). Likewise, receipt of the RSV vaccine among eligible pregnant people was lower among American Indian/Alaska Native, Black, and Hispanic populations than among other races and ethnicities (Figure 3).

Vaccine Safety and Pregnancy

Safety data collected in the United States on vaccination of pregnant people continue to be reassuring. Monitoring is ongoing through multiple coordinated surveillance systems

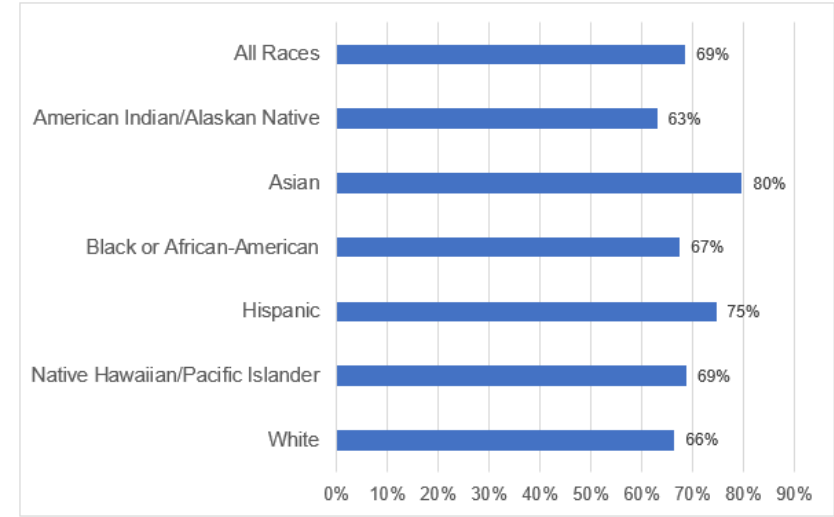
overseen by the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA). Vaccine side effects for pregnant people are generally the same as for the larger population and may include discomfort, swelling, redness, fever, fatigue, and body aches. Symptoms are usually mild and resolve within a few days.⁴

Receipt of inactivated influenza, tetanus-diphtheria-acellular pertussis (Tdap), COVID-19 and RSV vaccines during pregnancy are not associated with increased risk for adverse birth outcomes.⁴ The newest vaccine recommended during pregnancy is the RSV vaccine Abrysvo® (Pfizer), which was licensed in 2023. It was approved based on review of safety and efficacy data from clinical trials, and since then, studies looking more closely at the risk for preterm birth and pregnancy-related high blood pressure have continued. Research published in July 2024 found no increased risk of preterm birth based on maternal vaccination status.⁵

Timing of Vaccinations during Pregnancy

The recommended timing of respiratory vaccines administered during pregnancy optimizes protection when needed. For example, Tdap and RSV vaccines are recommended during the 3rd trimester to maximize maternal antibody transfer to the baby prior to birth. Tdap is recommended during each pregnancy, and a study in six states (including Oregon) found such

FIGURE 2. PERCENT OF INFANTS BORN TO MOTHERS WHO RECEIVED TDAP IMMUNIZATION DURING PREGNANCY, BY RACE AND ETHNICITY—OREGON, 2023.



vaccination to be 78% effective in preventing pertussis among young infants and 91% protective against pertussis-associated hospitalization.⁶

Influenza and COVID-19 vaccines can be given during any trimester to lower risk of severe illness during pregnancy and potential infection-related harm to the developing baby. The influenza vaccine should be administered by the end of October to provide early and consistent protection throughout pregnancy. Newborns benefit from maternal antibodies for several months after birth.⁴

There is no minimum interval between administration of these vaccines. They may be given at the same visit or on separate visits to correspond with gestational age and recommendations of the national Advisory Committee on Immunization Practices (ACIP). See Table 1 for recommended administration schedules during pregnancy.

