

TETANUS

(Lockjaw)

REPORTING INFORMATION

- **Class B1:** Report by the end of the next business day after the case or suspected case presents and/or a positive laboratory result to the local public health department where the patient resides. If patient residence is unknown, report to the local public health department in which the reporting health care provider or laboratory is located.
- Reporting Form(s) and/or Mechanism: [Ohio Confidential Reportable Disease form](#) (HEA 3334, rev. 1/09), [Positive Laboratory Findings for Reportable Disease form](#) (HEA 3333, rev. 8/05), the local health department via the Ohio Disease Reporting System (ODRS), or telephone.
- Additional reporting information, with specifics regarding the key fields for the Ohio Disease Reporting System (ODRS) reporting can be located in [Section 7](#).

AGENT

Clostridium tetani, an anaerobic, spore-forming bacillus.

CASE DEFINITION

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.

Case Classification

Confirmed: A clinically compatible case, as reported by a healthcare professional.

Not a Case: This status will not generally be used when reporting a case, but may be used to reclassify a report if investigation revealed that it was not a case.

SIGNS AND SYMPTOMS

The clinical symptoms are not due to infection but result from the production of a specific neurotoxin, tetanospasmin, which is produced at the site of injury and acts primarily on the spinal cord. It also acts on the brain, motor end plates and autonomic nerves.

DIAGNOSIS

Suspicious wound or debrided tissue may be cultured anaerobically for *C. tetani*, but false negative culture results occur in up to two-thirds of patients. Diagnosis is frequently made on clinical symptoms alone.

EPIDEMIOLOGY

Source

Tetanus spores are found in soil, dust and animal or human feces. Infection occurs when a wound is contaminated with tetanus spores.

Occurrence

Worldwide. Tetanus is seen in all ages and occurs more frequently in agricultural regions and under-developed areas where tetanus immunization is inadequate. In Ohio, 0-2 cases are reported annually.

Mode of Transmission

Transmission occurs when tetanus spores are introduced into the body during an injury, usually a puncture wound or laceration contaminated with soil, dust or feces. Tetanus neonatorum usually results from infection of the unhealed umbilicus, particularly when the umbilical cord is treated with contaminated substances (a practice in some developing countries).

Incubation Period

4-21 days, depending upon the severity, location and extent of contamination of the wound. The farther the injury site is from the central nervous system, the longer the incubation period. The shorter the incubation period, the greater the chance of death. In tetanus neonatorum symptoms occur about seven days after birth (range 5-12 days).

PUBLIC HEALTH MANAGEMENT**Case**Treatment

Tetanus Immune Globulin (TIG-Human) is preferred to Equine Tetanus Antitoxin for treatment. A single dose of 3,000 to 5,000 units given intramuscularly is recommended, although the optimum therapeutic dose has not yet been established. Intravenous immune globulin (IVIG) contains tetanus antitoxin and may be used if TIG is not available. Oral or intravenous metronidazole or parenteral penicillin G is effective in reducing the number of vegetative forms of the organism. Therapy for 10-14 days is recommended.

Isolation

No isolation procedures are required.

Contact

No management is necessary.

Prevention and Control

All individuals should receive a primary series of DTaP or DT (<7 years of age) or Td (>7 years of age) with boosters of Td every 10 years. Pre-adolescents who have completed the primary series should receive a single dose of Tdap at age 11-12 years to provide pertussis protection. The single Tdap dose can also be administered to adolescents aged 13-18 years who missed the 11-12 year booster.

Adults with uncertain histories of complete primary vaccination series with diphtheria and tetanus toxoid-containing vaccines should begin or complete a primary vaccination series. Tdap should be used as a one time booster for adults <65 years to provide pertussis protection. For more complete information regarding pertussis protection, see the pertussis section of this manual.

In a small percentage of individuals, antitoxin levels fall below the minimum protective level before 10 years have elapsed.

For details of immunization and tetanus prophylaxis in wound management, refer to the ODH Vaccine Protocol Manual.

What is tetanus?

Tetanus is an acute, often fatal disease caused by a toxin (poison) produced by a bacteria (*Clostridium tetani*). It is commonly called lockjaw. As a result of widespread immunization, tetanus is now a rare disease.

Who gets tetanus?

Tetanus occurs more often in older people, although in recent years increasing numbers of younger individuals have gotten tetanus. This may be due in part to an increased number of cases among young injection drug users. Almost all reported cases of tetanus are in persons who have either never been vaccinated, or who completed a series of vaccines in childhood, but have not had a booster shot in the preceding 10 years.

How is tetanus spread?

Tetanus is contracted through a wound which becomes contaminated with the organism. It is not transmitted from person to person.

Where is the tetanus germ found?

The tetanus germ is present throughout the environment and is commonly found in soil and animal manure.

What are the symptoms of tetanus?

A common first sign of tetanus is muscular stiffness in the jaw (lockjaw), followed by stiffness of the neck, difficulty in swallowing, rigidity of abdominal muscles, spasms, sweating and fever.

How soon after infection do symptoms occur?

The incubation period is usually eight days but may range from three days to three weeks. Shorter incubation periods are associated with more heavily contaminated wounds.

Does past infection with tetanus make a person immune?

No. Recovery from tetanus may not result in immunity. Second attacks can occur and immunization is indicated after recovery.

What is the treatment for tetanus?

Once a person develops symptoms, there is no treatment for tetanus. The best treatment is prevention with immunization. Wounds should be thoroughly cleaned and dead or devitalized tissue removed. With wounds that involve the possibility of tetanus contamination, a patient with an unknown or incomplete history of tetanus vaccination needs a tetanus/diphtheria (Td) shot and a dose of tetanus immune globulin (TIG) as soon as possible. A person with a documented series of 3 Td (tetanus/diphtheria) doses who has received a booster dose within the last 10 years should be protected. However, to ensure adequate protection, a booster dose of vaccine may still be given if it has been

more than 5 years since the last dose and the wound is other than clean and minor.

What are the complications associated with tetanus?

Complications include spasm of the vocal cords and/or spasms of the respiratory muscles causing interference with breathing. Other complications include fractures of the spine or long bones, hypertension, abnormal heartbeats, coma, generalized infection, clotting in the blood vessels of the lung, pneumonia and death.

Is there a vaccine for tetanus?

An effective vaccine called tetanus toxoid has been available for many years. Tetanus toxoid in combination with diphtheria toxoid and acellular pertussis vaccine (DTaP) is given at two, four, six and 12 to 15 months of age, and between four and six years of age. Children and adults who are seven years of age or older requiring a primary series of tetanus protection should receive two doses of Td (tetanus and diphtheria) toxoid and one dose of Tdap (tetanus/diphtheria/acellular pertussis). A Td booster shot is recommended every 10 years. It is also recommended that both adolescents (age 11-18) and adults receive as a booster a one-time dose of Tdap to provide protection against pertussis.

What can be done to prevent the spread of tetanus?

The single most important preventive measure is immunization.