

TETANUS AND NEONATAL TETANUS

Pre-decision Brief for Public Health Action

Haiti ■ Feb 2010

Key Recommendations

Prevention

- Provide tetanus vaccine to all persons without a reliable history of receipt of a tetanus vaccine during the past 10 years, especially persons at increased risk of disease, including responders and persons engaged in rescue, debris removal, repair work, and construction.
- Assure vaccination against tetanus among pregnant women.
- Support efforts to reinvigorate routine immunization activities with outreach to all population groups, including newly displaced populations.
- For persons with tetanus-prone wounds, provide tetanus-diphtheria (Td) or tetanus-toxoid (TT) vaccine and tetanus immune globulin (TIG).

Critical treatment and supplies

- DTP, DTaP, DT, TT, and Td vaccines.

Supporting Information

1. What was the situation in Haiti prior to the earthquake?

- Tetanus is endemic in Haiti; 16–119 tetanus cases have been reported annually since 2004; 40–100% of these cases are neonatal tetanus. Underreporting is likely.¹
- WHO/UNICEF estimated DTP3 coverage in Haiti has been about 50% over the last decade, and was lower in the 1990s and 1980s.²
- The estimated proportion of births protected annually against tetanus based on immunization practices since 2004 is 30%–50%.

2. What is the likelihood of cases/outbreaks of this disease developing in the near future?

- Following the earthquake in Haiti there may be an increased risk of tetanus in the significantly under-vaccinated Haitian population among persons injured by the earthquake or involved in clean-up operations. There is also ongoing risk for neonatal tetanus among infants born to inadequately immunized mothers, particularly when clean delivery conditions cannot be provided.
- Tetanus outbreaks are rarely reported following natural disasters or other mass-casualty events^{3,4,5}, most likely reflecting underreporting. However, following the December 26th, 2004 tsunami in Aceh, a cluster of 106 tetanus cases occurred with a peak 2 1/2 weeks post-event, resulting from injuries incurred during the tsunami and the poor prior immunization status of the population. 63% of patients were male, and the case fatality ratio was 18.9%⁶. Within one month of the October 5th, 2005 earthquake in Kashmir, Pakistan, a total of 139 tetanus cases, including 41 deaths, were reported.



3. Should an outbreak occur, how would this be detected?

- Tetanus is not communicable between humans; point-source “outbreaks” usually do not occur other than in an epidemic of injuries and puncture wounds.
- *Clostridium tetani* spores are ubiquitous in the environment. Spores enter the body through a break in the skin and clinical disease is caused by a neurotoxin produced by the *C. tetani* bacilli. “Tetanus prone” wounds are those that are contaminated with dirt, feces, or saliva; puncture and other penetrating wounds, deep wounds, burns, crush injuries, gangrene or those with devitalized tissue. However, *C. tetani* spores present in soil can also infect trivial and unnoticed wounds, lacerations, and burns.
- Tetanus is characterized by muscle rigidity and painful spasms, often starting in the muscles of the jaw and neck.
- The diagnosis of tetanus is made clinically by excluding other causes of muscle rigidity and spasms.

4. What options for public health action should be considered in the event of an outbreak?

- Assuring adequate supplies of tetanus vaccine and TIG in facilities providing trauma care is critical. Tetanus is a medical emergency requiring hospitalization, immediate treatment with human TIG (or equine antitoxin if human immune globulin is not available), a tetanus toxoid booster, agents to control muscle spasm, and, if indicated, aggressive wound care and antibiotics.
- The highest priority for tetanus immunization is to provide tetanus vaccine (TT, Td) and TIG to injured patients with tetanus-prone wounds who were not vaccinated adequately or whose vaccination histories are unknown or uncertain⁷. Tetanus immune status should also be reviewed for all patients with other types of wounds, and tetanus vaccine administered as appropriate.
- Non-immunized pregnant women should receive at least 2 doses of tetanus toxoid vaccine (preferably as Td vaccine), with the first dose as early as possible during pregnancy and the second dose a minimum of 4 weeks after the first dose and preferably at least 2 weeks before delivery.
- Improve routine vaccination coverage of infants >6 weeks of age with three doses of DTP, at least 4 weeks apart.
- Ensure clean delivery practices, especially cord care practices, to prevent infection during and after delivery.

References

1. WHO Tetanus disease incidence: the Republic of Haiti (updated August 10, 2009): http://www.who.int/immunization_monitoring/en/globalsummary/timeseries/TSincidenceByCountry.cfm?C=HTI
2. WHO-UNICEF estimates of immunization coverage: the Republic of Haiti (updated August 2009): http://www.who.int/immunization_monitoring/en/globalsummary/timeseries/TSWUcoverageByCountry.cfm?country=HTI
3. Ligon BL. Infectious diseases that pose specific challenges after natural disasters: a review. *Semin Pediatr Infect Dis.* 2006;17(1):36-45.
4. Watson JT, et al. Epidemics after Natural Disasters. *Emerging Infectious Diseases* 2007;13:1-5.
5. Chapman LE, Sullivent EE, Grohskopf LA, et al. Recommendations for postexposure interventions to prevent infection with hepatitis B virus, hepatitis C virus, or human immunodeficiency virus, and tetanus in persons wounded during bombings and other mass-casualty events--United States, 2008: recommendations of the Centers for Disease Control and Prevention (CDC). *MMWR Recomm Rep* 2008;57(RR-6):1-21.
6. World Health Organization. Epidemic-prone disease surveillance and response after the tsunami in Aceh Province, Indonesia. *Weekly epidemiological record.* 2005; 18(80):157-164.
7. PAHO. Tetanus Prevention During Wound Management: Instructions for Haiti. PAHO 2010.

