Echinococciosis (Alveolar)

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Case Definition

**Confirmed Case**\(^{(1)}\)

Laboratory confirmation of infection:

- Typical organ lesion detected by imaging techniques (e.g., MRI, CT scan or ultrasound),

**AND**

- Histopathology compatible with Alveolar Echinococcus (AE);

**AND**

- Detection of *Echinococcus multilocularis* serum-specific antibodies by high-sensitivity serological tests and confirmed by a high-specificity serological test (i.e., 2 tests);

**OR**

- Detection of *E. multilocularis* nucleic acid sequence(s) in an appropriate clinical specimen.
Reporting Requirements

1. **Laboratories**
   All laboratories shall report all positive laboratory results (including histological/pathological reports) by mail, fax or electronic transfer within 48 hours (two business days) to the MOH (or designate) of the zone and the Chief Medical Officer of Health (CMOH) (or designate).

2. **Alberta Health Services and First Nations and Inuit Health Branch**
   Laboratory surveillance only. Completion of a Notifiable Disease Report (NDR) form is not required.
Etiology
Alveolar echinococcosis (AE) in humans is caused by the larval stage of *Echinococcus multilocularis*.(2)

Clinical Presentation
Individuals with AE are usually asymptomatic until the cysts overcome the body’s ability to handle them.(1) Lesions usually begin in the liver then metastasizes to other organs.(2) Symptoms range from jaundice to abdominal pain to fatigue and weight loss and can be confused with hepatic carcinoma or cirrhosis.(1,2) Mortality in untreated cases is fatal in almost all cases however; earlier diagnosis and treatment can greatly increase life expectancy.(1,3)

Reservoir
The adult form of the tapeworm can be found in coyotes, foxes, dogs and cats.(2,4)

Transmission
The larvae are transmitted to people via the ingestion of food or water contaminated with tapeworm eggs.(4) For example, people may gather berries, herbs or greens from locations that have been contaminated by the stool of infected foxes or coyotes.(5) In addition, household pets that go outdoors may consume infected animals, shedding the tapeworm eggs in their stool, or roll around in contaminated feces, getting the eggs in their fur.(2) People may then pet the animals and touch food or the mouth before hand washing.

*E. multilocularis* eggs are resistant to cold up to -50°C and can remain viable for up to one year in a moist environment.(6) They are sensitive to dessication (drying out), high temperatures and temperatures colder that -50°C.

Incubation Period
The incubation period ranges from 12 months to years depending on the number of larvae ingested, the location of the cysts and how fast they grow.(2)

Period of Communicability
*E. multilocularis* is not transmitted person-to-person.(2)

Host Susceptibility
AE most often affects adults.(2) Those with immunosuppression are at increased risk for the occurrence and progression of AE.(7)

Incidence in Alberta
*E. multilocularis* is considered endemic in North America with increasing reports of the parasite in humans and animals in many parts of Russia, Asia, western Europe, northern Japan, Alaska and Canada.(2)

Reports of AE in humans in Alberta is not well documented as it is not a notifiable disease, however several cases have been diagnosed in Alberta in the last 5 years, all with no travel history (K. Kowalewska-Grochowska, Personal Communication, 2017).

Refer to the myhealth.alberta.ca website for more information on *E. multilocularis*. 
References