

Tetanus Post-exposure Prophylaxis in Injury/Wound Management

Revision Date: September 25, 2017

Rationale for update: Incorporated management of tetanus-prone wounds for infants younger than 6 months of age who have not received a full three dose primary series of tetanus toxoid-containing vaccine.

Goals of tetanus post-exposure prophylaxis are as follows:

- Remove the source of toxin production by timely, thorough injury/wound cleaning.^{1,2}
- Neutralize any toxin that has been released through high circulating concentrations of tetanus antibody. Effective levels of neutralizing antibody concentrations are achieved by either prior completion of tetanus-containing vaccine series or the immediate administration of tetanus immune globulin (TIG).¹

Individual assessment to determine if prophylaxis is required as follows:

- Description of the injury/wound to determine if it is a tetanus-prone injury/wound. Tetanus-prone injury/wound (significantly contaminated with material likely to contain tetanus spores and/or the presence of necrotic tissue¹) as listed:
 - Including but not limited to, wounds contaminated with dirt, feces, soil and saliva; animal bites; puncture wounds; avulsions; and wounds resulting from missiles (gunshots), crushing, burns and frostbite.^{3,4}
 - Wounds with devitalized tissue.³
 - Abscesses, cellulitis, chronic ulcers and other wounds in patients with diabetes mellitus or illicit injection drug use.³
 - Sustained more than six hours before surgical treatment of the wound/burn.
 - Clinical evidence of sepsis.

Note: Appropriate cleansing and debridement of the injury/wound is imperative.¹

*Refer to Public Health Notifiable Disease Guidelines – Tetanus.*⁵

- History of chronic immune compromising conditions especially those with humoral immune deficiency states (e.g., HIV infection, agammaglobulinemia or hypogammaglobulinemia).
- Number of previous doses of tetanus-containing vaccine received.
- Date of last dose of tetanus-containing vaccine.
- Previous reactions to tetanus-containing vaccines and/or tetanus immune globulin.

Recommended tetanus post-exposure prophylaxis:

Tetanus immune globulin (TIG)

- Required for tetanus-prone injury/ wound in individuals with a history of receiving less than three doses of a tetanus-containing vaccine or those with an unknown tetanus immunization history. TIG should be administered as soon as possible following the injury/wound.^{1,2,6} See [Biological Products - Tetanus Immune Globulin](#).
- TIG is needed to treat a tetanus-prone injury/ wound in an inadequately immunized individual to ensure protection during the incubation period of tetanus (3 to 21 days; range one day to several months²).
- Individuals with humoral immune deficiencies including HIV may not respond adequately to tetanus-containing vaccine. Therefore, individuals with these conditions should be managed as unimmunized. They should receive TIG and the age-appropriate tetanus-containing vaccine regardless of time elapsed since the previous dose of tetanus-containing vaccine.¹

Note: Adults receiving TIG should also receive tetanus-containing vaccine and be referred to Public Health to complete the tetanus-containing vaccine series as indicated.¹ Children should be referred to Public Health to ensure that they receive the age-appropriate tetanus-containing vaccine.

See Table 1 on next page and [Biological Products - Tetanus Immune Globulin](#).

Tetanus-containing vaccine

- A dose of age-appropriate tetanus-containing vaccine should also be recommended when TIG is indicated to ensure that the individual is protected against future exposure. The vaccine dose should be administered using a separate needle/syringe and at a different anatomical site than the TIG (when administered on the same day).
- A booster dose of the age-appropriate tetanus-containing vaccine is recommended for individuals with a tetanus-prone injury/wound who have received at least three previous doses of tetanus-containing vaccine and five years or more have elapsed since the last dose of tetanus-containing vaccine.
- A booster dose of tetanus-containing vaccine is recommended for all individuals presenting with an injury/wound if ten years or more have elapsed since the last dose of tetanus-containing vaccine.

Notes:

- Tetanus/diphtheria (Td or dTap) vaccine only will be stored in emergency rooms.
 - Children (17 years of age and younger) should receive the age-appropriate combined tetanus-containing vaccine through referral to Public Health Services
 - Adults (18 years of age and older) with an incomplete tetanus-containing vaccine series should be referred to Public Health to complete the series.
- Although tetanus is uncommon in people who have received a primary vaccine series but did not receive subsequent boosters every 10 years, cases have occurred in such circumstances.
- When immunization is provided in the emergency department/urgent care center, immunization information should be sent to Public Health Services to ensure documentation in the immunization registry.

See Table 1 on next page and Biological Products- Diphtheria and Tetanus-containing Vaccines.

Table 1: Guide to Tetanus prophylaxis in wound management

History of tetanus immunization	Clean minor wounds		All other wounds	
	Tetanus-containing vaccine ¹	TIG	Tetanus-containing vaccine ¹	TIG
Unknown or less than 3 doses in vaccine series	yes	no	yes ²	yes ²
3 or more doses in a vaccine series and less than 5 years since last booster dose	no	no	no ³	no ³
3 or more doses in a vaccine series and 5 years but less than 10 years since last booster dose.	no	no	yes	no ³
3 or more doses in a vaccine series and 10 years or more since last booster dose	yes	no	yes	no ³

¹ See Recommended Immunization for Infants, Children and Adults: Schedules for specific tetanus-containing vaccine recommendations based on age.

² Administer at different injection sites using separate needles/syringes.

³ Yes, if known to have a humoral immune deficiency. Vaccine should be administered as well regardless of the time elapsed since the last dose of tetanus-containing vaccine.

Canadian Immunization Guide: Evergreen ed., Part 4: Tetanus Toxoid¹

For infants younger than 6 months who have not received a full 3-dose primary series of tetanus toxoid-containing vaccine, decisions on the need for TIG with wound care should be based on the mother's **documented** tetanus toxoid immunization history at the time of delivery, applying the guidelines in Table 1.³

For infants 6 months of age and older – follow the guidelines in Table 1.

References

¹ National Advisory Committee on Immunization. (2014). *Canadian Immunization Guide* (Evergreen ed.). Ottawa, ON: Public Health Agency of Canada. www.canada.ca/en/public-health/services/canadian-immunization-guide.html

² Centers for Disease Control and Prevention. (2015). Tetanus. In *Epidemiology and Prevention of Vaccine-preventable Diseases 13th ed.* (Chap. 21). Retrieved August 25, 2017 from: <https://www.cdc.gov/vaccines/pubs/pinkbook/tetanus.html>

³ American Academy of Pediatrics. (2015). *Red book: 2015 Report of the Committee on Infectious Diseases* (30th ed.). Elk Grove Village, IL: Author.

⁴ Michigan Department of Community Health. (2012). Tetanus Prophylaxis Guidelines. Retrieved November 16, 2012 from, www.michigan.gov/documents/mdch/Tetanus_Prophy_All_Ages_Final_060412_388045_7.pdf

⁵ Alberta Health. *Public Health Notifiable Disease Management Guidelines - Tetanus*. <http://www.health.alberta.ca/professionals/notifiable-diseases-guide.html>

⁶ Grabenstein, J.D. (2012). *ImmunoFacts: Vaccines and Immunologic Drugs 2013*. St. Louis, MO, Wolters Kluwer Health.