RSV Protection for Newborns

RSV is the leading cause of infant hospitalization in the United States. CDC recommends that all babies be protected from severe RSV by one of two immunization options: the RSV vaccine (Abrysvo®) during pregnancy or the RSV monoclonal antibody (nirsevimab, brand name Beyfortus®) administered to the newborn. Most babies do not need both, and ACIP has not preferentially recommended one over the other.⁷

For people who have received RSV vaccine during a previous pregnancy, another dose is not currently recommended during subsequent pregnancies. Instead, infants born to a person who did not receive RSV vaccination during pregnancy should receive nirsevimab within one week of birth.⁷

Provider Recommendation is Key

Pregnant patients trust their healthcare providers most when making vaccine decisions. In a CDC analysis of vaccine uptake during pregnancy for the 2023–2024 respiratory

season, vaccination coverage was higher among women who reported receiving a provider’s recommendation for vaccination than among women who did not.⁸ Vaccination at the medical home is ideal, but if not possible, patients should be referred to an alternate site such as a local pharmacy or county health department to receive recommended vaccines. Others who will have close contact with the newborn should be up to date on vaccines as well.

A main driver of a pregnant person’s decision to vaccinate is a desire to protect the baby’s health, so early education and a provider’s recommendation along with an opportunity to discuss concerns will help patients feel confident in their decision to vaccinate.⁹

Report Adverse Events

The continued safety of the U.S. vaccine supply relies on providers reporting adverse events and vaccine administration errors to the Vaccine Adverse Event Reporting System (VAERS). Visit the [VAERS website](#) to learn

more or to make a report.

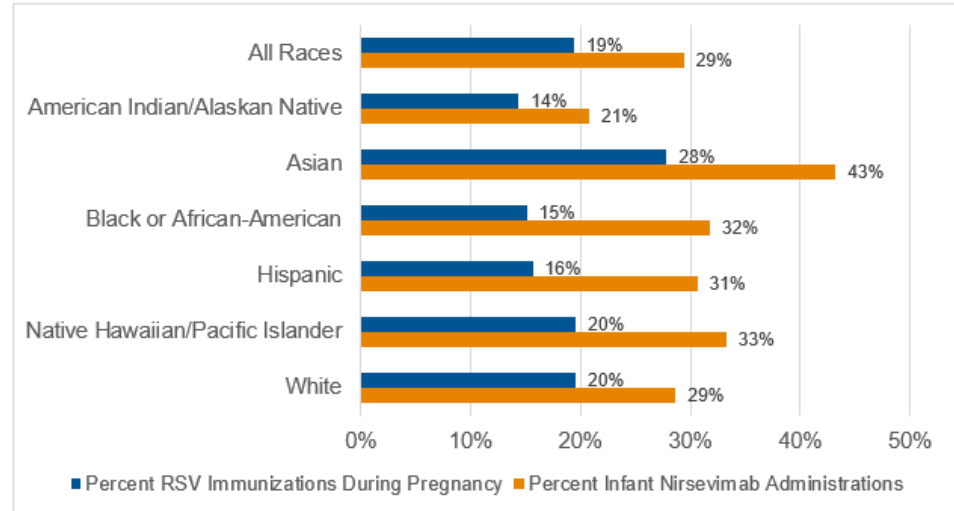
For More Information

- Patient education materials and clinical guidance are available at: www.cdc.gov/vaccines-pregnancy/hcp/index.html
- Talking to Pregnant Patients about Vaccines: www.cdc.gov/vaccines-pregnancy/hcp/conversation-tips/index.html
- If you have immunization questions, contact the Oregon Immunization Program’s Help Desk at 800-980-9431 or email vfc.help@odhsoha.oregon.gov. You will be directed to one of our content experts to get your question answered as soon as possible.

