

# “Cocooning” and Tdap vaccination

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On behalf of the Pertussis Vaccines Work Group

Advisory Committee on Immunization Practices

June 25, 2015

# Evaluating Tdap vaccination of close contacts of infants

- ❑ **Tdap vaccine**
  - Second dose of Tdap
  - Effectiveness
- ❑ **Pertussis in young infants**
- ❑ **Strategies to prevent pertussis in young infants**
  - ACIP recommendations
- ❑ **Evaluating the impact of “cocooning”**
- ❑ **Vaccinating during pregnancy**
- ❑ **WG conclusions**
- ❑ **Discussion**

# **Tdap VACCINE**

# Response to Second Tdap at 5- or 10-yr Interval

## Safety and Immunogenicity

### □ Safety

- Generally comparable after first Tdap
- Majority of local and systemic adverse events: mild to moderate; self-limited
- Of few serious adverse events reported, none related to second Tdap
- Rates comparable at the 5- and 10-year interval

### □ Immunogenicity

- Tetanus and Diphtheria ~100% seroprotection
- Pertussis
  - Response at 5- and 10-year intervals similar
  - Comparable to historic and contemporaneous first dose

## **Sanofi Pasteur – revaccination with Adacel**

### **Adults administered 9-11 years after previous Tdap**

- ❑ U.S. study completed**
  - Presented to WG and ACIP (2013)
- ❑ Canadian study will finish later this year**
- ❑ Plans to submit to FDA**

# GSK Revaccination Studies for Boostrix

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- GSK is conducting clinical studies in the US for revaccination after prior vaccination with Boostrix
    - GSK recently completed a revaccination study of young adults, 20-28 years old, who were initially vaccinated 10 years earlier when they were adolescents (11-18 years old).
    - Revaccination study in adults, 28-73 years old who were initially vaccinated approximately 9 years ago, when they were 19-64 years old, began this year.
  - Plans to submit the data to the FDA for consideration of a label update for BOOSTRIX will be dependent on pertussis epidemiology and ACIP recommendations
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# Estimates of Tdap vaccine effectiveness in adolescents

Author	Year	Country	Age Range	Study Design	Vaccine Effectiveness (95% CI)
<b><u>Primed with mixed whole and acellular pertussis vaccines</u></b>					
Rank	2009	Australia	12-19	Screening	78 (61-88)
Wei	2010	St. Croix	11-18	Cohort	66 (-36-91)
Skoff	2011	US	11-17	Case-Control	72 (39-87)
<b><u>Primed with acellular pertussis vaccines</u></b>					
Acosta	2012	US	11-14	Case-Control	65 (50-75)

Rank C, et al. *Pediatr Infect Dis J.* 2009 28(2):152-3; Wei SC, et al. *CID* 2010 51(3):315-321; Skoff et al. *NIC* 2011, Washington, DC; Acosta A, et al. *Pediatrics* 2015 135(6).

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# Tdap duration of protection among populations born during 1998-2000, that only received acellular vaccines, Washington and Wisconsin, 2012

## Vaccine Effectiveness (VE)

### Washington<sup>1</sup>

### Wisconsin<sup>2</sup>

Time since Tdap	VE, % (95% CI)	Year of Tdap Receipt	VE, % (95% CI)
No Tdap	Reference	No Tdap	Reference
< 1 year	73.1 (60.3-81.8)	2012	75.3 (55.2-86.5)
1 - < 2 years	54.9 (32.4-70.0)	2011	68.2 (60.9-74.1)
2 - < 4 years	34.2 (-0.03-58.0)	2010	34.5 (19.9-46.4)
		2009/2008	11.9 (-11.1-30.1)

<sup>1</sup>Acosta et al. Tdap Vaccine Effectiveness and Duration of Protection Among Adolescents During the 2012 Washington State Pertussis Epidemic. *Pediatrics* 2015 135(6).

<sup>2</sup>Koepke et al. Estimating the Effectiveness of Tdap Vaccine for Preventing Pertussis: Evidence of Rapidly Waning Immunity and Differences in Effectiveness by Tdap Brand. *The Journal of Infectious Diseases* 2014.

