



Tetanus

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1. CASE DEFINITION

Confirmed Case

- Clinical illness* without other apparent medical cause with or without isolation of *Clostridium tetani* (*C. tetani*) **AND**
- With or without a history of injury

*Clinical illness is characterized by:

- 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

2. DIAGNOSIS

- Diagnosis is made by clinical presentation
- A negative culture does not rule out the diagnosis as the organism is rarely recovered from the site of infection and anti-tetanus antibodies are undetectable in most cases
- History of injury may be lacking or not apparent
- For more information, refer to the [Alberta Provincial Laboratory Guide to Services](#)

3. REPORTING

As set out in the [NWT Public Health Act, Reportable Disease Control Regulations \(Section 4\)](#) and

[Disease Surveillance Regulations \(Sections 6-10 and Schedule 3\)](#) health care professionals and laboratories are legally required to report a diagnosis or formed opinion of a reportable disease to the Chief Public Health Officer (CPHO) or designate **within the timeframe identified in the regulations**.

Health Care Professionals

- Confirmed or probable cases are to be reported to the Office of the Chief Public Health Officer (OCPHO) by telephone (867) 920-8646 or fax (867) 873-0442 within **24 hours** after diagnosis is made or opinion is formed, **AND**
- Complete and fax (867) 873-0442 the [Communicable Disease Report Form](#) to the OCPHO within **24 hours**
- **Immediately** report all outbreaks or suspect outbreaks by telephone (867) 920-8646 to the OCPHO

Laboratories

- Report all positive results to the OCPHO by fax (867) 8730-0442 within **24 hours**

4. OVERVIEW

For more information about tetanus:

- Government of Canada: [Canada/Tetanus](#)
- Centres for Disease Control and Prevention: [CDC/Tetanus](#)
- World Health Organization: [WHO/Tetanus](#)

Causative Agent

- Tetanus is caused by a neurotoxin produced by the bacillus *Clostridium tetani* (*C. tetani*)
- *C. tetani* spores are commonly found in the environment and are normal, harmless inhabitants of the intestines of horses and other animals, including humans

Clinical Presentation

- Tetanus is an acute neurologic disease caused by an exotoxin of the tetanus bacillus grown anaerobically at the site of an injury
- Four clinical types of the disease are often described:
 1. Generalized: characterized by painful trismus (locked jaw) and severe painful muscle spasms in the neck muscles and trunk muscles
 2. Localized: often the prodrome of generalized tetanus is characterized by spasticity or rigidity of muscles associated with the site of spore inoculation
 3. Cephalic: is a rare and unique form of localized disease that affects the cranial nerve causing chronic otitis media and facial nerve weakness
 4. Neonatal: arises from contamination of the umbilical cord and is a common cause of infant mortality in developing countries generally resulting from a lack of passive immunity from the mother being inadequately immunized
- The type of infection reflects host factors and the site of inoculation
- General symptoms include; a headache, jaw and neck muscle contractions and spasms (lockjaw), sudden, involuntary muscle tightening; often of the stomach, painful muscle stiffness all over the body, trouble swallowing, seizures, fever, diaphoresis, high blood pressure and tachycardia
- Neonatal symptoms include generalized weakness, failure to nurse, apnea, rigidity, spasms and sepsis
- Patients will often have a typical fixed facial expression of a smile and raised eyebrows

Major Complications

- Uncontrolled/involuntary muscular contraction of the vocal cords (laryngospasm) and difficulty breathing
- Fractures of the bones from sustained muscle contractions

- Pulmonary embolism
- Aspiration pneumonia from prolonged intubation
- Nosocomial infections may occur due to prolonged hospitalization
- Death from the disease ranges from 10-80% depending on the age of the individual, quality of care available and incubation period
- Neonatal deaths from the disease are highest at over 80% of cases
- Neurological disabilities occur in 5-20% of cases

Transmission

- Tetanus is not transmitted from person-to-person
- *C. tetani* spores are introduced into the bloodstream through a wound, burn, laceration or puncture including bites from humans or animals
- Often the wound is trivial or goes unnoticed
- Transmission can also occur through injection of contaminated street drugs

Incubation Period

- 3-21 days, although may range from 1 day to several months depending on the character, extent and location of the wound
- Most cases occur within 14 days
- Shorter incubation periods are associated with more severe disease and worse prognosis

Clinical Guidance

- For patient-specific clinical management consult your local healthcare professional, paediatrician or infectious disease specialist

5. PUBLIC HEALTH MEASURES

Management of Cases

- For all scratches, punctures, wounds, animal and human bites:
 - Timely and thorough cleaning of all wounds is most important

- Assess immunization history and provide post-exposure prophylaxis using tetanus-containing vaccine, and depending on the type of injury, tetanus immune globulin (TIG) according to guidance in the [Canadian Immunization Guide -Tetanus](#)
- Symptomatic individuals should be hospitalized immediately and provided supportive care
- Routine infection prevention and control precautions are recommended for hospitalized clients

Management of Contacts

- No follow-up is required as tetanus is not transmitted person-to-person

Prevention

- Tetanus is a vaccine-preventable disease
- Vaccine for tetanus is publicly funded in the NWT and offered according to the [NWT Immunization Schedule](#)
- Primary vaccination occurs in infancy with regular lifetime boosters
- For more information on tetanus-containing vaccines follow the guidance in the [Canadian Immunization Guide-Tetanus](#)

6. PUBLIC & HEALTH PROFESSIONAL EDUCATION

- Government of Canada: [Tetanus](#)
- Government of the Northwest Territories (GNWT) Immunization: [GNWT/Immunization](#)
- Immunize/Canada: <https://immunize.ca/>

7. EPIDEMIOLOGY

- For more information on the epidemiology of tetanus in the Northwest Territories (NWT) see: [Epidemiological Summary of Communicable Diseases](#)

8. REFERENCES

1. Alberta Health Notifiable Disease Guidelines-Tetanus: <https://www.alberta.ca/notifiable-disease-guidelines.aspx>
2. Alberta Provincial Laboratory Guide to Services: <https://www.albertahealthservices.ca/lab/page3317.aspx>
3. Canadian Immunization Guide on tetanus: <https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines.html?page=22>
4. Centers for Disease Control and Prevention: <https://www.cdc.gov/tetanus/about/>
5. Government of Canada: <https://www.canada.ca/en/public-health/services/immunization/vaccine-preventable-diseases/tetanus.html>
6. Government of the Northwest Territories immunization information for the general public: <https://www.hss.gov.nt.ca/en/services/immunization-vaccination>
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11. NWT Infection Prevention and Control <https://www.hss.gov.nt.ca/professionals/sites/default/files/infection-control-manual.pdf>
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13. Public Health Agency of Canada: <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/clostridium-tetani.html>

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15. World Health Organization: <https://www.who.int/immunization/diseases/tetanus/en/>