References

1. American College of Obstetricians and Gynecologists. Call to Action: Obstetric Care Professionals Urge Recommended Vaccines during Pregnancy. ACOG; 2024. Available at: <https://www.acog.org/programs/immunization-for-women/activities-initiatives/immunization-for-pregnant-women-a-call-to-action>. Accessed 18 February 2025.
2. Children’s Hospital of Philadelphia. Feature Article — Vaccines During Pregnancy: The History and Reasons Behind the Recommendations. Available at: www.chop.edu/parents-pack/parents-pack-newsletter/feature-article-vaccines-during-pregnancy-history-and-reasons. Accessed 18 February 2025.
3. Allotey J, Fernandez S, Bonet M, et al. Clinical manifestations, risk factors, and maternal and

FIGURE 3. PERCENTAGE OF INFANTS WHOSE MOTHERS RECEIVED RSV IMMUNIZATION DURING PREGNANCY OR WHO RECEIVED NIRSEVIMAB AFTER BIRTH, BY RACE AND ETHNICITY—OREGON, 2023.



Note: RSV immunization and nirsevimab are presented as distinct bars because they reflect separate eligible populations.

perinatal outcomes of coronavirus disease 2019 in pregnancy: living systemic review and meta-analysis. BMJ 2020;370:m3320. Available at: <https://www.bmj.com/content/370/bmj.m3320>. Accessed 18 February 2025.

4. CDC. About Vaccines and Pregnancy. June 17, 2024. Available at: www.cdc.gov/vaccines-pregnancy/about/index.html. Accessed 18 February 2025.
5. Son M, Riley LE, Staniczenko, AP, et al. Nonadjuvanted bivalent respiratory syncytial virus vaccination and perinatal outcomes. JAMA 2024;7:e2419268. Available at: <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2820865>. Accessed 18 February 2025.
6. Skoff TH, Blain AE, Watt J, et al. Impact of the US maternal tetanus, diphtheria, and acellular pertussis vaccination program on preventing pertussis in infants <2 months of age: a case-control evaluation. Clin Infect Dis 2017;65:1977–83. Available at: <https://academic.oup.com/cid/article/65/12/1977/4237166>. Accessed 18 February 2025.
7. American Academy of Pediatrics. Respiratory Syncytial Virus (RSV) Prevention. Available at: www.aap.org/en/patient-care/respiratory-syncytial-virus-rsv-prevention. Accessed 18 February 2025.
8. Kahn KE, Garacci E, Razzaghi H, et al. Flu, Tdap, and COVID-19 Vaccination Coverage Among Pregnant Women—United States, April 2024. CDC FluVaxView Reports. Available at: www.cdc.gov/fluview/covrge-by-season/pregnant-april-2024.html. Accessed 18 February 2025.
9. Razai M, Mansour R, Ravindran P, et al. Facilitators and barriers to vaccination uptake in pregnancy: A qualitative systemic review. PLoS One 2024;19:e0298407. Available at: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0298407>. Accessed 18 February 2025.

TABLE 1. RESPIRATORY VACCINES RECOMMENDED DURING PREGNANCY.

	Vaccine Product	Administration Schedule	Notes
Tdap	Any Tdap product	One dose between gestational weeks 27 through 36	Tdap vaccine is recommended during each pregnancy, preferably during the early part of the 3 rd trimester.
COVID-19	Any current season product	One dose before becoming pregnant or any time during pregnancy following current CDC recommendations	Additional doses may be indicated based on health and vaccination history.
Influenza	Inactivated (IIV) or Recombinant (RIV) only	One dose by the end of October is ideal.	Consider vaccination during July or August for pregnant persons in their 3 rd trimester.
RSV	Abrysvo (Pfizer) only	One dose between 32 through 36 weeks gestation, from September through January or as dictated by local epidemiology	Currently, RSV vaccination is recommended during only one pregnancy. If the pregnant person does not receive RSV vaccine during the current pregnancy, the infant should receive nirsevimab .

[Click for CME credits](#)

[Click to sign up for CD Summary](#)

[Click to view previous CD summaries](#)



Providence Portland Medical Center designates this enduring material for a maximum of .5 AMA PRA Category 1 credit™. Physicians should claim only the credit commensurate with the extent of their participation in the activity. Portland Providence Medical Center is accredited by the Oregon Medical Association to sponsor continuing medical education of physicians.

You can get this document in other languages, large print, braille or a format you prefer. Contact the Public Health Division at 971-673-1222. We accept all relay calls or you can dial 711. for TTY.