# Tdap Vaccination: Unclear Effect on Preventing Transmission

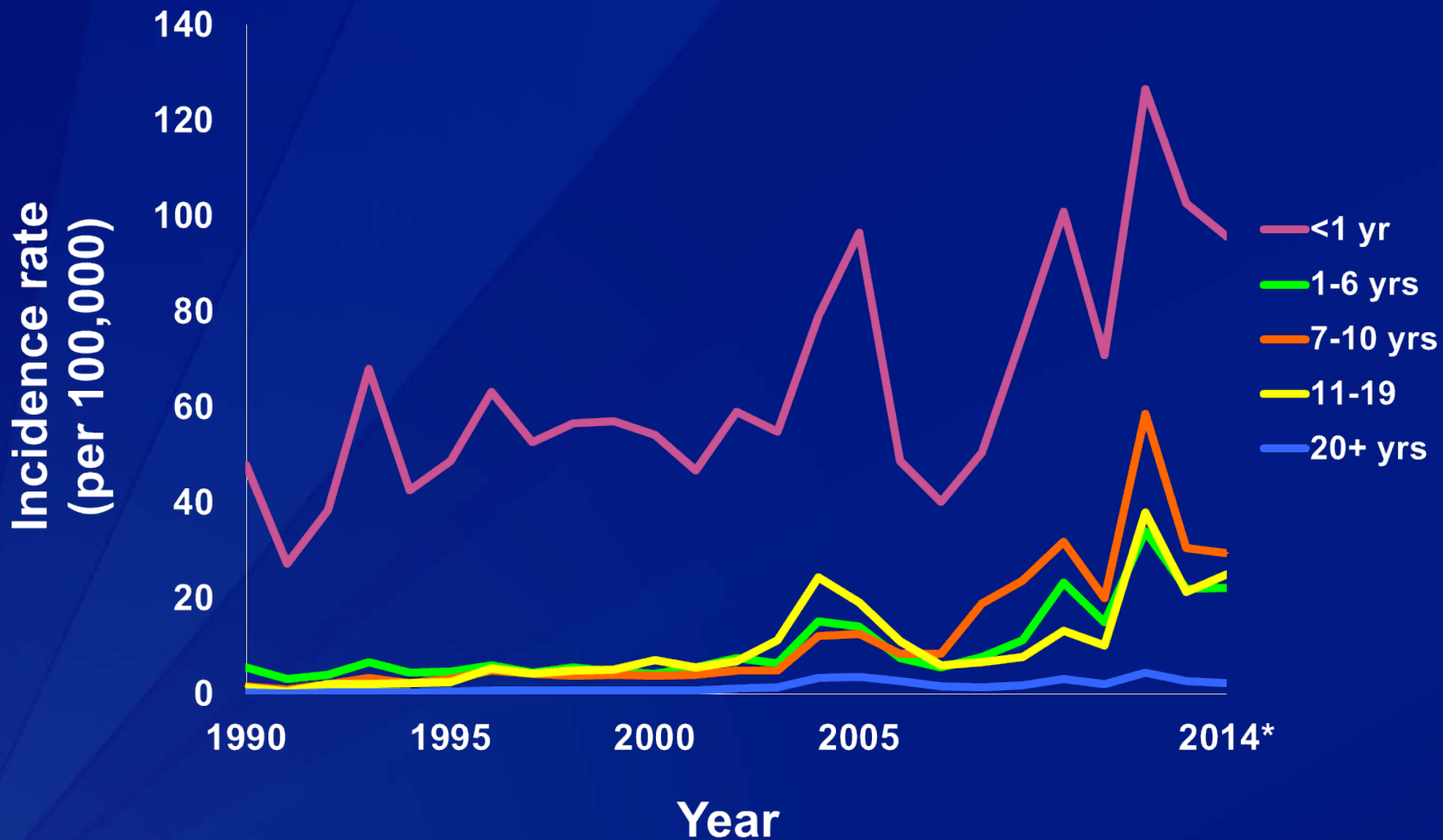
- ❑ Vaccinated person's symptoms not as severe – may be less likely to transmit
- ❑ Australian cocooning evaluation
  - Moderate reduction in risk of pertussis in infants – parents vaccinated at least 4 weeks before infant disease onset
  - Effect seen for mothers vaccinated post-partum
    - Unclear if infant disease risk lower because impact on transmission or lack of exposure
- ❑ Baboon model
  - Acellular pertussis vaccines protect against disease but not infection
  - Bacterial colony counts comparable to unvaccinated animals
  - Transmitted pertussis to other cohoused baboons

Quinn HE et al. Parental Tdap boosters and infant pertussis: a case-control study. *Pediatrics*. 2014 Oct;134(4):713-20.

Warfel JM et al. Acellular pertussis vaccines protect against disease but fail to prevent infection and transmission in a nonhuman primate model. *Pediatrics*. 2014 Jan 14;111(2):787-92.

# **PERTUSSIS IN YOUNG INFANTS**

## Reported pertussis incidence by age group: 1990-2014\*, United States

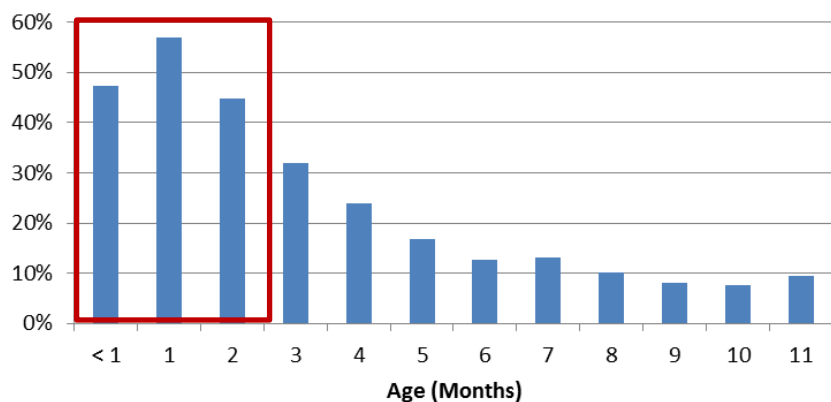


\*2014 data are provisional.

