

Health Advisory:

Prevention of Pertussis Among Household Contacts of Infants

12/18/2008

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Office of the Director
912 Wildwood
P.O. Box 570
Jefferson City, MO 65102
Telephone: (800) 392-0272
Fax: (573) 751-6041

Web site: <http://www.dhss.mo.gov>

Health Advisory
12/18/2008

**FROM: JANE DRUMMOND
DIRECTOR**

SUBJECT: Prevention of Pertussis Among Household Contacts of Infants

Missouri is experiencing a significant increase in pertussis cases in 2008. From the beginning of the year through December 6, a total of 424 cases of pertussis have been reported in the state compared to 102 cases reported for the same period in 2007. Of the 424 cases reported so far this year, 41 (10%) have occurred in infants < 12 months of age. Pertussis cases in early infancy are at greatest risk for complications and fatalities. Infants < 12 months of age accounted for 145 (93%) of 156 pertussis-related deaths reported to the Centers for Disease Control and Prevention (CDC) from 2000 to 2006. Parents, especially mothers, have been identified as the most important and inadvertent source of spread of pertussis to their infants, even if the adult was vaccinated against pertussis in his/her childhood or had the disease as a child. One or more household contacts with pertussis is the source of infection in approximately 75% of cases among infants aged ≤ 6 months for whom the source is identified.

Therefore, it is important to ensure, in any household where an infant < 12 months of age lives, that all children in the household are up-to-date with the recommended doses of DTaP*, and that all adults (including the mother) and adolescent household contacts have appropriately received a dose of Tdap.**

- **Adult and adolescent women of childbearing age** should receive a dose of Tdap during routine wellness visits. Administering a dose of Tdap during those visits, when indicated, is the most effective strategy to ensure that women are protected against pertussis. Because Tdap contains only toxoids and purified bacterial components, women who receive Tdap do not need to wait after vaccination to become pregnant.
- **Pregnant women who have not received Tdap previously** (including women who are breastfeeding) should receive a single dose of Tdap as soon as feasible in the immediate postpartum period to protect the women from pertussis and reduce the risk for exposing their infants to pertussis. The postpartum Tdap should be administered before discharge from the hospital or birthing center if 2 years or more have elapsed since the most recent Td administration. Providers may choose to administer Tdap in postpartum women who received a tetanus-and/or diphtheria toxoid-containing vaccine less than 2 years previously if the women have no history of serious adverse reaction after the most recent dose of tetanus and/or diphtheria toxoid-containing vaccine.

*Pediatric diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP)

** Adolescent and adult tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap)

Standing orders for postpartum Tdap vaccination before discharge have successfully raised vaccination rates to more than 80% of eligible women. If Tdap cannot be administered at or before discharge, the dose should be administered as soon as feasible thereafter. Elevated levels of pertussis antibodies in the mother are likely within 1 - 2 weeks after vaccination.

- Providers should also encourage **other previously unvaccinated adults and adolescents who anticipate contact with an infant** to receive Tdap. Vaccination of these potential contacts before discharge of the mother and infant rather than at a follow-up visit has the advantage of decreasing the time when contacts of the newborns could acquire and transmit pertussis to the infant.

When pregnant women who have not received Tdap have indications for tetanus or diphtheria booster protection (≥ 10 years since the most recent Td), the Advisory Committees on Immunization Practices (ACIP) recommends receipt of Td during pregnancy. However, in special situations, a dose of Tdap (instead of Td) might be warranted **during pregnancy**. Health-care providers may choose to administer Tdap instead of Td during pregnancy to add protection against pertussis in situations when Td cannot be delayed until delivery or when the risk for pertussis is increased. Whether administration of Tdap to pregnant women results in protection of the infant against pertussis through transplacental maternal antibodies is unknown. Although **pregnancy is not a contraindication for receiving Tdap vaccine**, health-care providers should weigh the theoretical risks and benefits before choosing to administer Tdap vaccine to a pregnant woman. Providers are encouraged to report Tdap administrations to pregnant women, regardless of trimester, to the appropriate manufacturers' pregnancy registry: for ADACEL,[®] to Sanofi Pasteur, telephone 1-800-822-2463 (1-800-VACCINE), and for BOOSTRIX,[®] to GlaxoSmithKline Biologicals, telephone 1-888-825-5249.

