

# Maternal Immunization

## 2018

*ACOG's toolkit for health care  
providers, with resources to inform  
and protect patients*



The American College of  
Obstetricians and Gynecologists  
WOMEN'S HEALTH CARE PHYSICIANS



**IMMUNIZATION *for* WOMEN**  
Immunization Information for Ob-Gyns and Their Patients



The American College of  
Obstetricians and Gynecologists

WOMEN'S HEALTH CARE PHYSICIANS

**Vice President, Practice Activities**

*Christopher M. Zahn, MD, FACOG*

May 2018

Dear Colleague:

As you know, preventive care for our pregnant patients is critical. Part of that care is ensuring that pregnant women receive the recommended vaccines to protect them and their infants from potentially life-threatening diseases such as influenza and tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap). The American College of Obstetricians and Gynecologists (ACOG) and the Centers for Disease Control and Prevention (CDC) recommend that all pregnant women receive the influenza vaccine and the Tdap vaccine. **As the trusted health care providers of women, you are in a critical position to recommend and offer these vaccines to your pregnant patients during every pregnancy.**

This toolkit provides resources and more information on ACOG's and the CDC's recommendations regarding maternal immunization. We strongly urge you to recommend the influenza vaccine and the Tdap vaccine to all your pregnant patients. The influenza vaccine should be given as early as possible in the flu season, as soon as the vaccine is available. It can be given during any trimester. Many obstetric care providers have found administering Tdap during the same visit as the glucose tolerance test to be an effective strategy. If your patient does not accept your recommendation initially, continue to offer her these vaccines at subsequent office visits. If your practice does not administer vaccines in your office, have a referral plan and be sure to follow up with your patients for documentation of their vaccines. See ACOG's Immunization for Women website, [www.immunizationforwomen.org](http://www.immunizationforwomen.org), for specific details. This website is public and open to ACOG and non-ACOG members.

The enclosed patient education tear pad sheets are recently revised and intended to help you share information about maternal immunizations with your patients. Additional resources are available for you and your staff on ACOG's Immunization for Women website.

The American College of Obstetricians and Gynecologists encourages you to lead by example. Educate your peers and your team about the importance of vaccinations during pregnancy. For up-to-date information on influenza and Tdap, please continue to visit ACOG's Immunization for Women website, which is a great resource for patients.

We hope the enclosed materials are helpful to you, your practice team, and your patients. If you have additional questions or would like additional materials, please contact us at 202-863-2489 or [immunization@acog.org](mailto:immunization@acog.org).

Sincerely,

Christopher M. Zahn, MD  
Vice President, Practice Activities

Laura E. Riley, MD  
Chair, ACOG Immunization, Infectious Disease,  
and Public Health Preparedness Expert Work Group

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# ACOG COMMITTEE OPINION

Number 732 • April 2018

(Replaces Committee Opinion Number 608, September 2014)

## Committee on Obstetric Practice

*This Committee Opinion was developed by the American College of Obstetricians and Gynecologists' Immunization and Emerging Infections Expert Work Group and the Committee on Obstetric Practice in collaboration with Neil S. Silverman, MD, and Richard Beigi, MD.*

## Influenza Vaccination During Pregnancy

**ABSTRACT:** Influenza vaccination is an essential element of prepregnancy, prenatal, and postpartum care because influenza can result in serious illness, including a higher chance of progressing to pneumonia, when it occurs during the antepartum or postpartum period. In addition to hospitalization, pregnant women with influenza are at increased risk of intensive care unit admission and adverse perinatal and neonatal outcomes. The Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices and the American College of Obstetricians and Gynecologists recommend that all adults receive an annual influenza vaccine and that women who are or will be pregnant during influenza season receive an inactivated influenza vaccine as soon as it is available. In the United States, the influenza season typically occurs from October to May. Ideally, an influenza vaccination should be given before the end of October, but vaccination throughout the influenza season is encouraged to ensure protection during the period of circulation. Any of the licensed, recommended, age-appropriate, inactivated influenza vaccines can be given safely during any trimester. Therefore, it is critically important that obstetrician–gynecologists and other obstetric care providers recommend and advocate for the influenza vaccine. Obstetrician–gynecologists are encouraged to stock and administer the influenza vaccine to their pregnant patients in their offices, and should get the influenza vaccine themselves every season. If the influenza vaccine cannot be offered in a practice, obstetrician–gynecologists and obstetric care providers should refer patients to another health care provider, pharmacy, or community vaccination center. This updated Committee Opinion includes more recent data on the safety and efficacy of influenza vaccination during pregnancy and recommendations for treatment and postexposure chemoprophylaxis.

## Recommendations

The American College of Obstetricians and Gynecologists (ACOG) makes the following recommendations:

- The Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices and ACOG recommend that all adults receive an annual influenza vaccine and that women who are or will be pregnant during influenza (flu) season receive an inactivated influenza vaccine as soon as it is available. Any of the licensed, recommended, age-appropriate, inactivated influenza vaccines can be given safely during any trimester.
- Maternal influenza immunization is an essential component of prenatal care for women and their newborns. Obstetrician–gynecologists and other health care providers should counsel pregnant women about the safety and benefits of influenza immunization for themselves and their fetuses and advocate for the benefits of passive immunity from maternal immunization for their newborns.
- Obstetrician–gynecologists are encouraged to stock and administer the influenza vaccine to their pregnant patients in their offices, and should get the influenza vaccine themselves every season.
- If the influenza vaccine cannot be offered in a practice, obstetrician–gynecologists and obstetric care providers should refer patients to another health care provider, pharmacy, or community vaccination center.
- Obstetrician–gynecologists should strongly encourage their office staff to be vaccinated against influenza every season.
- Individuals with a history of egg allergy who have experienced only hives after exposure to egg can

receive any licensed and recommended influenza vaccine that is otherwise appropriate for their age and health status.

- In the case of allergic symptoms more serious than hives, the vaccine should be administered in an inpatient or outpatient medical setting (including, but not necessarily limited to hospitals, clinics, health departments, and physician offices).
- Patients with flu-like illness should be treated with antiviral medications presumptively regardless of vaccination status. Health care providers should not rely on test results to initiate treatment and should treat patients presumptively based on clinical evaluation.
- Because of the high potential for morbidity, the CDC and ACOG recommend that postexposure antiviral chemoprophylaxis (75 mg of oseltamivir once daily for 10 days) be considered for pregnant women and women who are up to 2 weeks postpartum (including pregnancy loss) who have had close contact with someone likely to have been infected with influenza. If oseltamivir is unavailable, zanamivir can be substituted, two inhalations once daily for 10 days.

## Introduction

Published data continue to demonstrate the need for influenza vaccination during pregnancy as well as the importance of recommending and providing vaccination in the office (1–4). During the 2016–2017 influenza season, 53.6% of women reported receiving the influenza vaccine before or during pregnancy (5). Although these numbers reflect significant progress, much room remains for improvement to meet the U.S. Health and Human Services' Healthy People 2020 goal of vaccinating 80% of pregnant women against influenza (6). The American College of Obstetricians and Gynecologists' Immunization and Emerging Infections Expert Work Group and the Committee on Obstetric Practice recommend that all women who are pregnant during influenza season receive an inactivated influenza vaccine in accordance with recommendations from the CDC's Advisory Committee on Immunization Practices (5). This updated Committee Opinion includes more recent data on the safety and efficacy of influenza vaccination during pregnancy and recommendations for treatment and postexposure chemoprophylaxis.