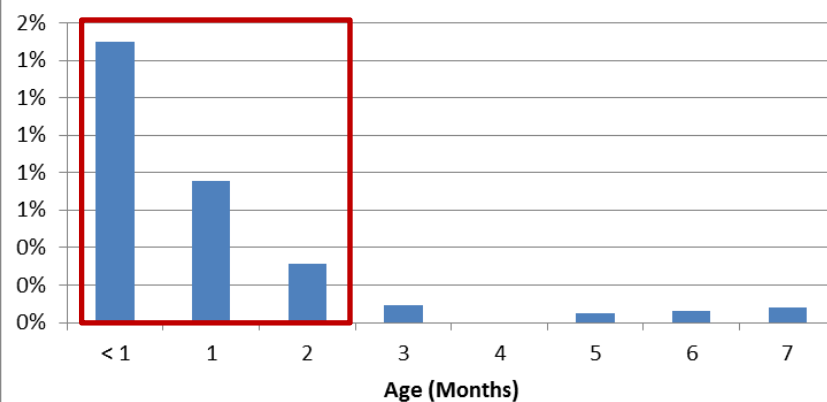
SOURCE: CDC, National Notifiable Diseases Surveillance System and Supplemental Pertussis Surveillance System

# Hospitalizations and Deaths in Infants <12 Months of Age, % Total Cases, 2004-2014\*, United States

## % Hospitalizations, 2004-2014\*



## % Deaths, 2004-2014\*



\* 2014 data are provisional and subject to change

Source: CDC, National Notifiable Diseases Surveillance System and Supplemental Pertussis Surveillance System

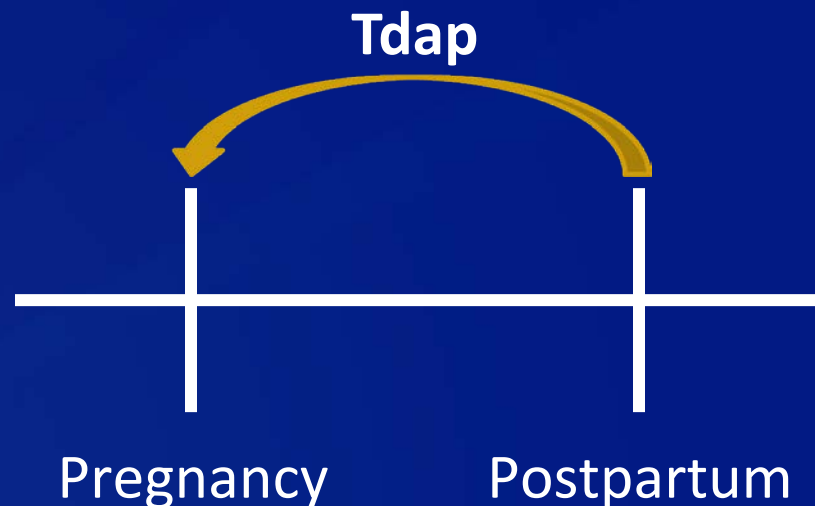
# **STRATEGIES TO PREVENT PERTUSSIS IN YOUNG INFANTS**

## **2005 ACIP Cocooning Recommendation: A new strategy**

- ❑ **Vaccinating all close contacts of infants aged less than 12 months with Tdap to reduce the risk of transmission of pertussis to these infants**
  - Ideally at least 2 weeks before contact with the infant.
  - Parents, siblings, grandparents, child-care providers and health-care personnel
  - Pregnant women vaccinated immediately post-partum

## Shifting the time of mother's Tdap dose: postpartum to pregnancy

- ❑ Provides earlier benefit to mother, thereby potentially providing indirect protection to infant at birth
- ❑ High levels of transplacental maternal antibodies in infants of mothers vaccinated during pregnancy
  - Likely provides direct immunity to infant





# ACIP maternal Tdap recommendations

## Preventing infant pertussis

### □ 2011

- During pregnancy (if not previously received Tdap)
  - Preferably during the third or late second trimester
- Post-partum dose – if not during pregnancy and not previously received Tdap)

### □ 2012

- During each pregnancy, irrespective of prior Tdap history
  - Between 27 and 36 weeks gestation, but may be given at any time
- Post-partum dose if not vaccinated during pregnancy and if previously not received Tdap
- “Cocooning”
  - Guidance will be forthcoming on revaccination of persons who anticipate close contact with an infant, including postpartum women who previously have received Tdap

# **EVALUATING THE IMPACT OF COCOONING**

# “Cocooning” strategy in practice

## Operational success

- ❑ **Primarily hospital-based, targeting post-partum period**
- ❑ **Educating providers and patients**
- ❑ **Postpartum dose**
  - Standing orders
- ❑ **Vaccinating close contacts**
  - On-site clinic
  - Convenient clinic hours
  - Free Tdap

Yeh S, Mink C, Kim M, Naylor S, Zangwill KM, Allred NJ. Effectiveness of hospital-based postpartum procedures on pertussis vaccination among postpartum women. *Am J Obstet Gynecol.* 2014 Mar;210(3):237.e1-6

Wiley KE, Zuo Y, Macartney KK, McIntyre PB. Sources of pertussis infection in young infants: a review of key evidence informing targeting of the cocoon strategy. *Vaccine.* 2013 Jan 11;31(4):618-25.

Rosenblum E, McBane S, Wang W, Sawyer M. Protecting newborns by immunizing family members in a hospital-based vaccine clinic: a successful Tdap cocooning program during the 2010 California pertussis epidemic. *Public Health Rep.* 2014 May;129(3):245-51.

