County of San Diego

PHYSICIANS' BULLETIN

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Pertussis Update—2006

Note to readers: *Shortly before this Bulletin went to press, the Centers for Disease Control and Prevention (CDC) National Immunization Program (NIP) posted an updated interim Vaccine Information Statement (VIS) for Tdap (tetanus, diphtheria, acellular pertussis) vaccine. Dated 5/31/06, the newly revised interim VIS now contains information for adults getting the vaccine, as well as for adolescents. A final VIS will be developed after the CDC Advisory Committee on Immunization Practices (ACIP) issues its final recommendations and the Morbidity and Mortality Weekly Report (MMWR) publishes them. The 5/31/06 interim VIS is currently available in English only.*

*To access the 5/31/06 interim VIS from the NIP website, please visit:*http://www.cdc.gov/nip/publications/VIS/vis-tdap.pdf

Pertussis is a highly contagious respiratory tract infection. Although most children are protected against pertussis by vaccination during childhood, immunity wanes over time and leaves adolescents and adults unprotected. In 2004, U.S. adults 19-64 years of age accounted for 7,008 of 25,827 (27%) reported pertussis cases. The true number of cases among adults 19-64 years is likely much higher, estimated at 600,000 each year. The clinical presentation of pertussis in adults ranges from mild cough illness to classic pertussis (i.e., prolonged cough characterized by paroxysms, post tussive emesis, and inspiratory whoop). Complications include rib fractures resulting from severe cough and pneumonia requiring hospitalization. Adults with pertussis can transmit the infection to other people, including infants. Infants are at highest risk of pertussis related complications and death compared with older age groups.

A Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine, Adsorbed (Tdap) product, ADACEL™(sanofi pasteur), was licensed by the FDA on June 10, 2005, as a single dose booster vaccine for persons 11- 64 years of age to provide protection against tetanus, diphtheria, and pertussis (www.fda.gov/cber/label/tdapave061005LB.pdf). Another Tdap vaccine, BOOSTRIX® (GlaxoSmithKIineBiologicals), was licensed May 3, 2005, for persons 10-18 years of age.

On October 26, 2005, the Advisory Committee on Immunization Practices (ACIP) recommended routine use of a single dose of Tdap for adults 19-64 years of age to replace the next booster dose of tetanus and diphtheria toxoids vaccine (Td). The ACIP also recommended Tdap for adults who have close contact with infants <12 months of age (www.cdc.gov/od/oc/media/pressrel/r051109.htm). Provisional ACIP recommendations are summarized below. These recommendations are under review by the Director of the CDC and the Department of HHS, and will become official when published in CDC's Morbidity and Mortality Weekly Report (MMWR) (www.cdc.gov/mmwr/).Provisional recommendations for use of Tdap (ADACEL™ and BOOSTRIX®) among adolescents 11-18 years of age are available at http://www.cdc.gov/nip/vaccine/tdap/tdap_child_summary.htm.

Provisional Recommendations for Tdap in Adults

The following recommendations for a single dose of Tdap (ADACEL™) apply to adults 19-64 years of age who have not yet received Tdap.

Routine

Adults should receive a single dose of Tdap to replace a single dose of Td for booster immunization against tetanus, diphtheria, and pertussis if they received their most recent tetanus and diphtheria toxoid containing vaccine (e.g., Td) >10 years earlier.

Shorter Intervals between Td and Tdap

Tdap may be given at an interval shorter than 10 years since receipt of the last tetanus and diphtheria toxoid containing vaccine to protect against pertussis. The safety of intervals as short as approximately 2 years between administration of Td and Tdap is supported by a Canadian study of children and adolescents. The dose of Tdap replaces the next scheduled Td booster.

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Prevention of Pertussis among infants <12 Months of age by Vaccinating Adult Contacts

Adults who have or who anticipate having close contact with an infant <12 months of age (e.g., parents, childcare providers, health care providers, etc.) should receive a single dose of Tdap. An interval of 2 years or more since the most recent tetanus and diphtheria toxoid containing vaccine is suggested. Ideally, Tdap should be given at least 1 month before beginning close contact with the infant. Women should receive a dose of Tdap in the immediate post partum period if they have not previously received Tdap. Any woman who might become pregnant is encouraged to receive a single dose of Tdap.

Simultaneous Administration

Tdap should be administered with other vaccines that are indicated during the same visit when feasible. Each vaccine should be administered at a different anatomic site using a separate syringe.

Special Situations

Tetanus prophylaxis in wound management: Adults 19-64 years of age who require a tetanus toxoid containing vaccine as part of wound management should receive Tdap instead of Td if they have not previously received Tdap. If Tdap is not available or was administered previously, Td should be administered.