Table 1 provides ACIP recommendations for vaccination to prevent pertussis, tetanus, and diphtheria among adults and adolescents, with recommended intervals for vaccination from the most recent tetanus and diphtheria toxoids-containing vaccine.

In 2005, two tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccines were licensed and recommended for use in adults and adolescents in the United States: ADACEL[®] (Sanofi Pasteur, Swiftwater, Pennsylvania), which is licensed for use in persons aged 11- 64 years, and BOOSTRIX[®] (GlaxoSmithKline Biologicals, Rixensart, Belgium), which is licensed for use in persons aged 10 - 64 years.² Both Tdap vaccines are licensed for single-dose use to add protection against pertussis and to replace the next dose of tetanus and diphtheria toxoids vaccine (Td).

For more information regarding prevention, management, and reporting of pertussis contact your local health department, or the Missouri Department of Health and Senior Services (DHSS) at 1-866-628-9891.

Reference:

1. CDC. Prevention of Pertussis, Tetanus, and Diphtheria Among Pregnant and Postpartum Women and Their Infants. *MMWR* 2008; 57(No. RR-4). <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5704a1.htm>
2. Package insert for: Boostrix (Tetanus Toxoid, Reduced Diphtheria Toxoid, and Acellular Pertussis Vaccine, Adsorbed) Suspension for Intramuscular Injection Initial U.S. Approval: 2005, Revised December 2008, Manufactured by GlaxoSmithKline Biologicals and Novartis Vaccines and Diagnostics GmbH & Co. KG

TABLE 1. Summary of recommendations of the Advisory Committee on Immunization Practices (ACIP) for vaccination to prevent pertussis, tetanus, and diphtheria among adults and adolescents,* with recommended intervals for vaccination from the most recent tetanus and diphtheria toxoids-containing vaccine† — United States, 2006–2008

Setting	March 2006	December 2006	May 2008
	Adolescents (aged 11–18 yrs)	Adults (aged 19–64 yrs)	Women of childbearing age, including pregnant and postpartum women
Routine*	Tdap at age 11–12 yrs; Tdap catch-up ages 11–18 yrs [§]	Tdap to replace the next decennial Td [¶] ; ideally, women will receive Tdap before becoming pregnant	Tdap to replace the next decennial Td [¶] ; Tdap is encouraged during preconception wellness visits
Special situations*			
Pregnant women			
Interval <10 yrs	Tdap as soon as feasible in the postpartum period [§]	Tdap postpartum before leaving hospital or birthing center; interval as short as 2 yrs [¶]	Tdap postpartum before leaving hospital or birthing center; interval as short as 2 yrs ^{¶**††}
Interval ≥10 yrs	Td recommended during pregnancy	Td recommended during pregnancy	<ul style="list-style-type: none"> • Td recommended during pregnancy,^{††} or • Tdap-postpartum before leaving hospital or birthing center instead of Td during pregnancy, if sufficient tetanus and diphtheria protection is likely until delivery
Nonpregnant adults and adolescents who anticipate having, or will have contact with an infant aged <12 mos	Tdap at age 11–12 yrs; Tdap catch-up ages 11–18 yrs [§]	Tdap ideally administered at least 2 wks before contact with the infant; interval as short as 2 yrs suggested [¶]	Tdap, ideally administered at least 2 wks before contact with the infant; interval as short as 2 yrs suggested [¶]
Increased risk for pertussis or its complications, e.g., health-care personnel with direct patient contact and persons in settings with a pertussis outbreak	Tdap ages 11–18 yrs [§]	Tdap; interval as short as 2 yrs [¶]	Tdap-postpartum before leaving hospital or birthing center; interval as short as 2 yrs ^{¶**††} ; pregnant women should be advised of symptoms of pertussis and the benefits of treatment and early prophylaxis for household contacts exposed to pertussis
Increased risk for diphtheria	Tdap, when indicated [§]	Tdap to replace the next Td when indicated*	Td for urgent protection during pregnancy ^{††} ; Tdap postpartum before leaving hospital or birthing center
Tetanus wound management	Tdap instead of Td when indicated ^{§§}	Tdap instead of Td when indicated ^{§§}	Td when indicated for pregnant women ^{††§§}
No tetanus and diphtheria toxoids vaccination, or vaccination history incomplete or unknown	1 dose Tdap, followed by Td ≥4 wks later and dose 2 Td 6–12 mos later	1 dose Tdap, followed by Td ≥4 wks later and dose 2 Td 6–12 mos later	1 dose Td during pregnancy followed by dose 2 Td ≥4 wks later ^{††} and dose 3 as Tdap 6–12 mos later (postpartum)