# Cocooning strategy in practice

## Operational challenges

### ❑ Logistical

- Target potential contacts during short period of time
- Additional staffing for education and vaccine administration
- Inability to verify vaccine history
- Hospitals not set up to treat outpatients

### ❑ Financial

- Operational costs of program
- Funding to offer free vaccine
- Billing and reimbursement

### ❑ Program sustainability

Healy CM, Rensch MA, Baker CJ. Implementation of cocooning against pertussis in a high-risk population. *Clin Infect Dis*. 2011 Jan 15;52(2):157-62

Wiley KE, et al. Sources of pertussis infection in young infants: a review of key evidence informing targeting of the cocoon strategy. *Vaccine*. 2013 Jan 11;31(4):618-25.

Rosenblum E, et al. Protecting newborns by immunizing family members in a hospital-based vaccine clinic: a successful Tdap cocooning program during the 2010 California pertussis epidemic. *Public Health Rep*. 2014 May;129(3):245-51.

Healy CM, et al. Evaluation of the Impact of a Pertussis Cocooning Program on Infant Pertussis Infection. *Pediatr Infect Dis J*. 2015 Jan ; 34 (1):22-26.

## How complete is the cocoon around infants?

- ❑ In 2012, 26% Tdap coverage in adults aged 19–64 years who reported living with an infant aged <1 year
  
- ❑ Tdap uptake highest in postpartum mothers
  
- ❑ Limited success in vaccinating fathers or other family members
  - Knowledge gap about pertussis and vaccine
  - Household size impacts ability to vaccinate all members
  - If no on-site clinic available, numerous barriers to receive Tdap
    - Delay vaccination to later date
    - Locating where to get vaccinated

CDC. Noninfluenza Vaccination Coverage Among Adults — United States, 2012. MMWR . 63(05);95-102.

Urwyler P, Heininger U. Protecting newborns from pertussis - the challenge of complete cocooning. BMC Infect Dis. 2014 Jul 17;14(1):397.

Rosenblum E, et al. Protecting newborns by immunizing family members in a hospital-based vaccine clinic: a successful Tdap cocooning program during the 2010 California pertussis epidemic. Public Health Rep. 2014 May;129(3):245-51.

Carrico CA, O'Keefe C. Protecting infants against pertussis: the cocooning strategy in practice. Nurse Pract. 2013 Mar 10;38(3):40-5.

Mills B et al. Pharmacist-led Tdap vaccination of close contacts of neonates in a women's hospital. Vaccine. 2014 Jan 16;32(4):521-5

Healy CM, Rench MA, Baker CJ. Implementation of cocooning against pertussis in a high-risk population. Clin Infect Dis. 2011 Jan 15;52(2):157-62.

## Conflicting evidence on the effectiveness of postpartum dose in preventing infant pertussis

- ❑ California, 2010: pertussis incidence in infants born at hospitals with a postpartum Tdap policy was lower compared to hospitals without postpartum Tdap policy suggesting that vaccinating new mothers may protect infants.<sup>1</sup>
- ❑ Another study compared pre-intervention to post-intervention period found no impact of postpartum Tdap on infant disease.<sup>2</sup>

<sup>1</sup> Winter K, *et al.* Effectiveness of postpartum Tdap vaccination in California hospitals. CSTE, Portland Oregon. Presented June 2010.

<sup>2</sup> Castagnini LA, Healy CM, Rench MA, Wootton SH, Munoz FM, Baker CJ. Impact of maternal postpartum tetanus and diphtheria toxoids and acellular pertussis immunization on infant pertussis infection. *Clin Infect Dis.* 2012 Jan;54(1):78-84.

# Unclear and inconclusive evidence on effectiveness of cocooning in preventing infant pertussis

## United States

### ❑ Hospital-based evaluation

- Observed no impact in reduction of infant pertussis, but cautious interpretation
  - Limited by design, small numbers, changing recommendations

### ❑ Emerging Infections Program (EIP)

- Numbers too limited to assess effectiveness
- Assessed completeness of cocoon
  - 9 (4.5%) fully vaccinated cocoons; 5/9 mother only

## Australia

- ❑ Moderate reduction in risk of pertussis in infants – parents vaccinated at least 4 weeks before infant disease onset

## Changing pertussis epidemiology – shift in source of transmission to infants

- ❑ **Previously, parents commonly identified as source**
  - Mothers most often
  
- ❑ **More recently, siblings identified as most common source**
  - Having a sibling was a risk factor for infant pertussis
  - Source of infection study (CDC, unpublished)
    - 2006-2013 a source of infection for 44% of identified infant pertussis cases
    - 66%-85% of identified sources were classified as family members
      - Siblings most commonly identified (35.5%)

Wendelboe AM, et al. Transmission of *Bordetella pertussis* to Young Infants. *Pediatr Infect Dis J* 2007;26: 293–299; Bisgard KM, et al. Infant pertussis: who was the source? *Pediatr Infect Dis J* 2004; 23(11):985-989; de Greeff SC, et al. Pertussis disease burden in the household: how to protect young infants. *Clin Infect Dis*. 2010 May 15;50(10):1339-45; Jardine A, et al. Who gives pertussis to infants? Source of infection for laboratory confirmed cases less than 12 months of age during an epidemic, Sydney, 2009. *Commun Dis Intell*, 2010. 34(2):116-21; Wiley KE, et al. Sources of pertussis infection in young infants: a review of key evidence informing targeting of the cocoon strategy. *Vaccine*. 2013 Jan 11;31(4):618-25; Bertilone C, et al. Finding the 'who' in whooping cough: vaccinated siblings are important pertussis sources in infants 6 months of age and under. *Commun Dis Intell Q Rep*. 2014 Sep 30;38(3):E195-200.