## Background

Influenza vaccination is an essential element of pre-pregnancy, prenatal, and postpartum care because influenza can result in serious illness, including a higher chance of progressing to pneumonia, when it occurs during the antepartum or postpartum period. For example, a retrospective cohort study in Nova Scotia found that women hospitalized for respiratory illness during pregnancy (especially during the third trimester) were more likely to have an increased number of medical visits or an

increased length of stay when compared with the number of visits the year before their pregnancy (7). In this study, the association between pregnancy status and hospital admission was particularly striking for women with comorbidities (7). However, it is important to note that many studies, including the aforementioned study, were not able to confirm the influenza diagnosis with laboratory results, and more studies using confirmatory laboratory results are needed in pregnant women. In addition to hospitalization, pregnant women with influenza are at an increased risk of intensive care unit admission and adverse perinatal and neonatal outcomes (8–10). Finally, morbidity and mortality among pregnant women increases during influenza pandemics, including the 2009 H1N1 influenza pandemic (10–18). Taken together, these data emphasize the importance of influenza vaccination as a vital intervention that all obstetrician–gynecologists and other obstetric care providers should recommend and administer.

In the United States, the influenza season typically occurs from October to May. The CDC's Advisory Committee on Immunization Practices and ACOG recommend that all adults receive an annual influenza vaccine and that women who are or will be pregnant during influenza season receive an inactivated influenza vaccine as soon as it is available. Ideally, an influenza vaccination should be given by the end of October, but vaccination throughout the influenza season is encouraged to ensure protection during the period of circulation. The inactivated influenza vaccine can be given to all pregnant women during any trimester (5). Because influenza vaccines are recommended annually for all adults, pregnant women should be vaccinated even if they received an influenza vaccine during a previous pregnancy. Vaccination in the postpartum period is an alternative only when vaccination during pregnancy cannot be completed.

## Safety

Numerous studies, including clinical trials and observational studies, and data from safety reporting systems have demonstrated consistently the safety of influenza vaccination during pregnancy (19–23). To date, only one small retrospective case–control study has suggested a possible association between receipt of an influenza vaccine containing A/H1N1pdm early in the first trimester and spontaneous abortion in women who also received an influenza vaccine containing A/H1N1pdm in the previous influenza season (24). This association has not been observed during other seasons or other versions of the influenza vaccine. Because of the lack of evidence of biological plausibility, several notable flaws in this study, and the preponderance of other data showing no association, the recommendation for influenza vaccine given in any trimester has not changed (24, 25). Although some researchers have raised concerns that thimerosal, a mercury-containing preservative used in multidose vials of the influenza vaccine, may be unsafe, there is no

scientific evidence that thimerosal-containing vaccines cause health or developmental problems in children born to women who received vaccines with thimerosal during pregnancy (26–28). Therefore, although thimerosal-free formulations of the influenza vaccine are available, the CDC's Advisory Committee on Immunization Practices does not indicate a preference for thimerosal-containing or thimerosal-free vaccines for any group, including pregnant women (19).

Individuals with a history of egg allergy who have experienced only hives after exposure to egg can receive any licensed and recommended influenza vaccine that is otherwise appropriate for their age and health status. A recent study found the rate of anaphylaxis after all vaccines to be 1.31 per one million vaccine doses given (29). Individuals who report having had reactions to egg involving symptoms other than hives (such as angioedema, respiratory distress, lightheadedness, or recurrent emesis) or those who have required epinephrine or another emergency medical intervention, also may receive any licensed and recommended influenza vaccine. However, in the case of allergic symptoms more serious than hives, the vaccine should be administered in an inpatient or outpatient medical setting (including, but not necessarily limited to hospitals, clinics, health departments, and physician offices).

Vaccine administration should be supervised by a health care provider who is able to recognize and manage severe allergic conditions. A previous severe allergic reaction to influenza vaccine, not to eggs, regardless of the component suspected of being responsible for the reaction, is the only current contraindication to future receipt of the influenza vaccine (5).

Currently, pregnant women should receive any licensed, recommended, age-appropriate, inactivated influenza vaccine during any trimester (5). If the timing of the tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine and the influenza vaccine align, it is safe and effective to administer both vaccines during the same visit. It is also safe for breastfeeding women to receive the influenza vaccine if they did not receive it during pregnancy.

### **Efficacy and Benefits**

The efficacy of seasonal influenza vaccination in pregnant women is similar to its efficacy among the general adult population (30). Although the effectiveness of the influenza vaccine can be lower than that of other adult vaccines, vaccination still offers significant protection against influenza. It can mitigate the severity of the effect of influenza when infection does occur and is the primary preventive intervention for pregnant women. A study during the 2012–2013 influenza season demonstrated that pregnant women who were vaccinated had significantly fewer hospitalizations than those who were not (31).

Influenza vaccination during pregnancy also can benefit the newborns of women who received the vac-

cine. Four large-scale, randomized controlled trials and numerous observational studies have demonstrated neonatal protection from maternal influenza vaccination (32–35). Studies also have demonstrated a reduction in hospitalization related to influenza infection among infants born to women who received the vaccine during pregnancy (36, 37). Therefore, because the influenza vaccine is not effective in infants younger than 6 months, passive immunization of fetuses through transplacentally transmitted antibodies is currently the best prevention strategy for newborns (32). Thus, maternal influenza immunization is an essential component of prenatal care for women and their newborns. Obstetrician–gynecologists and other health care providers should counsel pregnant women about the benefits of influenza immunization for themselves and their fetuses and advocate for the benefits of passive immunity from maternal immunization for their newborns.

### **Treatment and Postexposure Chemoprophylaxis in Pregnant Women**

Pregnant women are at high risk of serious complications of influenza infection such as intensive care unit admission, preterm delivery, and maternal death. Patients with flu-like illness should be treated with antiviral medications presumptively regardless of vaccination status. Treatment with oseltamivir (75 mg twice daily for 5 days) is preferred; however, if oseltamivir is unavailable, zanamivir (two inhalations [10 mg] twice daily for 5 days) may be substituted. Health care providers should not rely on test results to initiate treatment and should treat patients presumptively based on clinical evaluation (38).

Because of the high potential for morbidity, the CDC and ACOG recommend that postexposure antiviral chemoprophylaxis (75 mg of oseltamivir once daily for 10 days) be considered for pregnant women and women who are up to 2 weeks postpartum (including pregnancy loss) who have had close contact with someone likely to have been infected with influenza. If oseltamivir is unavailable, zanamivir can be substituted, two inhalations once daily for 10 days. All women who are pregnant or are in the first 2 weeks postpartum should be counseled to call for evaluation immediately if the early signs and symptoms of influenza infection (eg, a fever greater than 100°F coupled with shortness of breath, syncope, or chest pain) develop (38). For more information about treatment and dosage see ACOG and the Society for Maternal–Fetal Medicine's Seasonal Influenza Assessment and Treatment of Pregnant Women with Influenza-like Illness algorithm at [www.acog.org/More-Info/FluVaccine](http://www.acog.org/More-Info/FluVaccine).

### **The Obstetrician–Gynecologist's Role**

Discussion with patients regarding the effects of influenza and the potential benefits of vaccination during pregnancy is particularly important because a lack of knowledge about the benefits of the influenza vaccine has

been shown to be a barrier to vaccine acceptance (39–41). Educational tools with simple chart prompts increase the frequency of discussion between physicians and pregnant women regarding influenza vaccination (42). Moreover, studies consistently suggest that when recommendations for influenza vaccination during pregnancy come directly from a woman’s obstetrician–gynecologist or other obstetric care provider and the vaccine is available in the physician’s office, the odds of vaccine acceptance and receipt are 5-fold to 50-fold higher (1, 2). Therefore, it is critically important that all obstetrician–gynecologists and other obstetric care providers recommend and advocate for the influenza vaccine. Obstetrician–gynecologists are encouraged to stock and administer the influenza vaccine to their pregnant patients in their offices, and should get the influenza vaccine themselves every season. Depending on the size of a practice and services provided, there may not be the means to stock and offer the influenza vaccine in the office. If the influenza vaccine cannot be offered in a practice, obstetrician–gynecologists and obstetric care providers should refer patients to another health care provider, pharmacy, or community vaccination center.