Incomplete or unknown vaccination history: Adults who have never received tetanus and diphtheria toxoid containing vaccine should receive a series of three vaccinations. The preferred schedule is a single dose of Tdap, followed by Td ≥4 weeks later, and a second dose of Td 6 to 12 months later. Tdap may substitute for Td for any one of the three doses in the series.

History of pertussis: Adults with a history of pertussis generally should receive Tdap according to the routine recommendations.

Pregnancy: Pregnancy is not a contraindication to Tdap or Td vaccination. Guidance on the use of Tdap during pregnancy is under consideration by ACIP. At this time, women who received the last tetanus and diphtheria toxoid containing vaccine <10 years earlier should receive Tdap in the post partum period, according to the routine recommendations for vaccinating adult contacts of infants <12 months of age. Women who received the last tetanus and diphtheria toxoid containing vaccine >10 years earlier should receive Td during pregnancy in preference to Tdap, and pregnant women who have not received the primary 3 dose vaccination series for tetanus should begin the series during pregnancy. If Td is indicated during pregnancy, vaccinating during the second or third trimester is preferred when feasible.

Contraindications to Tdap

- History of serious allergic reaction (i.e., anaphylaxis) to vaccine components
- History of encephalopathy (e.g., coma, prolonged seizures) not attributable to an identifiable cause within 7 days of administration of a pertussis vaccine.

Precautions and Reasons to Defer Tdap

- Guillain Barré Syndrome(GBS) within 6 weeks after a previous dose of a tetanus toxoid containing vaccine
- Moderate to severe acute illness
- Severe latex allergy if using the prefilled presentation
- Unstable neurological condition
- History of Arthus hypersensitivity reaction to a tetanus toxoid containing vaccine administered <10 years previously.

Reporting Adverse Events after Vaccination

All clinically significant adverse events should be reported to the Vaccine Adverse Event Reporting System (VAERS), even if a causal relationship to vaccination is uncertain. VAERS reporting forms and information are available electronically at http://vaers.hhs.gov/ or by calling (800) 822 7967. Providers are encouraged to report electronically at https://secure.vaers.org/VaersDataEntryintro.htm.

Future Considerations

Recommendations for use of Tdap among health care providers, pregnant women, and adults >65 years of age will be considered at a future ACIP meeting. At this time, all adults ≥65 years of age should receive a tetanus toxoid and diphtheria toxoid-containing vaccine every 10 years or earlier as indicated for wound management.

Provisional Recommendations for Tdap in Adolescents

The primary objective of the adolescent pertussis booster vaccination program is to protect adolescents against pertussis. Key ACIP recommendations for Tdap (single dose) and Td use in adolescents 11-18 years of age are summarized below. These ACIP recommendations are under review by the Director of CDC and the Department of HHS and will become official when published in CDC's *MMWR* (http://www.cdc gov/mmwr/).

Recommendations for Tdap Vaccination among Adolescents 11-18 Years of Age

Adolescents 11-18 years of age should receive a single dose of Tdap instead of Td for booster immunization

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against tetanus, diphtheria and pertussis if they have completed the recommended childhood DTP/DTaP vaccination series* and have not received Td or Tdap. The preferred age for Tdap vaccination is 11-12 years; routinely administering Tdap to young adolescents will reduce the morbidity associated with pertussis in adolescents. Either Tdap product can be administered to adolescents regardless of type or manufacturer of pediatric DTP/DTaP used.

Adolescents 11-18 years of age who received Td, but not Tdap, are encouraged to receive a single dose of Tdap to provide protection against pertussis if they have completed the recommended childhood DTP/DTaP/Td vaccination series.* An interval of at least 5 years between Td and Tdap is encouraged to reduce the risk of local or systemic reactions after Tdap vaccination. However, intervals shorter than 5 years between Td and Tdap may be used. The benefits of using Tdap at shorter intervals to protect against pertussis generally outweigh the risk of local or systemic reactions after vaccination in settings with increased risk of pertussis or its complications (see Pertussis Outbreaks and Other Setting with Increased Risk of Pertussis or its Complications below).

The ACIP recommends administering Tdap (or Td) and tetravalent meningococcal conjugate vaccine ([MCV4] Menactra™) (which contains diphtheria toxoid as a carrier protein) during the same visit if both vaccines are indicated and available (MCV4 recommendations are available at www.cdc.gov/mmwr/preview/mmwrhtml/rr5407a1.htm.†

Tdap (or Td) should be administered with other vaccines that are indicated during the same visit when feasible. Each vaccine should be administered using a separate syringe at a different anatomic site. Some experts recommend administering no more than two injections per deltoid muscle, separated by one inch during one visit.