# **VACCINATING DURING PREGNANCY**

# Agreement of high effectiveness of maternal pertussis vaccination -- United Kingdom

## Observational study

- ❑ Vaccine screening method
- ❑ For infants <3 mths of age at onset of pertussis

Vaccine effectiveness	Timing of maternal vaccination
91% (83-95)	At least 28 days before birth
38% (-95-80)	0-6 days before or 1-13 days after birth

## Case-Control study

- ❑ Cases: infants <2 mths of age at onset pertussis infection
- ❑ 58 cases, 55 controls
  - Mothers vaccinated during pregnancy: 10 cases (17%) and 39 controls (71%)
- ❑ Unadjusted VE = 91% (77%-97%)
- ❑ Adjusted\* VE = 93% (81%-97%)

\* Adjusted by sex, geographical area, and birth period

Amirthalingam G, et al. Effectiveness of maternal pertussis vaccination in England: an observational study. Lancet. 2014 Oct 25;384(9953):1521-8.

Dabrera G, et al. A case-control study to estimate the effectiveness of maternal pertussis vaccination in protecting newborn infants in England and Wales, 2012-2013. Clin Infect Dis. 2015 Feb 1;60(3):333-7.

## Tdap coverage among pregnant women from various sources, United States

- ❑ **Vaccine Safety Datalink sites**
  - 13.7% (2012)
  
- ❑ **Michigan Medicaid**
  - 14.3% (2011-2013)
  
- ❑ **Internet Panel Survey of pregnant women, during flu season**
  - 22.9% (2014-2015 flu season)

Kharbanda EO, et al. Receipt of pertussis vaccine during pregnancy across 7 Vaccine Safety Datalink Sites. *Prev Med.* 2014 Oct;67:316-9.

Housey M et al. Vaccination with tetanus, diphtheria, and acellular pertussis vaccine of pregnant women enrolled in Medicaid--Michigan, 2011-2013. *MMWR Morb Mortal Wkly Rep.* 2014 Sep 26;63(38):839-42.

CDC. Internet Panel Survey. Women aged 18-49 years pregnant at any time since August of prior year (e.g. 2014 for the April 2015 survey) were recruited in a general population internet panel operated by Survey Sampling International.

## **WG Assessments**

### **Vaccinating close contacts of infants with Tdap**

- ❑ Implementation and sustainability of “cocooning” programs remain a challenge**
- ❑ Lack of data evaluating effectiveness/impact of strategy**
- ❑ Inconclusive evidence that additional doses for close contacts, including postpartum, would be beneficial in prevention of disease and transmission of pertussis to infants**
  - Even if additional Tdap doses recommended, this would not address the shift to siblings as source of pertussis to infants**
- ❑ Vaccinating women during pregnancy is optimal strategy to prevent infant pertussis**

## **WG Conclusions**

**Available evidence does not support changes to the current ACIP Tdap recommendation for close contacts of infants, including the postpartum dose for women.**

### **Focus on current pertussis vaccination program**

- **Maintain high level of DTaP coverage**
- **Sustain Tdap coverage in adolescents**
- **Improve adult Tdap coverage**
- **Vaccinate women during pregnancy**

# Factsheets for Healthcare Professionals

## Provide the best prenatal care to prevent pertussis



### Strategies for healthcare professionals



**P**ertussis is on the rise and outbreaks are happening across the United States. In recent years, up to 1,450 infants have been hospitalized and about 10 to 20 have died each year in the United States due to pertussis. Most of these deaths are among infants who are too young to be protected by the childhood pertussis vaccine series that starts when infants are 2 months old.

These first few months of life are when infants are at greatest risk of contracting pertussis and having severe, potentially life-threatening complications from the infection. To help protect babies during this time when they are most vulnerable, women should get the tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine during **each** pregnancy. A strong recommendation from you may ultimately be what most influences whether or not your patients' newborns are protected against pertussis.

**Strongly recommend Tdap to your patients during the 3rd trimester of each pregnancy.**

### 5 Facts about Tdap and Pregnancy

#### 1. Tdap during pregnancy provides the best protection for mother and infant.

- Recommend and administer or refer your patients to receive Tdap during every pregnancy.
- Optimal timing is between 27 and 36 weeks gestation to maximize the maternal antibody response and passive antibody transfer to the infant.
- Fewer babies will be hospitalized for and die from pertussis when Tdap is given during pregnancy rather than during the postpartum period.

#### 2. Postpartum Tdap administration is NOT optimal.

- Postpartum Tdap administration does not provide immunity to the infant, who is most vulnerable to the disease's serious complications.
- Infants remain at risk of contracting pertussis from others, including siblings, grandparents, and other caregivers.
- It takes about 2 weeks after Tdap receipt for the mother to have protection against pertussis, which means the mother is still at risk for catching and spreading the disease to her newborn during this time.

