

Enteric Illness

Trichinosis

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Notification Timeline

From Lab/Practitioner to Public Health: Within 48 hours.

From Public Health to Saskatchewan Health: Within 2 weeks.

Public Health Follow-up Timeline: Initiate within 72 hrs.

Information

Case Definition (Alberta Health and Wellness, 2011)

Confirmed Case	Clinical illness ¹ with laboratory confirmation of infection: - demonstration of <i>Trichinella</i> species larvae in tissue obtained by muscle biopsy OR - positive serologic test for <i>Trichinella</i> sp. OR - demonstration of larvae in epidemiologically implicated food (meat).
Probable Case	Clinical illness ¹ in a person who is epidemiologically linked to a confirmed case.
¹ Symptoms depend on the stage of the lifecycle. Adult worms in the intestine cause diarrhea, abdominal cramps and vomiting, while systemic invasion by larvae result in fever, myalgia/myositis, periorbital edema and eosinophilia. Systemic symptoms are more common.	

Causative Agent

 (Heymann, 2008)

- Infection caused by an intestinal nematode (roundworm), *Trichinella spiralis* whose larvae migrate from the small intestine and become encapsulated in skeletal muscle. There has been an outbreak in Saskatchewan due to the species *T. nativa* which is the causative organism in most of the arctic sources (such as bear, seal and walrus meat).
- Species for other specific geographic locations are *T. britovi* (Palearctic), *T. nelsoni* (Africa) and *T. pseudospiralis* in other parts of the world.

Symptoms

 (Heymann, 2008)

- Depending on the number of larvae ingested, clinical spectrum of infection may range from asymptomatic to fulminant and fatal illness.

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- Characteristic early signs include sudden muscle soreness and pain, fever, and edematous upper eyelids. These symptoms can be followed by periorbital edema which may be associated with subconjunctival, subungual and retinal haemorrhages, pain and photophobia. Ocular signs can be followed by thirst, profuse sweating, chills, weakness, prostration and rapidly escalating eosinophilia.
- Gastrointestinal symptoms, such as diarrhea may precede the ocular symptoms.
- Cardiac and neurological complications may appear and in the most severe cases, death due to myocardial failure.

Incubation Period

Systemic symptoms usually appear about 8 to 15 days after eating infected meat; may vary by as much as 5-45 days depending on number of larvae ingested (Heymann, 2008).

Reservoir/Source

Infected meat from swine, dogs, cats, horses. Wild animal sources include rats, moose, bear (black, brown, and polar), wild boar, fox, wolf, cougar and arctic marine mammals. Tropical animals such as lions, leopards, hyenas, jackals and crocodiles can also be sources of infected meat (Heymann, 2008).

Mode of Transmission

- Eating raw or insufficiently cooked meat from infected animals; the intestinal roundworm's larvae migrate from the small intestine and become encapsulated in skeletal muscle (Heymann, 2008).
- Not transmitted from person to person.

Period of Communicability

Animal hosts are infective for months. Larvae remain viable in meat unless it is cooked, irradiated or, for some species, frozen (Heymann, 2008).

Specimen Collection and Transport

Blood for serology. Skeletal muscle biopsy performed at least 10 days and preferably 4 to 5 weeks post infection frequently confirms diagnosis by showing uncalcified parasitic cysts.

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Refer to the Saskatchewan Disease Control Laboratory Compendium of Tests for details at <http://sdcl-testviewer.ehealthsask.ca>.

Methods of Control/Role of Investigator

Prevention and Education

Refer to the [Enteric Introduction and General Considerations](#) section of the manual that highlights tips for client education that should be considered as well as provides information on high-risk groups and activities. Heymann (2008) identifies the following preventive measures:

- Educate the public regarding the need to thoroughly cook all pork products and meat from wild animals. All parts of the meat need to reach a temp of 71°C (160°F).
- Freezing infected meat, such as pieces of pork up to 15 cm (6 inches), at -15°C for 30 days or -25°C for 10 days will destroy the common types of cysts.
- Freezing wild game meats, unlike freezing pork products, even for long periods of time, may not effectively kill all worms. Arctic strains (*T. nativa* and possibly *T. britovi*) are unaffected by cold and need to be thoroughly cooked at more than 68°C (155°F) for a duration related to the thickness of the meat.
- Clean and sanitize meat grinders thoroughly if you prepare your own ground meats.
- Curing (salting), drying, smoking, or microwaving meat does not consistently kill infective worms.
- Feeding pigs or other wild animals uncooked meat/garbage perpetuates the cycle of infection.

Management

I. Case

History

- Determine history of ingestion of raw or undercooked meat, particularly pork or wild game.
 - Dispose of any remaining suspected food.
 - Determine where the infected food was purchased or obtained from.
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Immunization

Not applicable.

Treatment/Supportive Therapy

Treatment choices are governed by the most recent guidelines. The public health practitioner should direct any questions regarding the current treatment protocols to the physician or Medical Health Officer (MHO). See [Appendix H - Sources for Clinical Treatment Guidelines](#).

Treatment should begin as soon as possible with the decision to treat based upon symptoms, exposure to raw or undercooked meat, and laboratory test results.

Exclusion

Not required.

Referrals

None.

II. Contacts/Contact Investigation

Contact Definition

Individuals who consumed the infected meat.

Testing

As determined by the physician.

Prophylaxis

Persons known to have ingested the suspected contaminated meat should be referred to the physician for appropriate treatment.

Immunization

Not applicable.

Exclusion

Not required.



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III. Environment

Child Care Centre Control Measures/Institutional Control Measures

Investigate possible sources of contaminated meats. Ministry of Health officials notify Canadian Food Inspection Agency when cases involve domestic pork.

Epidemic Measures

Large numbers of infected people requires epidemiological study to determine common food involved.



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