# Q & A on Tdap Vaccination Against Pertussis (Whooping Cough) During Pregnancy in Canada

## Protecting Every Mother and Every Baby

The Canadian National Advisory Committee on Immunization (NACI)* and The Society of Obstetricians and Gynaecologists of Canada (SOGC) now recommend immunization with the Tdap vaccine (Tetanus Toxoid, Reduced Diphtheria Toxoid and Reduced Acellular Pertussis) in every pregnancy, irrespective of previous immunization history. The SOGC recommends immunization to be provided ideally between 21 and 32 weeks of gestational age, but evidence supports vaccination as early as 13 weeks, up to the time of delivery, in certain circumstances (i.e. risk of preterm birth).

This document answers frequently asked questions health care providers may have when offering or administering the Tdap vaccine to pregnant women.

### 1 | What is pertussis?

Pertussis, aka whooping cough, is a transmissible respiratory infection caused by the *Bordetella pertussis* bacterium. Infants who have not started or completed their routine immunizations are at the greatest risk for severe disease and death.

### 2 | Is pertussis an issue in Canada nowadays?

After the acellular pertussis vaccine was introduced in Canada in 1997/1998, there was a steady decline in the number of pertussis cases until 2011. However, between 2012 and 2015 numerous outbreaks occurred across Canada. Seventy-percent of admissions to hospital for pertussis occurred in infants younger than four months of age, and almost all deaths from pertussis (14 out of 15 between 2006 and 2015) happened among infants younger than two months of age, before the infants received their first vaccines.

### 3 | Why should the Tdap vaccine be offered to pregnant women?

Tdap vaccination in pregnancy provides protection to infants until they are able to receive the pertussis vaccine (DTaP) at two months of age. Studies have shown that nine out of 10 infants under three months of age are protected following maternal vaccination against pertussis during pregnancy.

### 4 | Is the Tdap vaccine safe during pregnancy?

The vaccine is safe for the mother and the fetus. The most common side effects after receiving a pertussis-containing vaccine are injection site reactions (redness, swelling or pain). Other less common symptoms may include fever, chills and headache.

*The National Advisory Committee on Immunization (NACI) is a national advisory committee of experts in the fields of pediatrics, infectious diseases, immunology, medical microbiology, internal medicine and public health.

## 5 | Who should be vaccinated?

All pregnant women should receive the Tdap vaccine in every pregnancy, irrespective of prior immunization history.

## 6 | When should pregnant women receive the Tdap vaccine?

The Tdap vaccine may be offered at any prenatal appointment, and the SOGC recommends immunization should be provided ideally between 21 and 32 weeks of gestational age. NACI recommends vaccination may be provided from 13 weeks up until delivery, but should ideally be provided between 27 and 32 weeks of gestational age because it strikes the best balance between safety and effectiveness data and optimal antibody transfer for babies born after 37 weeks.

However, limiting vaccination to 27-32 weeks can leave babies who are born prematurely (before 37 weeks) unprotected, because there is not enough time for the vaccine to work.

The SOGC therefore recommends vaccination starting at 21 weeks (after the routine anatomical ultrasound) to protect those patients who may deliver prematurely; this timing will also prevent any unrelated adverse events identified in the fetal scan to be misattributed or temporally associated if the vaccine is given earlier.

## 7 | Can the Tdap vaccine be given after 32 weeks of gestational age?

The vaccine should still be offered after 32 weeks of gestational age, and until delivery, since it will prevent the mother from becoming a source of infection to the infant. However, the antibody levels may not be sufficient to protect the infant; it takes at least four weeks after vaccination to reach peak anti-pertussis antibody levels.

## 8 | Can the Tdap vaccine be given in the first trimester or earlier in the second trimester?

Data supports vaccination as early as 13 weeks and some data indicates that earlier vaccination results in higher antibody binding, but safety data is limited for earlier in the second trimester, and even more limited for vaccination before 13 weeks. If the Tdap vaccine was provided early in pregnancy (e.g. prior to recognition of pregnancy), it is not necessary to re-immunize after 13 weeks of gestation.

## 9 | Should the Tdap vaccine be offered after delivery to those women who did not receive the vaccine during pregnancy?

Yes. Since newborns are not immunized until after two months of age, it is vital that these women are protected to avoid becoming a source of infection to their infants. However, vaccination during pregnancy is the preferred strategy to protect the infant.

## 10 | Can the Tdap vaccine be given to breastfeeding patients?

Yes. The vaccine can be given to women who are breastfeeding and some protection can be passed to the infant this way. However, waiting to get the vaccine until after baby is born is not ideal because it takes four weeks after vaccination to reach peak anti-pertussis antibody levels. If the vaccine is given during pregnancy, nursing mothers will have protective antibodies in their breast milk that can be passed on to the infant as soon as the mother's milk comes in.

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## 11 | Who should NOT receive the vaccine?

The vaccine should not be administered to anyone with a history of anaphylactic reaction to a previous dose of pertussis-containing vaccine or to any of its components.

## 12 | Should the Tdap vaccine be offered to a pregnant woman with confirmed or suspected pertussis infection?

Yes, because not every infected pregnant woman will produce sufficient antibody levels to protect the unborn infant after a natural infection, and vaccination will boost the immune system of the pregnant woman, thus, protecting the unborn infant against pertussis.

