

Section 19: Tetanus

BASIC EPIDEMIOLOGY

Infectious Agent

Clostridium tetani, a gram positive, spore forming drumstick shaped bacilli

Reservoir

Tetanus spores are found in soil and in the intestines and feces of many domestic animals and fowl. Spores have also been reported in contaminated heroin.

Transmission

Transmission is primarily by contaminated wounds (severe or minor, even those inapparent to the injured). In recent years, however, a higher proportion of patients had minor wounds, probably because severe wounds are more likely to be properly managed. Tetanus may follow elective surgery, burns, deep puncture wounds, crush wounds, otitis media (ear infections), dental infection, animal bites, abortion, and pregnancy.

Incubation Period

Usually 3–21 days, although it may range from 1 day to several months, depending on the type, severity and location of the wound; average 10 days. Most cases occur within 14 days. In general, shorter incubation periods are associated with more heavily contaminated wounds, more severe disease and a worse prognosis.

Communicability

Tetanus is not transmitted from one person to another. A person with tetanus is not infectious to others.

Clinical Illness

Tetanus is a neurological disease caused by tetanus toxin. Three different clinical forms have been described; generalized (~80%), local and cephalic tetanus. Symptoms of generalized tetanus include rigidity and painful spasms of skeletal muscles. Initial muscles affected are often in the jaw and neck (leading to the common name for the disease: “lockjaw”) followed by involvement of larger muscles in a descending pattern. Seizures may occur. Less common forms of tetanus are local tetanus which is localized to the anatomic area of injury and cephalic tetanus which involves the cranial nerves. In countries with poor hygiene, neonatal tetanus causes significant mortality when infants born to unimmunized women have infection of the umbilical stump that was contaminated with soil or alternative medical treatment.

Complications of tetanus include fractures, difficulty breathing (due to spasms of the respiratory muscles), and abnormal heart rhythms. In addition, nosocomial infections related to prolonged hospitalization can occur. Death results in approximately 11% of affected persons. The case fatality rate ranges from 10% to over 80%, it is highest in infants and the elderly, and varies inversely with the length of the incubation period and the availability of experienced intensive care unit personnel and resources.

Attempts at laboratory confirmation are of little help. The organism is rarely recovered from the site of infection, and usually there is no detectable antibody response.

DEFINITIONS

Clinical Case Definition

Acute onset of hypertonia and/or painful muscular contractions (usually of the muscles of the jaw and neck) and generalized muscle spasms without other apparent medical cause.

Laboratory Confirmation

- None, there is no laboratory criteria for tetanus.

Case Classification

- **Probable:** A case that meets the clinical case definition as reported by a healthcare professional.

Note: There is not a confirmed case status for tetanus.

CASE INVESTIGATION & TREATMENT

Case Investigation

A completed case track record on all suspected cases must be submitted to the DSHS Infectious Disease Control Unit within 30 days of initial report. In the event of death, please provide copies of the hospital discharge summary and autopsy report.

Control Measures

- Please note that a tetanus case must be followed up until death or resolution of symptoms (e.g. mechanical ventilation no longer needed).
- The best method for controlling tetanus is preventing tetanus through active immunization with adsorbed tetanus toxoid; combined Tdap is recommended.
- Tdap is recommended for universal use regardless of age, especially for persons employed in occupations which put them in contact with soil, sewage, or domestic animals; military personnel, policeman, firefighters, and others with greater than usual risk of traumatic injury; the elderly; and international travelers.

Table 1. Guide to tetanus prophylaxis in routine wound management.

History of adsorbed tetanus toxoid (doses)	Clean minor wounds Tdap or Td†	Clean minor wounds TIG§	All other wounds* Tdap or Td†	All other wounds* TIG§
less than 3 or unknown	Yes	No	Yes	Yes
3 or more doses¶	No**	No	No††	No

* Such as (but not limited to) wounds contaminated with dirt, feces, soil, and saliva; puncture wounds; avulsions; and wounds resulting from missiles, crushing, burns, and frostbite.

† For children younger than 7 years of age, DTaP is recommended; if pertussis vaccine is contraindicated, DT is given. For persons 7–9 years of age, Td is recommended. For persons >10 years, Tdap is preferred to Td if the patient has never received Tdap and has no contraindication to pertussis vaccine. For persons 7 years of age or older, if Tdap is not available or not indicated because of age, Td is preferred to Tetanus Toxoid (TT).

§ TIG is human tetanus immune globulin. Equine tetanus antitoxin should be used when TIG is not available.

¶ If only three doses of fluid toxoid have been received, a fourth dose of toxoid, preferably an adsorbed toxoid, should be given. Although licensed, fluid tetanus toxoid is rarely used.

** Yes, if it has been 10 years or longer since the last dose.

†† Yes, if it has been 5 years or longer since the last dose. More frequent boosters are not needed and can accentuate side effects.

REPORTING AND DATA ENTRY REQUIREMENTS

Provider, School & Child-Care Facilities, and General Public Reporting Requirements

Tetanus cases are required to be reported within 1 week to the local or regional health department or the Texas Department of State Health Services (DSHS), Infectious Disease Control Unit (IDCU) at **(800) 252-8239** or **(512) 776-7676**.

Local and Regional Reporting and Follow-up Responsibilities

Promptly investigate any reported cases of tetanus. Provide education to prevent further spread of disease. Completed tetanus case investigation forms must be submitted to DSHS IDCU. In the event of a death, copies of the hospital discharge summary, death certificate, and autopsy report should also be sent to DSHS IDCU. Records must be faxed within 30 days of initial report to **(512) 776-7616** or mailed to the following address:

Infectious Disease Control Unit,
Texas Department of State Health Services
Mail Code: 1960
PO Box 149347
Austin, TX 78714-9347

Data Entry

The principle investigator (Local or Regional health department) is required to enter all tetanus investigations with a probable case status and submit notification in the NEDSS Base System (NBS) within 30 days of initial report. Please refer to the *NBS Data Entry Guidelines* for disease specific entry rules.

LABORATORY PROCEDURES

Laboratory confirmation is not necessary for case confirmation. No serology specimen is needed.