If a patient receives the influenza vaccine outside of the obstetrician–gynecologist’s office, it is important for the site that provided the vaccination to provide proper vaccine documentation if the site does not work directly with a centralized vaccine registration program, so that the patient’s immunization record can be updated appropriately. These combined efforts send a powerful message to pregnant women that vaccination is very important for their protection and for their newborns.

## Conclusion

Pregnant women are particularly vulnerable to influenza infection and its resulting morbidities; therefore, influenza vaccination is an integral element of pre-pregnancy, prenatal, and postpartum care. It is imperative that obstetrician–gynecologists, other health care providers, health care organizations, and public health officials continue efforts to improve the rate of influenza vaccination among pregnant women. Doing so will benefit women and their newborns.

## For More Information

The American College of Obstetricians and Gynecologists has identified additional resources on topics related to this document that may be helpful for obstetrician–gynecologists, other health care providers, and patients. You may view these resources at: [www.acog.org/More-Info/FluVaccine](http://www.acog.org/More-Info/FluVaccine).

These resources are for information only and are not meant to be comprehensive. Referral to these resources does not imply the American College of Obstetricians and Gynecologists’ endorsement of the organization, the organization’s website, or the content of the resource. The resources may change without notice.

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The American College of  
Obstetricians and Gynecologists  
WOMEN'S HEALTH CARE PHYSICIANS

# ACOG COMMITTEE OPINION

Number 718 • September 2017

(Replaces Committee Opinion Number 566, June 2013)

## Committee on Obstetric Practice Immunization and Emerging Infections Expert Work Group

*This Committee Opinion was developed by the Immunization and Emerging Infections Expert Work Group and the Committee on Obstetric Practice, with the assistance of Richard Beigi, MD.*

## Update on Immunization and Pregnancy: Tetanus, Diphtheria, and Pertussis Vaccination

**ABSTRACT:** The overwhelming majority of morbidity and mortality attributable to pertussis infection occurs in infants who are 3 months and younger. Infants do not begin their own vaccine series against pertussis until approximately 2 months of age. This leaves a window of significant vulnerability for newborns, many of whom contract serious pertussis infections from family members and caregivers, especially their mothers, or older siblings, or both. In 2013, the Advisory Committee on Immunization Practices published its updated recommendation that a dose of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) should be administered during each pregnancy, irrespective of the prior history of receiving Tdap. The recommended timing for maternal Tdap vaccination is between 27 weeks and 36 weeks of gestation. To maximize the maternal antibody response and passive antibody transfer and levels in the newborn, vaccination as early as possible in the 27–36-weeks-of-gestation window is recommended. However, the Tdap vaccine may be safely given at any time during pregnancy if needed for wound management, pertussis outbreaks, or other extenuating circumstances. There is no evidence of adverse fetal effects from vaccinating pregnant women with an inactivated virus or bacterial vaccine or toxoid, and a growing body of robust data demonstrate safety of such use. Adolescent and adult family members and caregivers who previously have not received the Tdap vaccine and who have or anticipate having close contact with an infant younger than 12 months should receive a single dose of Tdap to protect against pertussis. Given the rapid evolution of data surrounding this topic, immunization guidelines are likely to change over time, and the American College of Obstetricians and Gynecologists will continue to issue updates accordingly.

### Recommendations

The American College of Obstetricians and Gynecologists (ACOG) makes the following recommendations:

- Obstetric care providers should administer the tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine to all pregnant patients during each pregnancy, as early in the 27–36-weeks-of-gestation window as possible.
- Pregnant women should be counseled that the administration of the Tdap vaccine during each pregnancy is safe and important to make sure that each newborn receives the highest possible protection against pertussis at birth.
- Obstetrician–gynecologists are encouraged to stock and administer the Tdap vaccine in their offices.
- Partners, family members, and infant caregivers should be offered the Tdap vaccine if they have not previously been vaccinated. Ideally, all family members should be vaccinated at least 2 weeks before coming in contact with the newborn.
- If not administered during pregnancy, the Tdap vaccine should be given immediately postpartum if the woman has never received a prior dose of Tdap as an adolescent, adult, or during a previous pregnancy.
- There are certain circumstances in which it is appropriate to administer the Tdap vaccine outside of the 27–36-weeks-of-gestation window. For example, in cases of wound management, a pertussis outbreak, or other extenuating circumstances, the need for protection from infection supercedes the benefit of

administering the vaccine during the 27–36-weeks-of-gestation window.

- If a pregnant woman is vaccinated early in her pregnancy (ie, before 27–36 weeks of gestation), she does not need to be vaccinated again during 27–36 weeks of gestation.

The overwhelming majority of morbidity and mortality attributable to pertussis infection occurs in infants who are 3 months and younger (1). Infants do not begin their own vaccine series against pertussis (with the diphtheria and tetanus toxoids and acellular pertussis [DTaP] vaccine) until approximately 2 months of age (the earliest possible vaccination is at 6 weeks of age) (2). This leaves a window of significant vulnerability for newborns, many of whom contract serious pertussis infections from family members and caregivers, especially the mother, or older siblings, or both (3–5). Starting in 2006, the Advisory Committee on Immunization Practices (ACIP) of the Centers for Disease Control and Prevention recommended an approach to combat neonatal pertussis infection referred to as “cocooning” (6). Cocooning is the administration of Tdap to previously unvaccinated family members and caregivers, and women in the immediate postpartum period, in order to provide a protective cocoon of immunity around the newborn. The Advisory Committee on Immunization Practices and ACOG continue to recommend that adolescent and adult family members and caregivers who previously have not received the Tdap vaccine and who have or anticipate having close contact with an infant younger than 12 months should receive a single dose of Tdap to protect against pertussis (7). However, the cocooning approach alone is no longer the recommended approach to preventing pertussis disease in newborns (and mothers) (8).

In June 2011, ACIP recommended that pregnant women receive a dose of Tdap if they have not previously received it (7). The Advisory Committee on Immunization Practices continued to reconsider this topic in the face of persistent increases in pertussis disease, including infant deaths (9) in the United States. Issues that were considered included an imperative to minimize the significant burden of disease in vulnerable newborns, the reassuring safety data (10, 11) on use of Tdap in adults, and the evolving immunogenicity data that demonstrate considerable waning of immunity after immunization (12). In 2013, ACIP published its updated recommendation that a dose of Tdap should be administered during each pregnancy, irrespective of prior history of receiving the Tdap vaccine (7). The recommended timing for maternal Tdap vaccination is between 27 weeks and 36 weeks of gestation. To maximize the maternal antibody response and passive antibody transfer and levels in the newborn, vaccination as early as possible in the 27–36-weeks-of-gestation window is recommended. However, the Tdap vaccine may safely be given at any time during pregnancy if needed in the case of wound management, pertussis outbreaks,

or other extenuating circumstances in which the need for protection from infection supercedes the benefit of administering the vaccine during the 27–36-weeks-of-gestation window. Additional data available since 2013 increasingly demonstrate that administration of Tdap during the late second or early third trimester (with at least 2 weeks from the time of vaccination to delivery) is highly effective in protecting against neonatal pertussis (13–16). In addition, even when maternal vaccination is not completely protective, infants with pertussis whose mothers received Tdap during pregnancy had significantly less morbidity, including risk of hospitalization and intensive care unit admission (13). Safety data also continue to be reassuring, including when women receive successive Tdap immunizations over a relatively short time because of short-interval pregnancies. New data demonstrate that immunizing against Tdap early within the 27–36-weeks-of-gestation window maximizes the maternal antibody response and passive antibody transfer to the fetus (17). Therefore, giving the Tdap vaccine as early as possible in the 27–36-weeks-of-gestation window appears to be the best strategy (18, 19). Linking the Tdap vaccination to screening for gestational diabetes will allow this to be implemented easily. For women who are Rh negative, another strategy worth consideration is to administer Tdap vaccination during the same visit as Rho(D) immune globulin administration.

