**Ontario *Echinococcus multilocularis* Infection**   
**Investigation Tool**

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| **Legend** | **for interview with case ♦ System-Mandatory ❖ Required Personal Health information** |

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| **Cover Sheet***Note that this page can be autogenerated in iPHIS* | | |
| Date Printed: YYYY-MM-DD  Bring Forward Date: YYYY-MM-DD  iPHIS Client ID #:  Enter number  **♦** Investigator:  **Enter name \_ \_**  **♦** Branch Office:  Enter office  **♦** Reported Date: YYYY-MM-DD  **❖** Diagnosing Health Unit:  Enter health unit  **♦** Disease: **ECHINOCOCCUS MULTILOCULARIS INFECTION**  **♦** Is this an outbreak associated case? Other, please specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Yes, *OB #* ####-####-###  No, *link to OB #* **0000-2018-015** *in iPHIS*  Is the client in a high-risk occupation/ environment?  Yes, specify: Specify  No | **♦** Client Name:  **Enter name \_ \_**  Alias:  **Enter alias \_ \_** | |
| **♦** Gender: **Select an option** | **♦** Age: **Age** |
| **♦** DOB:YYYY-MM-DD  Address:  **Enter address \_**  **Enter address \_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_**  Tel. 1:  **###-###-####**  Type:  Home  Mobile  Work  **Other, specify**  Tel. 2:  **###-###-####**  Type:  Home  Mobile  Work  **Other, specify**  Email 1: **Enter email address \_ \_**  Email 2:  **Enter email address \_ \_** | |
| Is the client homeless?  Yes  No  New Address:  **Enter address \_**  **♦** Language:  **Specify \_ \_**  Translation required*?*  Yes  No  **Proxy respondent**  Name:  **Enter name \_ \_**  Parent/Guardian  Spouse/Partner  Other  **Specify \_ \_** | **♦** Physician’s Name: **Enter name \_ \_**  **♦** Role**:**  Attending Physician  Family Physician  Specialist  Walk-In Physician  Other  Unknown  **OPTIONAL**  Additional Physician’s Name: **Enter name \_**  Address:  **Enter address \_**  Tel:  **###-###-####**  Fax:  **###-###-####**  Role:  **Enter role \_ \_** | |

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| **Verification of Client’s Identity & Notice of Collection** | | | | | | |
| Client’s identity verified?  Yes, *specify*:  DOB  Postal Code  Physician  No | | | | | | |
| **Notice of Collection**  *Please consult with local privacy and legal counsel about PHU-specific Notice of Collection requirements under*  *PHIPA s. 16*. *Insert Notice of Collection, as necessary.* | | | | | | |
| **Record of File** | | | | | | |
| **♦ Responsible Health Unit** | | **Date** | **♦ Investigator’s Name** | **Investigator’s Signature** | **Investigator’s Initials** | **Designation** |
| Specify | | **❖**Investigation Start Date  YYYY-MM-DD | Specify | Specify | Specify | PHI  PHN  Other \_\_\_\_\_\_\_ |
| Specify | | Assignment Date  YYYY-MM-DD | Specify | Specify | Specify | PHI  PHN  Other \_\_\_\_\_\_\_ |

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| **Call Log Details** | | | | | | | |
|  | **Date** | **Start Time** | **Type of Call** | **Call To/From** | | **Outcome**  **(contact made, v/m, text, email, no answer, etc.)** | **Investigator’s initials** |
| Call 1 | YYYY-MM-DD |  | Outgoing  Incoming |  |  |  |  |
| Call 2 | YYYY-MM-DD |  | Outgoing  Incoming |  |  |  |  |
| Call 3 | YYYY-MM-DD |  | Outgoing  Incoming |  |  |  |  |
| Call 4 | YYYY-MM-DD |  | Outgoing  Incoming |  |  |  |  |
| Call 5 | YYYY-MM-DD |  | Outgoing  Incoming |  |  |  |  |
| Date letter sent: YYYY-MM-DD | | | | | | | |