Sources: CDC. Preventing tetanus, diphtheria, and pertussis among adolescents: use of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccines. Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2006;55(No. RR-3). CDC. Preventing tetanus, diphtheria, and pertussis among adults: use of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine (Tdap). Recommendations of the Advisory Committee on Immunization Practices (ACIP) MMWR 2006;55 (No. RR-17).

* ACIP recommends routine vaccination with tetanus and diphtheria toxoids every 10 years to boost tetanus and diphtheria protection. In 2006, ACIP recommended that adults and adolescents who have not been vaccinated previously with tetanus and reduced diphtheria toxoids and acellular pertussis (Tdap), including persons with a history of pertussis, receive a dose of Tdap to boost pertussis protection in addition to tetanus and diphtheria protection. Tdap is licensed for single-dose administration. In persons who have received Tdap, tetanus and reduced diphtheria toxoids (Td) vaccine should be administered when subsequent decennial booster vaccination is indicated for tetanus or diphtheria protection.

† For adults and adolescents, tetanus and diphtheria toxoids-containing vaccines include tetanus toxoid (TT), Tdap, and Td; for infants and children, tetanus toxoid and diphtheria toxoids-containing vaccines include pediatric diphtheria and tetanus toxoids and whole-cell pertussis (DTP), pediatric diphtheria and tetanus toxoids and acellular pertussis (DTaP), pediatric diphtheria and tetanus toxoids and acellular pertussis, inactivated poliovirus and hepatitis B (DTaP-IPV-Hep B), and pediatric diphtheria and tetanus toxoids (DT).

§ During 2000–2006, U.S. adolescents aged 10–19 years had the highest incidence of reported pertussis outside of infancy (CDC, unpublished data, 2008). For this reason, a catch-up dose of Tdap is recommended for adolescents aged 11–18 years to add protection against pertussis if they have received Td but not Tdap. For catch-up Tdap, an interval of at least 5 years from the most recent tetanus and/or diphtheria toxoids-containing vaccine is encouraged to reduce the risk for local and systemic reactions that could result when concentration of tetanus and/or diphtheria antitoxin is high. An interval less than 5 years after Td may be used, particularly when the benefit of providing pertussis protection is likely to be increased. Adolescents who have received a childhood series of pediatric DTP or DTaP and Td or Tdap are protected against tetanus and diphtheria.

¶ A shorter interval may be used.

** Limited evidence informs the risk of local and systemic reactions after Tdap at intervals of <2 years. Higher rates of local and systemic reactions and more severe reactions can occur with high preexisting serum titers of tetanus or diphtheria antitoxin. Providers may choose to administer Tdap in postpartum women who received a tetanus toxoid- and/or diphtheria toxoid-containing vaccine (e.g., Td or TT) less than 2 years previously if the women have no history of serious adverse reaction after the most recent dose of tetanus and/or diphtheria toxoid-containing vaccine.

†† In special situations, a dose of Tdap might be warranted during pregnancy. Health-care providers who choose to administer Tdap to pregnant women should discuss with the women the lack of evidence of safety and effectiveness for the mother, fetus, pregnancy outcome, and effectiveness of transplacental maternal antibodies to provide early pertussis protection to the infant. These women should be informed that no study has examined the effectiveness of transplacental pertussis antibodies induced by Tdap on the adequacy of the infant immune response to pediatric DTaP and conjugate vaccines containing tetanus toxoid or diphtheria toxoid. Because adverse outcomes of pregnancy are most common in the first trimester, vaccinating these pregnant women with Tdap during the second or third trimester is preferred to minimize the perception of an association of Tdap with an adverse outcome, unless vaccine is needed urgently.

§§ A Td booster might be recommended for wound management if ≥5 years have elapsed since the previous Td. Persons who have completed the 3-dose primary tetanus vaccination series and have received a tetanus toxoid-containing vaccine within the preceding 5 years are protected against tetanus and do not require a tetanus toxoid-containing vaccine as part of wound management.