Receipt of Tdap between 27 weeks and 36 weeks of gestation in each pregnancy is critical. For women who have never received a prior dose of Tdap, if Tdap was not administered during pregnancy, it should be administered immediately postpartum in order to reduce the risk of transmission to the newborns (7). A woman who did not receive the Tdap vaccine during her most recent pregnancy, but received it previously as an adolescent, adult, or during a prior pregnancy should not receive Tdap postpartum. Additionally, adolescent and adult family members and planned caregivers who have not received the Tdap vaccine also should receive Tdap at least 2 weeks before planned infant contact, as previously recommended (sustained efforts at cocooning) (6). The American College of Obstetricians and Gynecologists’ Immunization and Emerging Infections Expert Work Group and Committee on Obstetric Practice support these recommendations. Pregnant women should be counseled that Tdap vaccination during each pregnancy is safe and important to make sure that each newborn receives the highest possible protection against pertussis at birth. Since protection from previous vaccination is likely to decrease over time, a Tdap vaccination is necessary during every pregnancy to give the best possible protection to the newborn.

Data consistently demonstrate that when a physician recommends and offers a vaccine on site the rate of vaccine acceptance is significantly higher than when physicians either do not recommend, or recommend but do not offer the vaccine (20). The American College of

Obstetricians and Gynecologists encourages obstetrician–gynecologists and other obstetric care providers to strongly recommend and offer Tdap vaccination to all pregnant women between 27 weeks and 36 weeks of gestation in each pregnancy. Additionally, efforts to stock the Tdap vaccine in the obstetrician–gynecologist’s or other health care provider’s office and administer it as early in the recommended window as possible offers the best chance of vaccine acceptance and neonatal protection. Depending on the size of a practice and services provided, there may not be the means to supply and offer the Tdap vaccine in the office. If the Tdap vaccine cannot be offered in a practice, patients should be referred to another health care provider when possible. For example, pharmacists are well equipped to give immunizations, and the Tdap vaccine is available at most major pharmacies. If patients receive the Tdap vaccine outside of the obstetrician–gynecologist’s office, it is important for them to provide proper vaccine documentation so a patient’s immunization record can be updated. Given the rapid evolution of data surrounding this topic, immunization guidelines are likely to change over time, and ACOG will continue to issue updates accordingly.

### **General Considerations Surrounding Immunization During Pregnancy**

The American College of Obstetricians and Gynecologists recommends routine assessment of each pregnant woman’s immunization status and administration of indicated immunizations. Importantly, evolving data demonstrate maternal and neonatal protection against an increasing number of aggressive newborn pathogens through the use of maternal immunization, suggesting pregnancy is an optimal time to immunize for disease prevention in women and newborns (13–16, 21, 22). There is no evidence of adverse fetal effects from vaccinating pregnant women with an inactivated virus or bacterial vaccines or toxoids, and a growing body of robust data demonstrate safety of such use (11). Concomitant administration of indicated inactivated vaccines during pregnancy (ie, Tdap and influenza) is also acceptable, safe, and may optimize effectiveness of immunization efforts (10). Furthermore, no evidence exists that suggests that any vaccine is associated with an increased risk of autism or adverse effects due to exposure to traces of the mercury-containing preservative thimerosal (23–26). The Tdap vaccines do not contain thimerosal. The benefits of inactivated vaccines outweigh any unproven potential concerns. It is important to remember that live attenuated vaccines (eg, measles–mumps–rubella [MMR], varicella, and live attenuated influenza vaccine) do pose a theoretical risk (although never documented or proved) to the fetus and generally should be avoided during pregnancy. All vaccines administered during pregnancy as well as health care provider-driven discussions about the indications and benefits of immunization during pregnancy should be fully documented in the patient’s prenatal record. In

addition, if a patient declines vaccination, this refusal should be documented in the patient’s prenatal record, and the health care provider is advised to revisit the issue of vaccination at subsequent visits.

## **Special Situations During Pregnancy**

### **Ongoing Epidemics**

Pregnant women who live in geographic regions with new outbreaks or epidemics of pertussis should be immunized as soon as feasibly possible for their own protection in accordance with local recommendations for nonpregnant adults. In these acute situations, less emphasis should be given to targeting the proposed optimal gestation window (between 27 weeks and 36 weeks of gestation) given the imperative to protect the woman from locally prevalent disease. Newborn protection will still be garnered from vaccination earlier in the same pregnancy. Importantly, a pregnant woman should not be revaccinated later in the same pregnancy if she received the vaccine in the first or second trimester (7).

*Example case:* A pregnant woman at 8 weeks of gestation with one kindergarten-aged child at home calls the office and mentions that pertussis has recently been diagnosed in four different children by their pediatricians in her neighborhood. She is not sure what to do and has heard that she is supposed to get a Tdap vaccination in the third trimester. How should you best manage this patient?

*Answer:* Advise her to come that day and receive the Tdap vaccine in your office. She should be reassured that Tdap vaccination is safe to give at any point in pregnancy and that getting the vaccine now will directly protect her, indirectly protect her fetus, and also will offer some protection for her newborn from pertussis. She will only need to receive the Tdap vaccine once during pregnancy. All other adolescent and adult family members also should be advised to make sure they are up-to-date with their Tdap vaccine to ensure protection for themselves and the newborn.

### **Wound Management**

As part of standard wound management care to prevent tetanus, a tetanus toxoid-containing vaccine is recommended in a pregnant woman if 5 years or more have elapsed since her previous tetanus and diphtheria (Td) vaccination. If a Td booster vaccination is indicated in a pregnant woman for acute wound management, the obstetrician–gynecologist or other health care provider should administer the Tdap vaccine, irrespective of gestational age (7). A pregnant woman should not be revaccinated with Tdap in the same pregnancy if she received the vaccine in the first or second trimester.

*Example case:* An emergency department (ED) physician calls you about a patient, gravida 4, para 3, at 13 weeks of gestation who is being seen after accidentally stepping on a rusty nail. The patient cannot remember when she last received a tetanus booster and the ED physician is confused about when to administer the indicated

tetanus booster because the Centers for Disease Control and Prevention guidelines recommend the administration of Tdap between 27 weeks and 36 weeks of gestation. How should you advise the ED physician?

*Answer:* The ED physician should be advised that the appropriate acute wound management strategy for the patient is to receive a dose of Tdap now. This vaccine replaces the solitary tetanus booster vaccine, and administering it now as part of acute wound management is the most important factor. The patient should be told that getting Tdap now will preclude her getting it again between 27 weeks and 36 weeks of gestation in this pregnancy. She and her fetus will still receive pertussis prevention benefits from receipt at 13 weeks of gestation.

### **Indicated Tetanus and Diphtheria Booster Vaccination**

If a Td booster vaccination is indicated during pregnancy (ie, more than 10 years since the previous Td vaccination) then obstetrician–gynecologists and other health care providers should administer the Tdap vaccine during pregnancy within the 27–36-weeks-of-gestation window (7). This recommendation is because of the nonurgent nature of this indication and the desire for maternal immunity. It also will maximize antibody transfer to the newborn.

