



## SUMMARY OF MATERNAL IMMUNIZATION RECOMMENDATIONS

The following vaccination schedule aligns with the recommendations of the Centers for Disease Control and Prevention (CDC) and the American College of Obstetricians and Gynecologists (ACOG).

VACCINE	BEFORE PREGNANCY		PREGNANCY			POSTPARTUM & BREASTFEEDING
	>1 month	1 month	1st Trimester	2nd Trimester	3rd Trimester	
COVID-19	✓	✓	✓	✓	✓	✓
Influenza (inactivated)	✓	✓	✓	✓	✓	✓
Tdap*	✓	✗	✗	✗	✓	✓
Hepatitis A	✓	✓	▲	▲	▲	✓
Hepatitis B	✓	✓	▲	▲	▲	✓
Meningococcal conjugate & serogroup B	✓	✓	▲	▲	▲	✓
Pneumococcal	✓	✓	▲	▲	▲	✓
HPV**	✓	✗	✗	✗	✗	✓
Influenza (live, attenuated)	✓	✗	✗	✗	✗	✓
MMR***	✓	✗	✗	✗	✗	✓
Varicella (chickenpox)	✓	✗	✗	✗	✗	✓

✓ Recommended.

▲ Not recommended, unless high risk for exposure. Must consult a health care provider before proceeding.

✗ Not recommended.

\* Tdap: tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis

\*\* HPV: human papillomavirus, recommended for individuals 26 years and younger

\*\*\* MMR: measles, mumps, and rubella

## HOW VACCINES WORK

When your body is infected with a virus or bacteria, your immune system makes proteins (called antibodies) to help fight the disease. During this process, your body experiences other reactions that may include mild to severe symptoms, such as fever, dehydration, weakness, or trouble breathing.

**Vaccines are designed to train your body to recognize and fight these infections.**

They are created using live but weakened (**attenuated**) forms of a virus, or killed (**inactivated**) versions of the whole germ or parts of it. When taken, vaccines trigger the body's immune response to produce antibodies without getting sick. While vaccines can cause side effects, such as soreness where the shot was given, fatigue, and low-grade fever, most side effects are minor, treatable, and only last a few days. Serious reactions are very rare.

## BEFORE AND AFTER PREGNANCY

Several vaccines are recommended for women at least 4 weeks before becoming pregnant, but not during pregnancy. These vaccines include:

- Human papillomavirus (HPV)
- Measles, mumps, and rubella (MMR)
- Varicella (chicken pox)
- Live attenuated influenza (nasal spray)
- Certain travel vaccines: yellow fever, typhoid, Japanese encephalitis

Women who are at a high risk for exposure to or contracting certain diseases, such as Hepatitis A, Hepatitis B, pneumonia, or meningitis, should consult with their health care provider. Vaccines for these diseases are NOT recommended during pregnancy.

**Some vaccines, especially live vaccines, are not recommended during pregnancy. If you get any of these vaccines and then find out you are pregnant, talk to your doctor immediately.**

# VACCINE SAFETY DURING PREGNANCY

If a woman did not receive a recommended vaccine before or during pregnancy, it is recommended she receive these shots before leaving the hospital after delivery, if possible. It is safe to get these shots even if you are breastfeeding. In fact, it might help build immunity in your baby.

Certain vaccines are safe and recommended for women before, during, and after pregnancy to help keep them and their babies healthy. During pregnancy, vaccinations can help protect a mother from getting a serious disease, and the antibodies can cross the placenta to help protect the baby after birth. There is no evidence of adverse fetal effects from vaccinating pregnant women with inactivated virus, bacterial vaccines, or toxoids.

For **breastfeeding women**, most vaccines are safe to get immediately after birth, except for the yellow fever vaccine. Talk to your provider before getting the yellow fever vaccine while breastfeeding.

## COVID-19

**Recommendation: All eligible individuals, including pregnant and breastfeeding women should complete their COVID-19 vaccination series.**

Pregnant women are at elevated risk for severe illness or death as a result of COVID-19, which also increases risk for preterm delivery and pregnancy loss. While pregnant women were not included in initial clinical trials for the vaccines, evidence about the safety and effectiveness of COVID-19 vaccination during pregnancy has been growing, and data suggest the benefits of receiving the vaccine outweigh any known or potential risks of vaccination during pregnancy.

None of the COVID-19 vaccines contain the live virus that causes the disease; therefore, the vaccine cannot cause infection in recipients, including pregnant women or their babies.

COVID-19 vaccination is recommended for all eligible persons, including those who are pregnant or breastfeeding. Further, due to the lack of scientific evidence supporting claims that link COVID-19 vaccines to

infertility, vaccination is also recommended for individuals trying to get pregnant now or considering future pregnancy.

## INFLUENZA (FLU)

**Recommendation: 1 dose, annually during flu season. Caution: Notify provider of any egg allergy. Do not take live, attenuated vaccine LAIV4 during pregnancy.**

The risks of influenza are underestimated by many, but they can result in severe illness to a pregnant woman, as well as increase the risk of preterm labor and fetal death.



**The World Health Organization considers pregnant women as the highest priority group for flu vaccination.**

The CDC recommends getting the flu vaccine annually, especially during flu season or by the end of October. The most commonly available version – the inactivated influenza vaccine (IIV or RIV4) – is recommended for pregnant women. The live attenuated flu vaccine (LAIV4 nasal spray) is NOT recommended.

## TETANUS AND PERTUSSIS (WHOOPIING COUGH)

**Recommendation: 1 dose every pregnancy, as early as possible in the window of 27–36 weeks of pregnancy.**

Infants represent more than half of all whooping cough cases in the United States, many of which result in hospitalization and can be life-threatening. Despite its name, many babies with whooping cough do not cough at all, but instead struggle to breathe and can turn blue.

Babies younger than 2 months are not eligible for the pertussis vaccine, so they need to acquire protection through their mothers. The tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine should be given early in the third trimester so that immunity is transferred through the placenta.

## REFERENCES

American College of Obstetricians and Gynecologists. Committee Opinion No. 741: Maternal Immunization, reaffirmed June 2021. Available at <https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2018/06/maternal-immunization>

American College of Obstetricians and Gynecologists. Practice Advisory: COVID-19 Vaccination Considerations for Obstetric-Gynecologic Care, updated 30 Jul 2021. Available at <https://www.acog.org/clinical/clinical-guidance/practice-advisory/articles/2020/12/covid-19-vaccination-considerations-for-obstetric-gynecologic-care>

Haberg SE, Trostad L, Gunnes N, et al. N Engl J Med 2013; 368:333–40.

Limley MC, Kahn KE, Bardenheier BH, et al. MMWR 2019; 68:885–892.

Vaccines During Pregnancy. Center for Disease Control and Prevention. Available at <https://www.cdc.gov/vaccinesafety/concerns/vaccines-during-pregnancy.html#Safe> Accessed 22 July 2021.

Support for this educational program has been provided by Merck & Co.



Published September 2021