Special Situations for Tdap (single dose) and Td Use among Adolescents 11-18 Years of Age

Nonsimultaneous vaccination: If simultaneous vaccination is not feasible, inactivated vaccines may be administered at any time before or after a different inactivated or live vaccine. Tdap (or Td) and MCV4 vaccines (which contain diphtheria toxoid) may be administered using any sequence. It is possible that persons who recently received one diphtheria toxoid containing vaccine might have increased rates of adverse reactions after a subsequent diphtheria toxoid containing vaccine due to diphtheria toxoid antibody titers remaining elevated from the previous vaccination.†

Pertussis outbreaks and other settings with increased risk of pertussis or its complications: Vaccine providers may administer Tdap after Td to adolescents, 11-18 years of age, at intervals shorter than 5 years, particularly when the benefit of providing protection against pertussis is likely to be increased (e.g., pertussis outbreaks, close contact with an infant <12 months of age). The safety of intervals as short as 2 years between Td and Tdap is supported by a Canadian study among children and adolescents.‡ Postexposure chemoprophylaxis and other pertussis control guidelines are available at http://www.cdc.gov/mmwr/PDF/rr/rr5414.pdf.

Lack of availability of Tdap or MCV4: If Tdap and MCV4 are both indicated for adolescents, but only one vaccine is available, the available vaccine should generally be administered.

Use of Td when Tdap is not available: When Tdap is indicated, but not available, vaccine providers should administer Td, if the last DTP/DTaP/DT/Td vaccine was ≥10 years earlier to provide protection against tetanus and diphtheria. Td can be deferred temporarily when the last DTP/DTaP/DT/Td was administered <10 years earlier and the adolescent is likely to return for followup. Vaccine providers should maintain a system to recall adolescents when Tdap/Td vaccination is deferred.

Tetanus prophylaxis in wound management: Adolescents who require a tetanus toxoid containing vaccine as part of wound management should receive a single dose of Tdap instead of Td if they have not previously received Tdap. If Tdap is not available or was previously administered, adolescents who need a tetanus toxoid containing vaccine should receive Td.

History of pertussis: Adolescents who have a history of pertussis generally should receive Tdap according to the

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routine recommendations.

No history of vaccination with pertussis components: Adolescents who have not received pertussis vaccines, but completed the recommended tetanus diphtheria vaccination series* with pediatric DT or Td generally should receive Tdap according to the routine recommendations, if they do not have a contraindication to the pertussis components.

No history of DTP/DTaP/Td/Tdap vaccination: Adolescents who have never received tetanus diphtheria-pertussis vaccination should receive a series of three vaccinations. The preferred schedule is a single Tdap dose, followed by a dose of Td ≥4 weeks after the Tdap dose, and a second dose of Td 6 to 12 months after the Td dose. Tdap may substitute for any one of the 3 Td doses in the series.

Vaccination during pregnancy: (please see Pregnancy under the Special Situations topic on page 2).

Contraindications, Precautions and Reasons to Defer Tdap or Td

Contraindications: History of serious allergic reaction (i.e., anaphylaxis) to vaccine components or encephalopathy (e.g., coma, prolonged seizures) not attributable to an identifiable cause within 7 days of administration of a vaccine with pertussis components.‡‡

Precautions and Reasons to Defer Vaccination: Guillain Barré Syndrome (GBS) ≥6 weeks after a previous dose of a tetanus toxoid containing vaccine; progressive neurological disorder, uncontrolled epilepsy; progressive encephalopathy until the condition has stabilized; acute illness; or history of an Arthus reaction after a tetanus toxoid containing and/or diphtheria toxoid containing vaccine administered <10 years previously.

Reporting of Adverse Events after Vaccination: (please see the entry on this topic on page 2)

Notes:

*Five doses of pediatric DTP/DTaP/DT before the seventh birthday; if the fourth dose was administered on or after the fourth birthday, the fifth dose is not needed. Children who began the tetanus diphtheria vaccination series at ≤7 years of age require three doses of Td to complete the primary series.

†A pre-licensure study demonstrated that simultaneous vaccination with Td and MCV4 was acceptably safe; the safety of simultaneous vaccination with Tdap and MCV4 has been inferred from this study. Td followed one month later by MCV4 was studied and rates of local reactions were comparable to simultaneous vaccination. Other schedules of MCV4 and Td, and MCV4 and Tdap have not been studied (http://www.fda.gov/cber/approvltr/mpdtave011405L.htm).

‡Halperin S, Sweet L, Baxendale D. How soon after prior tetanus-diphtheria vaccination can one give an adult-formulation tetanus diphtheria pertussis vaccine? *Pediatr Infect Dis J 2006* (in press).

‡‡These conditions are precautions for the pertussis components; Td can be used.