### **Unknown or Incomplete Tetanus Vaccination**

To ensure protection against maternal and neonatal tetanus, pregnant women who have never been vaccinated against tetanus should begin the three-vaccination series, containing tetanus and reduced diphtheria toxoids, during pregnancy. The recommended schedule for this vaccine series is at 0 weeks, 4 weeks, and 6–12 months. The Tdap vaccine should replace one dose of Td, preferably given between 27 weeks and 36 weeks of gestation (7).

### **Vaccination of Adolescents and Adults in Contact With Infants**

The Advisory Committee on Immunization Practices recommends that all adolescents and adults who have or who anticipate having close contact with an infant younger than 12 months (eg, siblings, parents, grandparents, child care providers, and health care providers) who previously have not received the Tdap vaccine should receive a single dose of Tdap to protect against pertussis and reduce the likelihood of transmission (7). Ideally, these adolescents and adults should receive the Tdap vaccine at least 2 weeks before they have close contact with the infant (6).

### **For More Information**

The American College of Obstetricians and Gynecologists has identified additional resources on topics related to this document that may be helpful for ob-gyns, other health care providers, and patients. You may view these resources at: [www.acog.org/More-Info/Tdap](http://www.acog.org/More-Info/Tdap).

These resources are for information only and are not meant to be comprehensive. Referral to these resources does not imply the American College of Obstetricians and Gynecologists' endorsement of the organization, the organization's website, or the content of the resource. The resources may change without notice.

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# Vaccines During Pregnancy

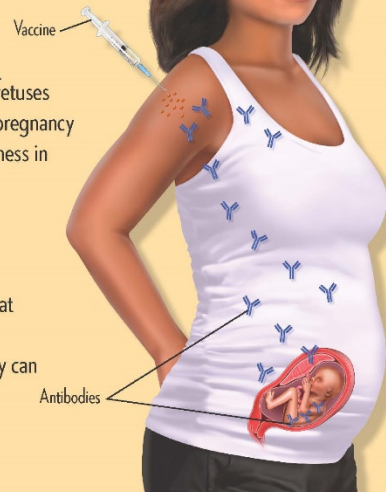
Influenza (the flu) and pertussis (whooping cough) are serious illnesses, but the flu shot and the whooping cough shot (also called Tdap\*) can keep you healthy and help protect your newborn. All women should get these shots during pregnancy.

## THE FLU VACCINE IS

- Safe for pregnant women and their fetuses when given during any trimester of pregnancy
- Effective at preventing serious flu illness in pregnant women

## HOW DOES IT PROTECT MY BABY?

- The flu vaccine creates antibodies that are passed to a fetus, which gives protection against the flu until a baby can get the flu shot at age 6 months.



## THE WHOOPING COUGH (Tdap) VACCINE IS

- Safe for pregnant women and their fetuses
- Recommended between 27 weeks and 36 weeks of each pregnancy

## HOW DOES IT PROTECT MY BABY?

- The Tdap vaccine creates antibodies that are passed to a fetus, which gives protection against whooping cough until a baby can get his or her first whooping cough shot at age 2 months.

**PROTECT YOURSELF AND YOUR BABY.  
GET YOUR FLU AND WHOOPING COUGH (Tdap) SHOTS  
DURING EACH PREGNANCY.**

Visit [www.acog.org/immunization](http://www.acog.org/immunization) for more information on vaccines during pregnancy and other adult vaccines.

\*Tdap is short for tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis, which is a vaccine that is given to adolescents and adults.

The nasal spray flu vaccine should not be used by pregnant women.

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## VACCINES— GET THE FACTS

### FACT

Pregnant women who get the flu can become much sicker than nonpregnant women who get the flu. Pregnant women with flu complications have more medical visits and more hospitalizations. The flu shot offers you the best protection.

### FACT

Babies younger than 3 months have the highest risk of severe disease and of dying from whooping cough. A baby cannot be vaccinated until he or she is 2 months old, so the baby's best protection is you getting the Tdap shot during pregnancy.

### FACT

Getting shots during pregnancy will not make you sick or harm your fetus. Current research shows that vaccines do not cause pregnancy problems, birth defects, or autism in children. Vaccines have been used for many years in millions of pregnant women.



The American College of  
Obstetricians and Gynecologists  
WOMEN'S HEALTH CARE PHYSICIANS

## Frequently Asked Questions for Patients Concerning Influenza (Flu) Vaccination During Pregnancy

### **I am pregnant. Should I get the influenza vaccine (flu shot)?**

Yes. Getting a flu shot is the best way to protect you and your baby from serious illness from the flu. Pregnant women and their fetuses have a higher risk of serious complications from the flu. The flu shot given during pregnancy protects women and their newborns. You need a flu shot each year because the flu viruses targeted by the vaccine can change from year to year. The flu shot has been safely given to millions of pregnant women for many years.

### **How does my flu shot protect my newborn?**

When you get a flu shot, your body makes antibodies that also pass to your fetus. This means your baby has protection against the flu after birth. This is important because infants less than 6 months of age are too young to get the flu shot.

### **Why is it important for pregnant women to get the flu shot?**

The flu is a mild-to-severe illness that also often includes fever, body aches, sore throat, cough, and fatigue. Pregnant women who get the flu can become much sicker than women who get the flu when they are not pregnant. Pregnant women who get the flu have a higher chance of the flu turning into pneumonia than women who are not pregnant. Pneumonia is a serious infection in the lungs that usually requires treatment in the hospital. Pregnant women who get the flu often need more medical visits and frequently need to be admitted to the hospital for observation and treatment.

### **During which trimester is it safe to get a flu shot?**

The flu shot can be safely given during any trimester. Pregnant women can get the flu shot at any point during the flu season (typically October through May). Pregnant women should get the shot as soon as possible when it becomes available. If you are pregnant, talk with your obstetrician–gynecologist (ob-gyn) or other health care provider about getting the flu shot.

### **Which flu vaccine should pregnant women get?**

Pregnant women should receive any licensed, recommended, age-appropriate inactivated flu vaccine. The Advisory Committee on Immunization Practices and the American College of Obstetricians and Gynecologists do not recommend one type of flu shot over another.

### **Will the flu shot give me the flu?**

No. You cannot get the flu from getting the flu shot.

### **I got the flu shot, so why did I still get sick?**

The flu shot does not protect against all strains of the flu virus. Experts do their best to determine the virus strains that are most likely to cause illness the following season. Sometimes additional strains end up causing illness. After your flu shot, it takes about 2 weeks for your body to develop antibodies, which are what protects you from the flu. So, if you are exposed to the flu during the time immediately after your flu shot, you can still get the flu. That is why it is important to get the flu shot before flu season becomes very active. The flu shot does not protect against the common cold or other respiratory viruses. During the flu season, you can still get a respiratory illness that is not the flu, even though you got a flu shot.

### **What are the side effects of the flu shot?**

Low-grade fevers, headaches, and muscle aches can occur as temporary (1–2 days) side effects in some people after getting the flu shot. According to the Centers for Disease Control and Prevention, these risks are outweighed by the risks of the flu, which is a serious illness that can make you or your baby seriously ill for much longer.

*(see reverse)*

## Is there any reason I should not get the flu shot?

There are very few reasons that a pregnant woman should not get a flu shot. A history of egg allergy, including hives, is not a reason to avoid the flu shot. However, if you have had a severe allergic reaction after a previous flu shot, you should not get another flu shot. Talk with your ob-gyn or other health care provider about any reactions you may have had with past flu shots.