#### 3. Cocooning alone may not be effective and is hard to implement.

- The term "cocooning" means vaccinating anyone who comes in close contact with an infant.
- It is difficult and can be costly to make sure that everyone who is around an infant is vaccinated.

#### 4. Tdap should NOT be offered as part of routine preconception care.

- Protection from pertussis vaccines does not last as long as vaccine experts would like, so Tdap is recommended during pregnancy in order to provide optimal protection to the infant.
- If Tdap is administered at a preconception visit, it should be administered again during pregnancy between 27 and 36 weeks gestation.

#### 5. Tdap can be safely administered earlier in pregnancy if needed.

- Pregnant women should receive Tdap anytime during pregnancy if it is indicated for wound care or during a community pertussis outbreak.
- If Tdap is administered earlier in pregnancy, it should not be repeated between 27 and 36 weeks gestation; only one dose is recommended during each pregnancy.

February 2015

## Making a strong vaccine referral to pregnant women



### Strategies for healthcare professionals



### Making the Referral

**Begin each referral with a vaccine recommendation that includes information on why the vaccine is beneficial and safe for mother and baby.** Tailoring your message with scientific data or personal anecdotes may help convey the vaccine's importance to individual patients.

**Provide information on where patients can get the vaccine(s) you recommend.** For help locating vaccines in your area, the HealthMap Vaccine Finder is available at: <http://vaccine.healthmap.org>.

**Always write a patient-specific prescription.** This will help your patients obtain the vaccine at another location where a prescription may be required.

**Anticipate questions on why patients cannot get vaccinated in your office.** For example, if you stock flu vaccine, but not Tdap, be prepared to explain why you offer one vaccine but not the other.

**Re-emphasize vaccine importance.** Remember to emphasize the fact that just because you do not stock a specific vaccine in your office does not mean it is not important, is less important than other vaccines you do stock, or that you have concerns about its safety.

**Have a plan in place to answer questions from other immunization providers who are concerned with vaccinating your pregnant patients.** Questions should be answered promptly, as it is likely your patient is with them at the time they contact you.

**S**tocking and administering vaccines in your office may not be feasible for all prenatal healthcare professionals, often due to issues with reimbursement. By making a strong vaccine referral, you can help ensure that your pregnant patients receive the recommended influenza (flu) and tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccines even if you are unable to administer them in your office. The strategies outlined are based on research with healthcare professionals and pregnant women. The goal is to strengthen vaccine referrals to increase the likelihood of patient follow through.

### Vaccines Routinely Recommended for Pregnant Women

It is safe for the flu vaccine and Tdap vaccine to be given to pregnant patients at the same time.

#### Flu Vaccine

- Is recommended for pregnant women and safe to administer during any trimester.
- Is the best way to protect pregnant women and their babies from the flu, and prevent possible flu-associated pregnancy complications.
- Is safe and can help protect the baby from flu for up to 6 months after birth. This is important because babies younger than 6 months of age are too young to get a flu vaccine.

#### Tdap Vaccine

- Is recommended during every pregnancy, ideally between 27 and 36 weeks gestation.
- When given during pregnancy, boosts antibodies in the mother, which are transplacentally transferred to her unborn baby. Third trimester administration optimizes neonatal antibody levels.
- Helps protect infants, who are at greatest risk for developing pertussis and its life-threatening complications, until they are old enough to start the childhood pertussis vaccine series.

February 2015

[www.cdc.gov/pertussis/pregnant](http://www.cdc.gov/pertussis/pregnant)

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- Optimal timing is between 27 and 36 weeks gestation to maximize the maternal antibody response and passive antibody transfer to the infant.
- Fewer babies will be hospitalized for and die from pertussis when Tdap is given during pregnancy rather than during the postpartum period.

#### 2. Postpartum Tdap administration is NOT optimal.

- Postpartum Tdap administration does not provide immunity to the infant, who is most vulnerable to the disease's serious complications.
- Infants remain at risk of contracting pertussis from others, including siblings, grandparents, and other caregivers.
- It takes about 2 weeks after Tdap receipt for the mother to have protection against pertussis, which means the mother is still at risk for catching and spreading the disease to her newborn during this time.

#### 3. Cocooning alone may not be effective and is hard to implement.

- The term "cocooning" means vaccinating anyone who comes in close contact with an infant.
- It is difficult and can be costly to make sure that everyone who is around an infant is vaccinated.

#### 4. Tdap should NOT be offered as part of routine preconception care.

- Protection from pertussis vaccines does not last as long as vaccine experts would like, so Tdap is recommended during pregnancy in order to provide optimal protection to the infant.
- If Tdap is administered at a preconception visit, it should be administered again during pregnancy between 27 and 36 weeks gestation.

#### 5. Tdap can be safely administered earlier in pregnancy if needed.

- Pregnant women should receive Tdap anytime during pregnancy if it is indicated for wound care or during a community pertussis outbreak.
- If Tdap is administered earlier in pregnancy, it should not be repeated between 27 and 36 weeks gestation; only one dose is recommended during each pregnancy.

**P**ertussis is on the rise and outbreaks are happening across the United States. In recent years, up to 1,450 infants have been hospitalized and about 10 to 20 have died each year in the United States due to pertussis. Most of these deaths are among infants who are too young to be protected by the childhood pertussis vaccine series that starts when infants are 2 months old.