## 13 | Can the flu shot and the Tdap vaccine be given together?

Yes. Since both vaccines are made of inactivated agents, they can be administered either at the same time or in different visits, and no minimum time interval is needed between administering either of these vaccines.

## 14 | Can the vaccine be administered at the same time as anti-D (Rhogam) treatment?

Yes. Since it is an inactivated vaccine, there is no risk of an interaction with anti-D treatment.

## 15 | Will the Tdap vaccination during pregnancy interfere with the baby's normal response to his or her own routine vaccinations?

In infants who continue their vaccine series, there is no difference in antibody levels after their fourth DTaP dose (at approximately 15 months of age), despite earlier lower antibody levels. The clinical impact of these laboratory findings is unknown, but it is clear that the burden of severe pertussis disease, hospitalization and death disproportionately affects newborns younger than two months of age more than older children.

Castillo, Eliana; Idarraga, Laura; Tunis, Mathew; Baclic, Oliver; Duchesne-Belanger, Samuel. March 2018
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Visual aid to the effectiveness and safety evidence for this recommendation

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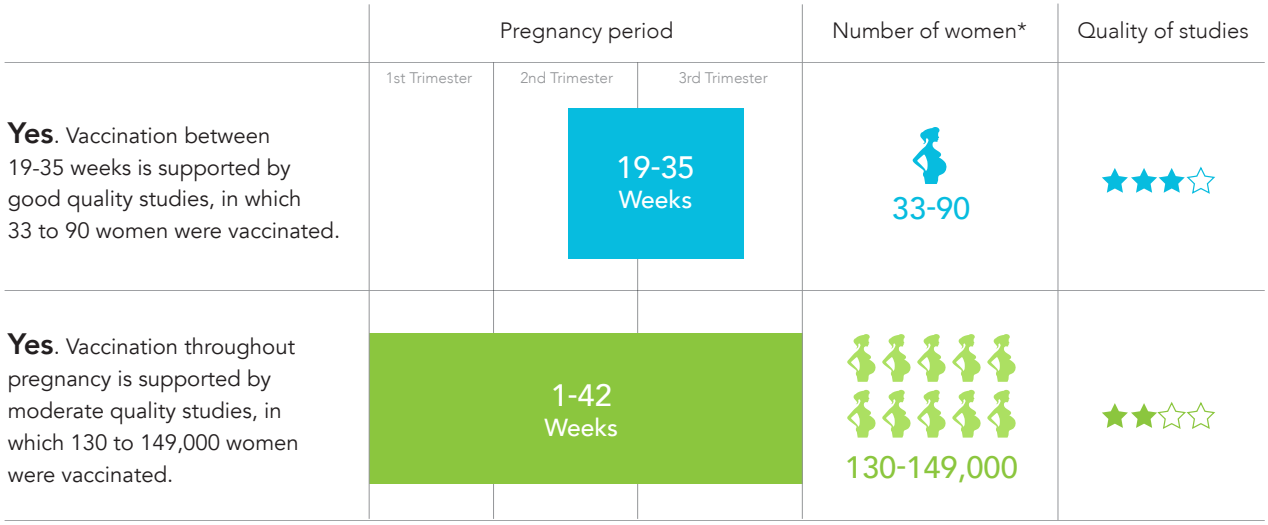
## Is Tdap vaccination safe for the infant?




* Number of women denotes only the number of participants (pregnant women) who received maternal pertussis immunization in studies, rather than total sample size

Note: Although some studies appear to span all gestational weeks, the data were not stratified by gestational week /trimester for these studies, and it is not clear how many subjects received vaccination at each time point.

Disclaimer: This infographic is not a validated clinical decision tool.

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## Is Tdap vaccination safe for the pregnant woman?

| | Pregnancy period | | | Number of women* | Quality of studies |
|---|---|---|---|---|---|
| | 1st Trimester | 2nd Trimester | 3rd Trimester | | |
| **Yes**. Vaccination between 19-35 weeks is supported by good quality studies, in which 33 to 90 women were vaccinated. | | 19-35 Weeks | | 33-90 | ★★★★ |
| **Yes**. Vaccination throughout pregnancy is supported by moderate quality studies, in which 130 to 149,000 women were vaccinated. | 1-42 Weeks | | | 130-149,000 | ★★★☆ |

## Does Tdap vaccination in pregnancy work to prevent pertussis infection, hospitalization and death in the young infant?

| | Pregnancy period | | | Number of women* | Quality of studies |
|---|---|---|---|---|---|
| | 1st Trimester | 2nd Trimester | 3rd Trimester | | |
| **Yes**. Vaccination between 27-36 weeks is supported by moderate to high quality studies, in which 49 to 149,000 women were vaccinated. | | | 27-36 Weeks | 49-149,000 | ★★★☆ |
| **Yes**. Vaccination between 28-38 weeks is supported by moderate quality studies, in which 46 to 49 women were vaccinated. | | | 28-38 Weeks | 46-49 | ★★☆☆ |

* Number of women denotes only the number of participants (pregnant women) who received maternal pertussis immunization in studies, rather than total sample size

Note: Although some studies appear to span all gestational weeks, the data were not stratified by gestational week /trimester for these studies, and it is not clear how many subjects received vaccination at each time point.

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