

March 2020 ~ Resource #360304

Tetanus Vaccination

Tetanus infections (also called “lockjaw”) are rare due to routine immunization with tetanus toxoid-containing vaccines.¹ Tetanus is caused by *Clostridium tetani*, found in contaminated soil.¹ The organism releases a potent neurotoxin, causing muscle contractions and stiffness. Complications can include permanent neurological damage, prolonged hospitalization and rehabilitation, and high mortality rates.¹ Regular tetanus immunization is recommended from infancy through adulthood. Prophylaxis with vaccination and immune globulin is used after some injuries, depending on the nature of the wound and the patient’s vaccination history.¹ Tetanus toxoid vaccines are only available in combination with diphtheria, and can also be found in combination with other vaccinations. Tetanus-containing vaccines all have the same dose of tetanus toxoid. Pediatric tetanus-diphtheria vaccines contain a higher dose of diphtheria and pertussis, required for children under seven years (denoted by the capitals “D” and “P” in the descriptions [e.g., DT, DTaP]).² Tetanus-containing vaccines can be given at the same time as other routine vaccinations, in a different injection site.¹ Product selection will depend on the appropriateness and dose requirement of the vaccine’s other components. This chart outlines routine tetanus immunization.

Abbreviations: IPV = inactivated polio vaccine; Hib = *Haemophilus influenzae* type b; HB = hepatitis B; T = tetanus; D = high-dose diphtheria (for kids); d = low-dose diphtheria (for adults); aP = high-dose acellular pertussis (for kids); ap = low-dose acellular pertussis (for adults); IM = intramuscular.

| ROUTINE VACCINATION | | | | |
|---|--|---|---|---|
| Vaccine Type | DOSE FREQUENCY | | | |
| | Children 6 weeks to less than 7 years | Children 7 years to 18 years | Adults | Pregnancy |
| DTaP <i>(Infanrix, Daptacel)</i> Combination products:^a DTaP-IPV, DTaP-IPV-Hib, DTaP-IPV-HB | <ul style="list-style-type: none"> • Five doses of DTaP: 2, 4, and 6 months; 15 to 18 months, and 4 to 6 years.³ • DTaP may be combined with other vaccinations in the same product. Product selection may depend on which other vaccinations are also needed. | <ul style="list-style-type: none"> • Not indicated for patients seven years and older. | <ul style="list-style-type: none"> • Not indicated for patients seven years and older. | <ul style="list-style-type: none"> • Not indicated for patients seven years and older. |
| DT | <ul style="list-style-type: none"> • Alternative to DTaP-containing vaccines (above) when infants and children should not get a pertussis-containing vaccine.³ | <ul style="list-style-type: none"> • Not indicated for patients seven years and older. | <ul style="list-style-type: none"> • Not indicated for patients seven years and older. | <ul style="list-style-type: none"> • Not indicated for patients seven years and older. |

More . . .

| Vaccine Type | DOSE FREQUENCY | | | |
|--|---|---|---|---|
| | Children 6 weeks to less than 7 years | Children 7 years to 18 years | Adults | Pregnancy |
| Td (<i>Td Adsorbed, TdVax Tenivac</i>) | <ul style="list-style-type: none"> Not indicated for patients less than seven years. | <ul style="list-style-type: none"> Alternative to Tdap (below) when a pertussis-containing vaccine should not be given.³ | <ul style="list-style-type: none"> Booster dose every ten years.³ Either Td or Tdap (below) can be used.^{4,c} | <ul style="list-style-type: none"> Tdap (below) is preferred; however, Td can be used if their ten-year booster is due AND a pertussis-containing vaccine cannot be given.⁵ |
| Tdap (<i>Adacel, Boostrix</i>) | <ul style="list-style-type: none"> Not indicated for patients less than seven years.³ | <ul style="list-style-type: none"> One dose at 11 or 12 years.^{1,3} | <ul style="list-style-type: none"> One dose for all adults. Adults require one tetanus booster dose that contains pertussis.³ Can be given as an alternative to Td (above) for the every-ten-year tetanus booster.^{4,b,c} <i>Boostrix</i> is preferred in patients 65 years or older, but <i>Adacel</i> can also be used.^{3,4} | <ul style="list-style-type: none"> One dose with every pregnancy to immunize against pertussis, preferably between 27 and 36 weeks gestation.³ See our commentary, <i>Pertussis Vaccination During Pregnancy</i>. |

- a. DTaP combination products: DTaP-IPV (*Kinrix, Quadracel*), DTaP-IPV-Hib (*Pentacel*), DTaP-IPV-HB (*Pediarix*).
- b. New in 2020, in order to increase flexibility in product selection, Tdap can now be used in adults for indications where previously only Td was recommended (i.e., every ten-year booster, tetanus prophylaxis for wound management, and any required catch-up vaccinations). Repeated doses of Tdap do not appear to cause increased risks of adverse effects.^{4,6}
- c. There do not appear to be serious safety concerns if there is an unknown or short interval between the administration of Tdap and a previous dose of Td or Tdap [Evidence Level C].⁷ Observational data do suggest that there may be an increased risk of local injection site reactions (e.g., redness or swelling) when these vaccines are given at intervals of two years or less. The risk of more serious reactions (e.g., entire limb swelling, Arthus reactions [a type III hypersensitivity reaction involving severe pain, swelling, edema, etc]) does not appear to be increased with close administrations. However, it is still recommended that anyone (including pregnant women) with a history of Arthus reactions after a dose of Td or Tdap, should have an interval of at least ten years between doses.⁷

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Levels of Evidence

In accordance with our goal of providing Evidence-Based information, we are citing the **LEVEL OF EVIDENCE** for the clinical recommendations we publish.

| Level | Definition | Study Quality |
|----------|---|---|
| A | Good-quality patient-oriented evidence.* | 1. High-quality RCT 2. SR/Meta-analysis of RCTs with consistent findings 3. All-or-none study |
| B | Inconsistent or limited-quality patient-oriented evidence.* | 1. Lower-quality RCT 2. SR/Meta-analysis with low-quality clinical trials or of studies with inconsistent findings 3. Cohort study 4. Case control study |
| C | Consensus; usual practice; expert opinion; disease-oriented evidence (e.g., physiologic or surrogate endpoints); case series for studies of diagnosis, treatment, prevention, or screening. | |

*Outcomes that matter to patients (e.g., morbidity, mortality, symptom improvement, quality of life).
RCT = randomized controlled trial; SR = systematic review
[Adapted from Ebell MH, Siwek J, Weiss BD, et al. Strength of Recommendation Taxonomy (SORT): a patient-centered approach to grading evidence in the medical literature. *Am Fam Physician* 2004;69:548-56. <http://www.aafp.org/afp/2004/0201/p548.pdf>.]

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