Clinical Definition:

A parasitic infection caused by eating raw or undercooked pork and wild game infected with the larvae of roundworm (Nematode), *Trichinella spiralis variant nativa.* This strain is known to be cold resistant Infections range from inapparent infection to fulminating fatal illness, depending on the dose of larvae ingested. Most infections are subclinical which means that the symptoms are so mild that the **infection** remains undiagnosed.

Source of Infection and Transmission:

- Infection that occurs as a result of ingesting raw or insufficiently cooked meat containing encysted larvae of *T. spiralis*. Animals that can be infected are polar bear, bear, fox, marine animals (such as walrus, seal and whale), cattle, pigs, dogs, horses and cats.
- In the North, infected walrus meat has been implicated for a number of outbreaks.
- The disease is not transmitted person to person.

Incubation Period:

- Gastrointestinal symptoms may occur within a few days.
- Systemic symptoms usually appear within 8 to 15 days of ingestion of infected meat.
- Can range from 5 to 45 days depending on number of parasites ingested.

Stages of Trichinosis Infection	Symptoms
Intestinal	♦ Diarrhea, nausea, vomiting, abdominal cramps, and general malaise may develop within the first 24 hours. Diarrhea may last as long as 14 weeks. ♦ Some people only have mild symptoms while other people develop a very serious illness.

Muscle penetration and larvae encapsulation	♦ During muscle invasion, there may be fever, facial (particularly periorbital) edema and muscle pain, swelling and weakness. Muscle and ocular symptoms occur generally two to eight weeks after the gastrointestinal symptoms. ♦ These symptoms may be followed by subconjunctival, subungual and retinal hemorrhages, pain, and photophobia. ♦ Thirst, profuse sweating, chills, and weakness follow in the second week of infection. ♦ Cardiac and neurological conditions may appear in 3-6 weeks. In most severe cases, death due to myocardial failure may occur. ♦ Peripheral eosinophilia of at least 20%, often over 50%, and possibly up to 90% is present during the muscle invasion phase of the infection.

Major Complications:

- In severe infection myocardial failure, neurological involvement, and pneumonitis can follow in 1 or 2 months.

Diagnosis and Treatment:

- Two mls of serum is sent to referral lab and routed to the National Reference Centre for Parasitology in Montreal. Titres by EIA of 1:128 are considered positive. Convalescent titres are also required to confirm acute diagnosis.
- Conclusive evidence of Trichinella is best when muscle biopsy is done 10 days after onset of infection.
- Eosinophilia count plus other symptoms of Trichinella assists with clinical diagnosis.

Mebendazole or Pyrantel is effective in the early stages of the disease. There is lack of evidence to support treatment in long term sequelae of Trichinosis and does not warrant repeat therapy but rather symptomatic therapy. Corticosteroids are indicated only in severe cases to alleviate symptoms of inflammatory response when the central nervous system or heart is involved. Management includes bed rest. There is no treatment that kills the larvae.

Public Education: (Key Messages)

- Precautions when handling animals and animal products.
- Ensure food is properly prepared and cooked:
    - Cook meat products until the juices run clear or to an internal temperature 71° C (160F).
    - Freeze pork less than 15 cm (6 inches) thick for 30 days at -15° C (5° F) to kill any worms.
    - Cook wild game meat thoroughly. Freezing wild game meats, unlike freezing pork products, even for long periods of time, may not effectively kill all worms.
    - Clean meat grinders thoroughly if you prepare your own ground meats.
    - Curing (salting), drying, smoking, or microwaving meat does not consistently kill worms.

Public Health Measures:

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- Investigate contacts and source of infection.
- Confiscate any remaining suspected food, and send sample to the National Centre for Parisitology at McGill University, consult EHO for direction for packaging and transporting specimen.
    - The National Centre for Parasitology (Serology) is one of the external reference laboratories in Canada funded in part by the Laboratory Centre for Disease Control, by the Montreal General Hospital, and by the McGill Centre for Tropical Diseases

Reporting and Follow-up:

- All suspect or confirmed cases must be reported to Office of the Chief Medical Health Officer (OCMHO) and Environmental Health Officer (EHO) within 7days.
- Complete *Communicable Disease Investigation Form*.

Epidemiology:

- The infection is found world-wide in many carnivores, especially scavengers such as bears. Animals remain infected for months; meat from infected animals remains communicative for long periods unless meat is cooked, frozen or irradiated. Trichinosis larvae remain viable for several years.
- In 1998, an outbreak of fifty-nine cases were reported in the territory now known as Nunavut.
- No cases of Trichinosis have been reported in NWT residents. Cases of Trichinosis are still identified at Stanton Territorial Hospital in Nunavut residents.