

Tetanus

Tetanus is an acute, often fatal, disease caused by an extremely potent exotoxin produced by *Clostridium tetani*. It is characterized by generalized rigidity and painful convulsive spasms of skeletal muscles. The muscle stiffness at first involves the jaw (lockjaw) and neck and then becomes generalized. In recent years about 30-40 cases have occurred throughout the US. The case to death ratio for many years has been approximately 30%.

C. tetani is a Gram-positive, anaerobic rod that may develop spores. The spores are very resistant to heat and antiseptics. They can survive autoclaving at 121^o C for 15 minutes. The bacilli are widely distributed in soil and in the intestine and feces of animals and humans.

Mode of Transmission: *C. tetani* usually enters the body through minor or major wounds. Under anaerobic conditions, the spores germinate. Toxins are then produced and disseminated via blood and lymphatics.

Clinical Signs: The incubation period varies from three (3) to 21 days, depending on the site of the injury. The first sign of the disease is trismus or lockjaw, followed by stiffness of the neck, difficulty in swallowing and rigidity of abdominal muscles. Other symptoms include sweating, elevated blood pressure and episodic rapid heart rate. Spasms may occur frequently and last for several minutes. These spasms continue for three (3) to four (4) weeks. Complete recovery may take months. Laryngospasm may lead to interference with breathing. Fractures of the spine or long bones may result from sustained contractions and convulsions.

Diagnosis and Prevention: There are no laboratory findings characteristic of tetanus. The diagnosis is entirely clinical and does not depend upon bacteriologic confirmation. Most cases of tetanus occur after acute injuries such as punctures, lacerations and abrasions and animal bites. Almost all reported cases of tetanus are in persons who have either never been vaccinated, or who completed a primary series, but have not had a booster in the preceding 10 years. Tetanus toxoid has proven to be a safe and useful vaccine. In adults it is given in combination with diphtheria antigen as **Td vaccine**. While some persons may be protected for life, most persons have antitoxin levels that approach the minimal protective level by 10 years after the last dose. Therefore, routine boosters are recommended every 10 years. To ensure adequate protective antitoxin levels in individuals who sustain a wound that is other than clean and minor, a booster is recommended if more than five (5) years have elapsed since the last tetanus vaccination.

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Reference: Tetanus, CDC Fact Sheet:
<http://www.cdc.gov/nip/publications/pink/tetanus.pdf>