

Pertussis vaccination in pregnant women

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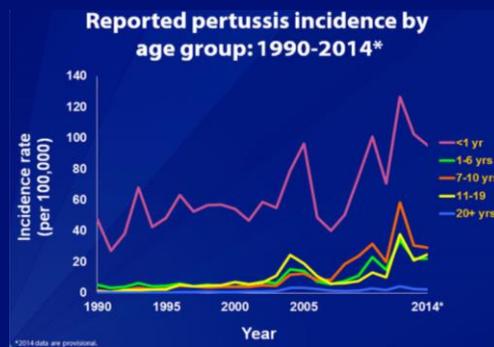
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Background

- Highest incidence of pertussis is in infants <1 year
 - 2,269 of the pertussis cases in 2012 were in infants <3 months
 - 15 of those infants died
- Half of infants <1 year who get pertussis are hospitalized



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

Strategies to protect infants from pertussis

- **Infant vaccination with Diphtheria, tetanus, and acellular pertussis vaccine (DTaP)**
 - Doses given at 2, 4, 6 and 15-18 months
 - Infants <2 months not protected
 - Vaccine efficacy after 1 dose ranges from 68%-84%
 - Efficacy after 3 doses approximately 84%-95%
- **Vaccination of pregnant women with Tetanus, diphtheria, and acellular pertussis vaccine (Tdap)**
 - Evidence for maternal antibody transfer
 - Studies from the UK have shown high efficacy for protection against pertussis in infants < 2 months

ACIP recommendations for Tdap vaccination of pregnant women

- **October 2005**
 - Women should receive Tdap before pregnancy; women not vaccinated before pregnancy should receive Tdap in the immediate postpartum period. "Cocooning" (vaccination of close contacts of infants < 12 months) also recommended.
- **October 2011**
 - Tdap vaccine recommended during pregnancy (after 20 weeks gestation) for women who had not been previously vaccinated.
- **October 2012**
 - Tdap recommended during each pregnancy (preferably between 27-36 weeks gestation), regardless of previous vaccination.

Measuring Tdap coverage in pregnant women

- **Michigan Medicaid study**
 - Tdap coverage during pregnancy assessed from Medicaid claims data among women who delivered their first live-born infant during November 2011-February 2013 and were enrolled in Michigan Medicaid for at least 1 month between 20 weeks gestation and live birth (n=15,181).
- **Vaccine Safety Datalink sites**
 - Tdap coverage assessed after end of pregnancy from electronic medical records and claims data among women seeking care at 7 large medical care organizations that are part of CDC's Vaccine Safety Datalink (n=82,681 in 2012).
- **Pregnancy Risk Assessment Monitoring System (PRAMS)**
 - Survey of women with recent live births sampled from birth certificates in participating states. Tdap vaccination coverage assessed among women who had a live birth during September-December 2011 in 17 states and New York City (n=5,499).

Measuring Tdap coverage in pregnant women (cont.)

- **Internet panel survey**
 - Conducted in early April each year to assess influenza vaccination coverage and vaccination-related KABs among pregnant women
 - Questions about receipt of Tdap vaccination included since April 2012
 - Questions about provider recommendation and offer of Tdap added in 2015
 - Participants recruited from a pre-existing, national general population opt-in internet panel
 - Women who report being pregnant anytime since the preceding August are eligible for the survey
 - Approximately 1,800 respondents each year

Tdap coverage during pregnancy* by select demographic characteristics, Internet panel survey, 2013-2014[†]

	Unweighted n	Percent vaccinated
Total	1,678	14.9
Age (years)		
18-24	399	13.7
25-34	970	17.0
35-49	309	10.8
Race/ethnicity		
Hispanic	265	10.9
Black, non-Hispanic	161	10.3
White, non-Hispanic	1,070	18.8
Other, non-Hispanic	183	12.1
Education		
Less than college degree	906	13.6
College degree	545	15.7
Greater than college degree	227	19.3
Insurance coverage		
Any public	584	14.4
Private/military only	1,032	16.1
No insurance	53	1.2

* Women vaccinated before or after pregnancy counted as unvaccinated. Those with unknown timing of vaccination were excluded.

[†] Women pregnant any time during August 2013 – March 2014

Discussion

- **All pregnant women are currently recommended to be vaccinated with Tdap during every pregnancy to protect their infants from pertussis.**
- **Tdap vaccination coverage during pregnancy has increased since the most recent ACIP recommendation, but remains low.**
 - Approximately 10-25% vaccinated, depending on source.
- **An offer of vaccination by a health care provider is strongly associated with vaccination.**
 - 48% of women who were offered Tdap during pregnancy were vaccinated compared to only 1% who were neither offered nor recommended to be vaccinated.

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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