## Are preservatives in flu vaccines safe for my baby?

Yes. Thimerosal is a mercury-containing preservative used in very small amounts in some flu shots. There is no scientific evidence that thimerosal causes health or developmental problems for pregnant women or children born to women who received thimerosal-containing shots during pregnancy. Thimerosal-free types of the flu shot also are available. Pregnant women can get the flu shot with or without the preservative.

## What else can I do to keep my baby healthy and free of the flu?

Getting your flu shot while you are pregnant is the best step in protecting yourself and your fetus against the flu. Data show that babies born to women who got the flu shot while pregnant have much lower rates of flu compared with babies whose mothers did not get the shot. Breastfeeding your baby and making sure family members and caregivers get the flu shot also will protect your baby.

## I am breastfeeding my baby. Is it safe for me to get the flu shot?

Yes. It is safe and recommended if you did not get a flu shot during pregnancy. The antibodies your body makes after the flu shot can be passed to your baby through breast milk. This reduces your baby's chance of getting sick with the flu.

## Is it safe to get a flu shot at my local pharmacy?

Yes. Pharmacists are well trained to give immunizations. Flu shots are available at most major pharmacies. You can find a location for a flu shot at [www.vaccinefinder.org](http://www.vaccinefinder.org). This is a good option if your ob-gyn or other health care provider does not offer the flu shot in his or her office. Be sure to let your ob-gyn or other health care provider know when you have gotten the flu shot so that your medical record can be updated. The pharmacy also should provide you with documentation of your flu shot.

## What should I do if I think I have the flu?

Although the flu shot is the most effective way to prevent the flu, there is still a chance you might get the flu. If you think you have the flu, contact your ob-gyn or other health care provider right away. Be sure to tell your health care provider that you are pregnant. If you have severe symptoms, such as a fever higher than 100.0°F and trouble breathing, dizziness when standing, or pain in your chest, contact your ob-gyn or other health care provider and seek immediate medical attention. You also should contact your ob-gyn or other health care provider if you have had close contact with someone likely to have been infected with the flu.

## Can I get the tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis shot and flu shot at the same time?

Yes. You can get the tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) shot and the flu shot in the same visit. Receiving these shots at the same time is safe and effective.

## Resources

### American College of Obstetricians and Gynecologists

Immunization for Women: Influenza Overview for Patients

[www.immunizationforwomen.org/patients/diseases-vaccines/influenza/influenza.php](http://www.immunizationforwomen.org/patients/diseases-vaccines/influenza/influenza.php)

### American College of Obstetricians and Gynecologists

Immunization for Women

[www.immunizationforwomen.org](http://www.immunizationforwomen.org)

### Centers for Disease Control and Prevention

Seasonal influenza: Pregnant Women and Influenza (Flu)

[www.cdc.gov/flu/protect/vaccine/pregnant.htm](http://www.cdc.gov/flu/protect/vaccine/pregnant.htm)

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# Frequently Asked Questions Concerning Seasonal Influenza for Obstetrician–Gynecologists

## Should pregnant women be immunized against seasonal influenza?

Yes. Influenza vaccination is an essential element of prenatal care because influenza can lead to serious illness, including a higher chance of developing pneumonia, when it occurs either in the antepartum or postpartum period. The Centers for Disease Control and Prevention’s Advisory Committee on Immunization Practices and the American College of Obstetricians and Gynecologists recommend that all adults receive an annual influenza vaccine and that all women who are or will be pregnant during influenza season receive any licensed, recommended, age-appropriate, inactivated influenza vaccine during any trimester, as soon as it is available. Multiple studies indicate that during pregnancy, women are at increased risk of serious medical complications from influenza. In addition, because the influenza vaccine is not effective in infants younger than six months, passive immunization of fetuses through transplacentally transmitted antibodies is currently the best prevention strategy for newborns. Vaccination in the postpartum period is an alternative only when vaccination during pregnancy cannot be completed. It is safe for breastfeeding women to receive the flu vaccine.

## Is it safe for pregnant women to be immunized against seasonal influenza?

Yes. Numerous studies, including clinical trials and observational studies, and data from safety reporting systems have consistently demonstrated the safety of influenza vaccination during pregnancy. In fact, data show that newborns of women who received the flu vaccine while pregnant have much lower rates of influenza than newborns whose mothers were not vaccinated during pregnancy. To date, only one small retrospective case–control study has suggested a possible association between receipt of an influenza vaccine containing A/H1N1pdm early in the first trimester and spontaneous abortion in women who also received an influenza vaccine containing A/H1N1pdm in the previous influenza season (1). This has not been observed in other seasons. Pregnant women should be counseled that because of the lack of evidence of biological plausibility, several notable flaws in this study, and the preponderance of other data showing no association of influenza vaccination and miscarriage, the recommendation for flu vaccine given in any trimester has not changed. The influenza vaccine is made the same way each year with the only difference being the use of different strains of influenza virus.

## When should pregnant women be immunized?

All women who are or will be pregnant during influenza season should receive an inactivated influenza vaccine as soon as it is available. Ideally, an influenza vaccination should be given by the end of October, but vaccination at any time during the influenza season is encouraged to ensure protection during the period of circulation. The inactivated influenza vaccine can be given to all women during any trimester. Because flu vaccines are recommended annually for all adults, pregnant women should be vaccinated even if they received a flu vaccine during a previous pregnancy.

## Which influenza vaccine should pregnant women receive?

Pregnant women should receive any licensed, recommended, age-appropriate inactivated influenza vaccine, given as an intramuscular injection in the deltoid muscle. The Centers for Disease Control and Prevention’s Advisory Committee on Immunization Practices and the American College of Obstetricians and Gynecologists do not preferentially recommend a specific formulation of the influenza vaccine.

## Can a person with an egg allergy receive an influenza vaccine?

Egg allergy, including hives, is no longer a contraindication to receipt of the influenza vaccine. Individuals, including pregnant women, who have experienced only hives after exposure to egg should receive any licensed, recommended, age-appropriate, influenza vaccine. Individuals who reported symptoms other than hives (eg, angioedema, respiratory distress, lightheadedness, or recurrent emesis) or who required epinephrine or another emergency medical intervention, also may receive any licensed and recommended influenza vaccine that is otherwise appropriate. However, their vaccine should be administered in an inpatient or outpatient medical setting and under the supervision of health care providers who are able to recognize and manage severe allergic conditions. A previous severe allergic reaction to influenza vaccine, regardless of the component suspected of causing the reaction, is a contraindication to future receipt of the vaccine.

*(continued)*



The American College of  
Obstetricians and Gynecologists  
WOMEN'S HEALTH CARE PHYSICIANS



**IMMUNIZATION for WOMEN**  
Immunization Information for Ob-Gyns and Their Patients

### **Is it safe for pregnant women to receive an influenza vaccine that contains mercury (thimerosal)?**

Yes. Although some individuals have raised concerns that thimerosal, a mercury-containing preservative used in multidose vials of the influenza vaccine, may be unsafe, there is no scientific evidence that thimerosal-containing vaccines cause health or developmental problems in children born to women who received vaccines with thimerosal during pregnancy. Therefore, although thimerosal-free formulations of the influenza vaccine are available, the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices does not indicate a preference for thimerosal-containing or thimerosal-free vaccines for any group, including pregnant women.

### **Can I administer the tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine and the flu vaccine during the same visit?**

Yes. You can give the tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine and the flu vaccine in the same visit. Receiving these vaccinations at the same time is safe and effective.