These first few months of life are when infants are at greatest risk of contracting pertussis and having severe, potentially life-threatening complications from the infection. To help protect babies during this time when they are most vulnerable, women should get the tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine during **each** pregnancy. A strong recommendation from you may ultimately be what most influences whether or not your patients' newborns are protected against pertussis.

**Strongly recommend Tdap to your patients during the 3rd trimester of each pregnancy.**

### Get Reimbursed for Tdap Vaccination

Coding and billing are known barriers to administering vaccines during pregnancy. Correct coding enables an office to report these activities to third-party payers and receive appropriate reimbursement for these services.

- ACOG's Tdap Toolkit provides coding and billing information for Tdap: [www.acog.org/TdapToolkit](http://www.acog.org/TdapToolkit)

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## Making a strong vaccine referral to pregnant women



### Strategies for healthcare professionals



### Making the Referral

**Begin each referral with a vaccine recommendation that includes information on why the vaccine is beneficial and safe for mother and baby.** Tailoring your message with scientific data or personal anecdotes may help convey the vaccine's importance to individual patients.

**Provide information on where patients can get the vaccine(s) you recommend.** For help locating vaccines in your area, the HealthMap Vaccine Finder is available at: <http://vaccine.healthmap.org>.

**Always write a patient-specific prescription.** This will help your patients obtain the vaccine at another location where a prescription may be required.

**Anticipate questions on why patients cannot get vaccinated in your office.** For example, if you stock flu vaccine, but not Tdap, be prepared to explain why you offer one vaccine but not the other.

**Re-emphasize vaccine importance.** Remember to emphasize the fact that just because you do not stock a specific vaccine in your office does not mean it is not important, is less important than other vaccines you do stock, or that you have concerns about its safety.

**Have a plan in place to answer questions from other immunization providers who are concerned with vaccinating your pregnant patients.** Questions should be answered promptly, as it is likely your patient is with them at the time they contact you.

**S**tocking and administering vaccines in your office may not be feasible for all prenatal healthcare professionals, often due to issues with reimbursement. By making a strong vaccine referral, you can help ensure that your pregnant patients receive the recommended influenza (flu) and tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccines even if you are unable to administer them in your office. The strategies outlined are based on research with healthcare professionals and pregnant women. The goal is to strengthen vaccine referrals to increase the likelihood of patient follow through.

### Vaccines Routinely Recommended for Pregnant Women

It is safe for the flu vaccine and Tdap vaccine to be given to pregnant patients at the same time.

#### Flu Vaccine

- Is recommended for pregnant women and safe to administer during any trimester.
- Is the best way to protect pregnant women and their babies from the flu, and prevent possible flu-associated pregnancy complications.
- Is safe and can help protect the baby from flu for up to 6 months after birth. This is important because babies younger than 6 months of age are too young to get a flu vaccine.

#### Tdap Vaccine

- Is recommended during every pregnancy, ideally between 27 and 36 weeks gestation.
- When given during pregnancy, boosts antibodies in the mother, which are transplacentally transferred to her unborn baby. Third trimester administration optimizes neonatal antibody levels.
- Helps protect infants, who are at greatest risk for developing pertussis and its life-threatening complications, until they are old enough to start the childhood pertussis vaccine series.

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[www.cdc.gov/pertussis/pregnant](http://www.cdc.gov/pertussis/pregnant)



# Fact Sheet and Posters for Pregnant Women

## Puedes empezar a proteger a tu bebé de la tosferina desde antes del nacimiento

### Información para las mujeres embarazadas



**¿Cuándo tú te vacunas contra la tosferina durante tu tercer trimestre, tu bebé nacerá protegido contra esta enfermedad.**

#### ¿Por qué tengo que vacunarme contra la tosferina durante mi embarazo?

Se le recomienda a todas las mujeres embarazadas que se vacunen contra la tosferina antes de dar a luz. Esto es porque el bebé aún tiene sus propios anticuerpos del nacimiento. Los bebés aún tienen sus propios anticuerpos al nacer, pero estos anticuerpos van pasando y van perdiendo fuerza con el tiempo. Durante el tercer trimestre, vas a pasarle a tu bebé los anticuerpos que tú tienes. Durante los primeros meses de vida, tu bebé es muy vulnerable a enfermedades graves como la tosferina.

#### ¿Es segura esta vacuna para mí y para mi bebé?

Si la tosferina contra la tosferina es muy segura para ti y para tu bebé. Los efectos secundarios más comunes son leves, como por ejemplo, un dolor en el brazo donde se le inyecta o un dolor en el brazo donde se aplica la vacuna. Esto desaparece a los pocos días. No es posible contraer la tosferina por la vacuna, ya que esta no contiene bacterias vivas.

Médicos y parteras que se especializan en la atención a mujeres embarazadas recomiendan que tú y tu bebé reciban la vacuna contra la tosferina durante tu tercer trimestre. Recibir la vacuna durante este tiempo reduce el riesgo de complicaciones graves, como tener un bebé de bajo peso o un parto prematuro.

**Si me aplican esta vacuna hace poco, ¿por qué me tengo que vacunar nuevamente?**

La tosferina (también conocida como pertussis o whooping cough) es una enfermedad grave que puede ocasionar que los bebés dejen de respirar.

