Tetanus Investigation Overview

The following guidelines provide a brief overview of the steps of a tetanus investigation. Tetanus infections are caused by spores of the bacterium *Clostridium tetani*, which present naturally in the environment and are widespread in dust, soil, and manure. Spores thrive in anaerobic conditions, meaning that they can grow in environments without oxygen. When spores are introduced into dead tissue or deep wounds, they germinate into full-grown bacteria and secrete tetanus toxin, which causes tetanus disease.

Certain types of wounds are more likely to become infected with tetanus bacteria because of the anaerobic conditions present. Deep puncture wounds (e.g. stepping on a nail), burn wounds, or crush injuries that are contaminated with dust or dirt are at higher risk of becoming infected than shallow wounds. The timing of illness onset is associated with how quickly the spores bind to and are absorbed by the body, which can depend on how heavily contaminated the wound is and the location and depth of the wound. Tetanus is not transmitted from person to person.

Cases of tetanus have declined by 95% since disease reporting began in 1947, and deaths have been reduced by 99%. Sporadic cases of tetanus still occur in individuals who are not up-to-date on their tetanus vaccination and do not receive a tetanus vaccination soon after a suitable wound occurs. Tetanus generally peaks in the summer months or during the wet season, depending on the geographical climate.

BASIC STEPS OF A TETANUS INVESTIGATION	
1. Collect clinical, immunization, and exposure information	• Use information from medical record to determine which signs, symptoms, or complications are present a. Tetanus is characterized by generalized rigidity and convulsive spasms of skeletal muscles b. Clinical presentation may include lockjaw, spasms, muscle rigidity, difficulty swallowing or breathing, and rapid heart rate • Review tetanus immunization history. Tetanus toxoid is included in combination vaccines with diphtheria and pertussis (e.g. DTaP and Tdap vaccines). • Verify presence and location of wound/break in skin and date wound was received. • Record onset date of first symptom and calculate incubation period. A typical incubation period is about eight days but can range from three to 21 days. • Complete information in NC EDSS clinical, risk history, and vaccine packages.
2. Laboratory Testing	• There is no laboratory test that diagnoses or rules out tetanus; the diagnosis is entirely clinical. Culture and serologic results are unreliable.
3. Manage the case	• Review the case definition for tetanus. There is no confirmed classification, only a probable classification for tetanus. • Complete the NCEDSS 30-day outcome field. • Ensure the wound has been assessed and received proper care. • Evaluate whether tetanus vaccination is needed. Review vaccination criteria listed on the CDC clinical care page linked below. • Assess if tetanus immune globulin (TIG) is needed. TIG can provide temporary protection by binding and neutralizing circulating toxin. Refer to the clinical care page linked below.
4. Manage others with similar risk	• Tetanus is not spread person-to-person, so a contact investigation is not indicated. • A tetanus infection can be an opportunity to reiterate the need for a tetanus booster for household contacts if they are not up-to-date. • If the infection was linked to a specific, widespread risk or setting (e.g. a natural disaster, or a job site where the risk for severe wounds is increased) a booster dose should be offered to others with similar risk of exposure.

Additional Resources:

- CDC Manual for the Surveillance of Vaccine-Preventable Diseases: https://www.cdc.gov/surv-manual/php/table-of-contents/chapter-16-tetanus.html
- CDC Clinical Care Recommendations: https://www.cdc.gov/tetanus/hcp/clinical-care/index.html

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