### **How should I treat a pregnant patient with suspected influenza illness?**

Pregnant women are at high risk of serious complications of influenza (flu) infection such as intensive care unit admission, preterm delivery, and maternal death. Patients with flu-like illness should be treated with antiviral medications presumptively regardless of vaccination status. Treatment with oseltamivir (75 mg twice daily for 5 days) is preferred, however if oseltamivir is unavailable zanamivir (two inhalations [10 mg] twice daily for 5 days) may be substituted. Health care providers should not rely on test results to initiate treatment; and should treat presumptively based on clinical evaluation. See the American College of Obstetricians and Gynecologists and Society for Maternal–Fetal Medicine's "Influenza Season Assessment and Treatment for Pregnant Women with Influenza-Like Illness" algorithm for more information.

### **Should we provide antiviral chemoprophylaxis to pregnant women exposed to influenza?**

Yes. Because of the high potential for morbidity, the Centers for Disease Control and Prevention and the American College of Obstetricians and Gynecologists recommend that postexposure antiviral chemoprophylaxis (75 mg of oseltamivir once daily for 10 days) be considered for pregnant women and women who are up to 2 weeks postpartum (which includes pregnancy loss) who have had close contact with someone likely to have been infected with influenza. If oseltamivir is unavailable, zanamivir can be substituted, two inhalations once daily for 10 days. All women who are pregnant or in the first 2 weeks postpartum should be counseled to immediately call for evaluation if the early signs and symptoms of influenza infection (eg, a fever greater than 100.0°F coupled with shortness of breath, syncope, or chest pain) develop.

### **Resources**

For more information on antiviral chemoprophylaxis in pregnant and postpartum women, see the Centers for Disease Control and Prevention's website at [www.cdc.gov/flu/professionals/antivirals/avrec\\_ob.htm](http://www.cdc.gov/flu/professionals/antivirals/avrec_ob.htm).

For more information on seasonal flu vaccine safety and pregnant women, see the Centers for Disease Control and Prevention's website at [www.cdc.gov/flu/protect/vaccine/qa\\_vacpregnant.htm](http://www.cdc.gov/flu/protect/vaccine/qa_vacpregnant.htm).

For physician and patient resources, see the American College of Obstetrician and Gynecologists' Immunization for Women website at [www.immunizationforwomen.org](http://www.immunizationforwomen.org).

### **Reference**

1. Donahue JG, Kieke BA, King JP, DeStefano F, Mascola MA, Irving SA, et al. Association of spontaneous abortion with receipt of inactivated influenza vaccine containing H1N1pdm09 in 2010–11 and 2011–12. *Vaccine* 2017;35:5314–22.

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The American College of  
Obstetricians and Gynecologists  
WOMEN'S HEALTH CARE PHYSICIANS

## Frequently Asked Questions for Pregnant Women Concerning Tdap Vaccination

### What is pertussis?

Pertussis (also called whooping cough) is a highly contagious disease that causes severe coughing and difficulty breathing. People with pertussis may make a “whooping” sound when they try to breathe and gasp for air. Pertussis can affect people of all ages, and can be very serious, even deadly, for babies less than a year old. In recent outbreaks, babies younger than 3 months have had the highest risk of severe disease and of dying from pertussis.

### What is Tdap?

The tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine is used to prevent three infections: 1) tetanus, 2) diphtheria, and 3) pertussis.

### I am pregnant. Should I get a Tdap shot?

Yes. All pregnant women should get a Tdap shot in the third trimester, preferably between 27 weeks and 36 weeks of gestation. The Tdap shot is a safe and effective way to protect you and your baby from serious illness and complications of pertussis.

### When should I get the Tdap shot?

Experts recommend that you get the Tdap shot during the third trimester (preferably between 27 weeks and 36 weeks) of every pregnancy. The shot will help you make protective antibodies against pertussis. These antibodies are passed to your fetus and protect your baby until he or she begins to get vaccines against pertussis at 2 months of age. Receiving the shot early in the 27–36-weeks-of-gestation window is best because it maximizes the antibodies present at birth and will provide the most protection to the newborn.

### Is it safe to get the Tdap shot during pregnancy?

Yes. The shot is safe for pregnant women.

### Can newborns be vaccinated against pertussis?

No. Newborns cannot start their vaccine series against pertussis until they are 2 months of age because the vaccine does not work in the first few weeks of life. This is one reason why newborns are at a high risk of getting pertussis and becoming very ill.

### What else can I do to protect my newborn against pertussis?

Getting your Tdap shot during pregnancy is the most important step in protecting yourself and your baby against pertussis. It also is important that all family members and caregivers are up-to-date with their vaccines. Adolescent family members or caregivers should receive the Tdap vaccine at 11–12 years of age. If an adult (older than 18 years) family member or caregiver has never received the Tdap vaccine, he or she should get it at least 2 weeks before having contact with your baby. This makes a safety “cocoon” of vaccinated caregivers around your baby.

### I am breastfeeding my baby. Is it safe to get the Tdap shot?

Yes. The Tdap shot can be given safely to breastfeeding women if they did not get the Tdap shot during pregnancy and have never received the Tdap shot before. There also may be added benefit to your baby if you get the shot while breastfeeding.

*(see reverse)*

### **I did not get my Tdap shot during pregnancy. Do I still need to get the vaccine?**

If you have never had the Tdap vaccine as an adult, and you do not get the shot during pregnancy, be sure to get the vaccine right after you give birth, before you leave the hospital or birthing center. It will take about 2 weeks for your body to make protective antibodies in response to the vaccine. Once these antibodies are made, you are less likely to give pertussis to your baby. But remember, your newborn still will be at risk of catching pertussis from others. If you received a Tdap vaccination as an adolescent or adult but did not receive one during your pregnancy, you do not need to receive the vaccination after giving birth.

### **I got a Tdap shot during a past pregnancy. Do I need to get the shot again during this pregnancy?**

Yes. All pregnant women should get a Tdap shot during each pregnancy, preferably between 27 weeks and 36 weeks of gestation. Receiving the vaccine as early as possible in the 27–36-weeks-of-gestation window is best. This is important to make sure that each newborn receives the highest possible protection against pertussis at birth.

### **I received a Tdap shot early in this pregnancy, before 27–36 weeks of gestation. Do I need to get another Tdap shot between 27 weeks and 36 weeks of gestation?**

No. A Tdap shot later in the same pregnancy is not necessary if you received the Tdap shot before the 27th week of your current pregnancy.

### **Can I get the Tdap shot and influenza shot at the same time?**

Yes. You can get these two shots, Tdap and influenza, in the same visit. Receiving these vaccinations at the same time is safe.

### **What is the difference between DTaP, Tdap, and Td?**

Children receive the diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine. Adolescents and adults are given the Tdap vaccine as a booster to the vaccines they had as children. Adults receive the tetanus and diphtheria (Td) vaccine every 10 years to protect against tetanus and diphtheria. The Td vaccine does not protect against pertussis.

## **RESOURCES**

The American College of Obstetricians and Gynecologists  
[www.acog.org](http://www.acog.org)

Immunization for Women  
[www.immunizationforwomen.org](http://www.immunizationforwomen.org)

Centers for Disease Control and Prevention  
<https://www.cdc.gov/vaccines/vpd/pertussis/index.html>

Society for Maternal–Fetal Medicine  
[www.smfm.org](http://www.smfm.org)

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The American College of  
Obstetricians and Gynecologists  
WOMEN'S HEALTH CARE PHYSICIANS

## Frequently Asked Questions for Health Care Providers Concerning Tdap Vaccination

### What is the Tdap vaccine?

Tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) is a combination vaccine that protects against three bacterial infections in a single injection. The three vaccine components are tetanus (T), diphtheria (d) and acellular pertussis (ap). The uppercase letter 'T' refers to a standard dose of antigen, whereas the lowercase letters 'd' and 'p' are used to indicate a reduced dose of diphtheria and pertussis (also called whooping cough) antigens used in the vaccine given to adolescents and adults, compared with the pediatric vaccine (DTaP). There is no separate pertussis-only vaccine commercially available in the United States. The Tdap vaccine does not have a live component because it is manufactured using inactivated noninfectious bacterial products that generate a robust immune response. This vaccine has been recommended since 2006 for adolescents and adults.

