

Tetanus Post-exposure Prophylaxis in Injury/Wound Management

Revision Date: June 7, 2018

Rationale for update (September 25, 2017): 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 (e.g. 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.
 - Wounds or burns that require surgical intervention that is delayed for more than six hours.⁵
 - Clinical evidence of sepsis.⁵

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

*Refer to Public Health Notifiable Disease Guidelines – Tetanus.*⁶

- History of chronic immune compromising conditions especially those with humoral immune deficiency states (e.g., HIV infection, agammaglobulinemia or hypogammaglobulinemia).¹
- Number of previous doses of tetanus-containing vaccine received.¹
- Date of last dose of tetanus-containing vaccine.¹
- Previous reactions to tetanus-containing vaccines and/or tetanus immune globulin.¹

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.^{1,2,7} 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 months^{2,3}).
- 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).^{1,3}
- Previously immunized individuals who have received at least three doses of tetanus-containing vaccine may require a booster dose of age-appropriate tetanus toxoid-containing vaccine, depending on the interval since the last booster and the type of wound.
- A booster dose of tetanus toxoid containing vaccine is recommended if ten or more years have elapsed for those with clean, minor wounds and if five or more years have elapsed, for all other wounds.¹

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 more than 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

Note: 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

- National Advisory Committee on Immunization. (2018). *Canadian Immunization Guide* (Evergreen ed.). Ottawa, ON: Public Health Agency of Canada. www.canada.ca/en/public-health/services/canadian-immunization-guide.html.
- Centers for Disease Control and Prevention. (2015). Tetanus. In *Epidemiology and Prevention of Vaccine-preventable Diseases 13th ed.* (Chap. 21). Retrieved May 11, 2018 from: <https://www.cdc.gov/vaccines/pubs/pinkbook/tetanus.html>.
- American Academy of Pediatrics. (2015). *Red book: 2015 Report of the Committee on Infectious Diseases* (30th ed.). Elk Grove Village, IL: Author.
- Michigan Department of Community Health. (2014). Tetanus Prophylaxis Guidelines. Retrieved: May 11, 2018- from, www.michigan.gov/documents/mdch/Tetanus_Prophy_All_Ages_Final_060412_388045_7.pdf.
- Public Health England. (2013). The Green Book. Immunization Against Infectious Disease. Retrieved June 7, 2018 from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/148506/Green-Book-Chapter-30-dh_103982.pdf.
- Alberta Health. *Public Health Notifiable Disease Management Guidelines - Tetanus*. <http://www.health.alberta.ca/professionals/notifiable-diseases-guide.html>.
- Grabenstein, J.D. (2012). *ImmunoFacts: Vaccines and Immunologic Drugs 2013*. St. Louis, MO, Wolters Kluwer Health.