Desafortunadamente, los bebés de bajo peso o que nacen prematuramente son más vulnerables a esta enfermedad. Si tu bebé nace con un peso bajo o que puedes tener tu bebé al tercer trimestre, pídele al médico que te vacune contra la tosferina. Esto puede ayudar a proteger a tu bebé.



## You can start protecting your baby from whooping cough before birth

### Information for pregnant women



**When you get the whooping cough vaccine during your 3<sup>rd</sup> trimester, your baby will be born with protection against whooping cough.**

#### Why do I need to get a whooping cough vaccine while I am pregnant?

The whooping cough vaccine is recommended during your third trimester so that your body can create antibodies and pass them to your baby before birth. These antibodies will help protect your newborn right after he or she is born. Your baby gets his own first whooping cough vaccine at 2 months of age. During the first few months of life, your baby is most vulnerable to serious complications from this disease.

#### Is this vaccine safe for me and my baby?

Yes. The whooping cough vaccine is very safe for you, and your baby. The most common side effects are mild, like redness, swelling or pain where the shot is given in the arm. This should go away within a few days. You cannot get whooping cough from the vaccine. The vaccine does not contain any live bacteria.

Doctors and midwives who specialize in caring for pregnant women agree that the whooping cough vaccine is so important to get during the third trimester of each pregnancy. Getting this vaccine during pregnancy does not put you at increased risk for pregnancy complications like low birth weight or premature delivery.

#### If I recently got this, do I need it again?

The amount of antibodies you get from the vaccine goes over time. That's why every pregnant woman, no matter how many times you've been vaccinated, should get the vaccine again during pregnancy.

#### Are babies even born with protection in the United States?

Yes. In fact, babies are born with protection against whooping cough. We used to think of this as a good thing. Recently, we've seen the most cases we've ever seen in 50 years. So now we see between 10,000 and 20,000 cases of whooping cough each year in the United States. Cases, which include people of all ages, are reported in every state.

**Whooping cough** (sometimes called pertussis) is a serious disease that can cause babies to stop breathing. Unfortunately, many babies must be 2 months old before they can start getting their whooping cough vaccine. The good news is you can avoid this gap in protection by getting the whooping cough vaccine (also called the Tdap shot because it protects against tetanus, diphtheria, and pertussis) in your third trimester, preferably between your 27<sup>th</sup> and 36<sup>th</sup> week of pregnancy. By getting vaccinated, you will pass antibodies to your baby so she is born with protection against whooping cough.



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

[www.cdc.gov/whoopingcough](http://www.cdc.gov/whoopingcough)



American Academy of Pediatrics  
www.aap.org



American College of Obstetricians and Gynecologists  
www.acog.org

**Outbreaks of whooping cough are happening across the United States.** This is to have coughing fits, gasp for air, and turn blue from lack of oxygen. It can even be whooping cough vaccine (also called Tdap) during your third trimester, you'll pass it. This will help keep him protected during his first few months of life, when he is most disease and complications.



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

Born with protection  
[www.cdc.gov](http://www.cdc.gov)



American Academy of Pediatrics  
www.aap.org



American College of Obstetricians and Gynecologists  
www.acog.org

Talk to your doctor or midwife about the whooping cough vaccine during your third trimester.



Getting your whooping cough vaccine in your 3<sup>rd</sup> trimester...

helps protect your baby from the start.



Mamá tú siempre protegerás a tu pequeño milagro.

Empieza ahora con tu vacuna contra la tosferina.



“The whooping cough vaccine I got during my 3<sup>rd</sup> trimester will help protect my baby starting at her first breath.”

whooping cough fits and gasping for air, during across the United States. When you get the third trimester of your pregnancy, you'll pass a disease from the time she's born. Those antibodies protect your baby from serious disease and complications.

Born with protection against whooping cough.  
[www.cdc.gov/whoopingcough](http://www.cdc.gov/whoopingcough)



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**\*\*Free to download\*\***  
**\*\*Limited quantities free for order\*\***

**ADDITIONAL SLIDES**

## What We Are Asking Partners To Do

- ❑ **GIVE STRONG RECOMMENDATIONS** for whooping cough vaccine (Tdap) in the 3rd trimester of each pregnancy
- ❑ **ASK HEALTHCARE PROFESSIONALS** to include *Born with Protection* campaign materials in prenatal information packets  
[www.cdc.gov/pertussis/materials/index.html](http://www.cdc.gov/pertussis/materials/index.html)
- ❑ **ENCOURAGE** pregnant women to ask their doctor or midwife about whooping cough vaccine
- ❑ **PROMOTE** CDC's Tdap during pregnancy website and materials through your social media channels  
[www.cdc.gov/pertussis/pregnant](http://www.cdc.gov/pertussis/pregnant)

## More Ways to Get Involved!

- ❑ **REMIND** prenatal healthcare professionals that whooping cough outbreaks are happening across the U.S.
- ❑ **RAISE AWARENESS** among prenatal healthcare professionals that:
  - 3<sup>rd</sup> trimester vaccination every pregnancy offers the best protection for baby
  - Postpartum Tdap administration is NOT optimal
  - Cocooning alone may not be effective and is hard to implement
- ❑ **DIRECT** pregnant women to CDC information about Tdap during pregnancy  
[www.cdc.gov/pertussis/pregnant](http://www.cdc.gov/pertussis/pregnant)
- ❑ **COLLABORATE** with us to expand the campaign's reach