### Has Tdap vaccine been given to pregnant and postpartum women in the past and if so why?

Yes. Since 2006, Tdap vaccination has been recommended as a strategy to prevent pertussis infections in newborns and infants who are too young to receive their own vaccines. Initially, a dose of Tdap vaccine was recommended for any previously unvaccinated postpartum woman and all household members who would come into contact with a newborn. This policy, called "cocooning," aims to protect vulnerable infants from pertussis exposure by ensuring immunization in caregivers and household contacts.

In June 2011, the Advisory Committee on Immunization Practices (ACIP) of the Centers for Disease Control and Prevention recommended that pregnant women receive Tdap vaccination during the second half of pregnancy. Since that recommendation was published, many pregnant women have begun to receive the Tdap vaccine during pregnancy. There is also now a growing body of literature further demonstrating the safety and effectiveness of this approach for protecting newborns against pertussis.

### Why is it necessary to vaccinate pregnant women during each pregnancy?

In October 2012, ACIP reviewed critical new data on the lack of persistence of maternal pertussis antibodies and found rapid waning of antibody levels 2–3 years after vaccination. This indicated that maternal antibodies from the Tdap vaccine that are generated during one pregnancy would be insufficient to provide protection during subsequent pregnancies. Based on these important findings, the ACIP recommended that pregnant women be immunized during each pregnancy to ensure that every newborn received the highest possible concentration of antibody at birth and, therefore, would be more likely to have protection during the first few months of life. The revised and current recommendation is that all pregnant women receive the Tdap vaccine during each pregnancy, regardless of the interval since the last tetanus toxoid-containing booster, preferably during 27–36 weeks of gestation. To maximize the maternal antibody response and passive antibody transfer and levels in the newborn, vaccination as early as possible in the 27–36-weeks-of-gestation window is recommended.

### Why was 27–36 weeks of gestation chosen as the preferred time for maternal immunization?

The last trimester of pregnancy was targeted for maternal immunization in an effort to take advantage of the naturally occurring process of antibody transfer through the placenta during the third trimester. Vaccination at this stage would maximize the antibody transfer to the fetus and, therefore, optimize

newborn protection. The protective antibodies that are transferred to the fetus protect the newborn until he or she begins his or her own vaccine series (recommended to start at approximately 2 months of age).

### **Is there an optimal time during the 27–36-weeks-of-gestation window to recommend maternal Tdap vaccination?**

Recent data support the optimal time to vaccinate against Tdap is early in the 27–36-weeks-of-gestation window because higher antibody concentrations might be achieved in the fetus with this timing. In order to improve vaccine uptake and practice workflow, consideration should be given to incorporate Tdap vaccination into routine care such as the third trimester glucose screening visit or Rho(D) immune globulin administration (for eligible women who are Rh negative).

### **What if a pregnant woman who has never been vaccinated with Tdap does not receive the Tdap vaccine during her pregnancy?**

The optimal strategy is antenatal administration. However, if the Tdap vaccine has not been administered during pregnancy and the woman has never received Tdap as an adolescent or adult, then she should receive a Tdap vaccination postpartum, preferably before discharge after delivery.

### **Should a postpartum woman who did not receive the Tdap vaccine during pregnancy but received a dose as an adolescent or adult in the past (as documented in her medical record) be immunized postpartum?**

No. She does not need another Tdap vaccination postpartum. The Tdap vaccine is recommended during each pregnancy (but not during each postpartum period) to maximize antibody transfer and, thus, neonatal protection. Women who have received a Tdap vaccination as adolescents or adults but did not receive one during pregnancy should not receive the vaccination postpartum. For a nonpregnant adult, a single Tdap vaccination received either as an adolescent or adult is currently considered adequate over a lifespan.

### **Are there any circumstances in which a woman would receive Tdap earlier than 27–36 weeks of gestation?**

The preferred timing for Tdap vaccination is between 27 weeks and 36 weeks of gestation, but the vaccine may be given before 27 weeks of gestation in certain circumstances such as during a community outbreak. The Tdap vaccine is considered safe to give at any gestation if indicated. Pregnant women who require a tetanus booster for wound contamination should receive the Tdap vaccine.

### **What if a woman requires a tetanus booster, or diphtheria booster, or both during pregnancy for any other reason such as wound care?**

She should receive a single dose of Tdap at that time in place of the tetanus and diphtheria boosters. The Tdap vaccine is considered safe to give, when indicated, at any time during gestation. In this clinical scenario of acute wound management, the need for protection from tetanus supersedes the benefit of administering the vaccine during the 27–36-weeks-of-gestation window.

### **What is recommended for a pregnant woman if there is a local outbreak of pertussis in her community?**

She should receive a Tdap immunization as soon as possible. In this clinical scenario, the need for protection from acute pertussis infection supersedes the benefit of administering the vaccine during the 27–36-weeks-of-gestation window. The Tdap vaccine is considered safe to give at any time during pregnancy when indicated. If the woman has been exposed to pertussis, she should be evaluated by her health care provider and also may receive antibiotic chemoprophylaxis. Other family members also should receive Tdap immunization for protection against the local outbreak after consulting with their respective health care providers.

**If a pregnant woman is vaccinated early in her pregnancy (ie, before 27 weeks of gestation), does she need to be vaccinated again between 27 weeks and 36 weeks of gestation?**

No. Women should receive one dose of Tdap during each pregnancy.

**Can Tdap and influenza vaccines be given to pregnant women at the same visit?**

Yes. The Tdap and influenza vaccines can be administered at the same visit. Recent studies have shown no serious adverse effects or reduced antibody response when the vaccines were administered at the same time.

**Can Tdap and Rho(D) immune globulin be given to pregnant women at the same visit?**

Yes. In fact, offering Tdap during the same visit that the patient receives Rho(D) immune globulin is a suggested strategy from the American College of Obstetricians and Gynecologists.

**What if a woman becomes pregnant again soon after a pregnancy during which she received the Tdap vaccine?**

According to the current ACIP guidelines, women should receive the Tdap vaccine in each pregnancy. This recommendation stands regardless of the timing of the last Tdap immunization.

**How can we facilitate cocooning for pertussis?**

Regardless of when a woman receives the Tdap vaccine, efforts should be made to ensure that all family members and caregivers who will have close contact with the newborn receive a dose of Tdap if they are not current with vaccination guidelines, in order to provide the protection of cocooning. Health care providers should recommend Tdap vaccination of family members during prenatal care visits and at the time of delivery. Ideally, the pregnant woman should be vaccinated with Tdap during pregnancy and all family members should be vaccinated at least 2 weeks before coming in contact with the newborn.

**Should health care providers continue to offer Tdap as part of routine prepregnancy care?**

No. The Tdap vaccine is no longer recommended during routine prepregnancy visits. The best time to administer the Tdap vaccine is during each pregnancy as early as possible in the 27–36-weeks-of-gestation window. If the Tdap vaccine is administered at a prepregnancy visit (for example, if pertussis is circulating in the patient’s community), Tdap should be administered again during pregnancy between 27 weeks and 36 weeks of gestation in order to provide optimal protection to the infant during his or her first months of life.

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