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| **Case Details** | | | | | | |
| **♦ Aetiologic Agent** | Select the Aetiologic Agent | | | | | |
| **♦ Classification** | Confirmed  Probable  Does Not Meet Definition | | | | **♦ Classification Date** | YYYY-MM-DD |
| **♦ Outbreak Case Classification** | Confirmed  Probable  Does Not Meet Definition | | | | **♦ Outbreak Classification Date** | YYYY-MM-DD |
| **♦ Disposition** | Complete  Closed- Duplicate-Do Not Use  Entered In Error  Lost to Follow Up  Does Not Meet Definition  Untraceable | | | | **♦ Disposition Date** | YYYY-MM-DD |
| **♦ Status** | Closed | | Initial here | | **♦ Status Date** | YYYY-MM-DD |
| Open (re-opened) | | Initial here | | **♦ Status Date** | YYYY-MM-DD |
| Closed | | Initial here | | **♦ Status Date** | YYYY-MM-DD |
| **♦ Priority** | ☐ High | ☐ Medium ☐ Low | | *(At health unit’s discretion)* | | |

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| **Symptoms** | | | | | | | | | |
| ***Incubation period***Infection is initially asymptomatic for the first 5-15 years.  ***Communicability***Not transmitted person-to-person | | | | | | | | | |
| ***Specimen collection date:*** YYYY-MM-DD | | | | | | | | | |
| **♦ Symptom**  *Ensure that symptoms in* ***bold font*** *are asked* | **♦ Response** | | | | | **❖ Use as Onset**  *(choose one)* | **❖ Onset Date**  YYYY-MM-DD | **Onset Time**  24-HR Clock  HH:MM  *(discretionary)* | **❖ Recovery Date**  YYYY-MM-DD  *(one date is sufficient)* |
| **Yes** | **No** | **Unknown** | **Not Asked** | **Refused** |
| Asymptomatic |  |  | *Enter zero (0) for the duration days. DO NOT enter an Onset Date and DO NOT check the ‘Use as Onset’ box* | | | | | | |
| **Abdominal pain** |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD |
| Alveolar echinococcosis [liver lesions/calcification] |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| Anorexia  [loss of appetite] |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| Budd-Chiari syndrome |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| Extrahepatic cysts of lungs or other organs |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| Extrahepatic larval growth |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| Jaundice [icterus] |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| **Loss of weight** |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| Malaise  [general unwell feeling] |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| **Nausea** |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| Portal hypertension |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| Rash |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| **Right upper quadrant pain** |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| Shortness of breath |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| **Vomiting** |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| Weak |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| Other, *specify* \_\_\_\_\_\_\_\_\_ |  |  |  |  |  |  | YYYY-MM-DD | HH:MM | YYYY-MM-DD | |
| ***Note: This list is not comprehensive. There are additional symptoms listed in iPHIS.*** | | | | | | | | | | |

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| ♦ **Complications** |
| Cholangitis  Other  Unknown |

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| **Hospitalization & Treatment** *Mandatory in iPHIS only if admitted to hospital* | | |
| Did you go to an emergency room? | Yes  No | If yes, Name of hospital: Enter name  Date(s): YYYY-MM-DD |
| **♦** Were you admitted to hospital as a result of your illness (not including stay in the emergency room)? | Yes  No  Don’t recall | If yes, Name of hospital: Enter name  ♦ Date of admission: YYYY-MM-DD  ❖ Date of discharge: YYYY-MM-DD  Unknown discharge date |
| *→ For iPHIS data entry – if the case is hospitalized enter information under Interventions.* | | |
| Were you prescribed antibiotics or medication for your illness? | Yes  No  Don’t recall | If yes, Medication: Enter name  Start date: YYYY-MM-DDEnd date: YYYY-MM-DD  Route of administration: Enter route Dosage: Enter dosage |
| Did you take over-the-counter medication? | Yes  No  Don’t recall | If yes, specify |
| *Treatment information can be entered in iPHIS under* ***Cases > Case > Rx/Treatments>Treatment*** *as per current iPHIS User Guide* | | |

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| **Outcome** *(complete for cases only)**Mandatory in iPHIS only if Outcome is Fatal* | | | | |
| **Outcome** | Unknown  ♦ Fatal  Ill  Pending  Residual effects  Recovered | | ♦ **Cause(s) of** **Death?**  *If fatal, complete disposition type and facility name in iPHIS* | Specify |
| *If fatal, complete section below under Outcome* | | | | |
| ♦ **Type of Death** | Reportable disease contributed to but was not the underlying cause of death  Reportable disease was the underlying cause of death  Reportable disease was unrelated to the cause of death  Unknown | | | |
| **Outcome Date** | YYYY-MM-DD | **Date Accurate** | Yes Specify source (e.g. death certificate)  No | |

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| **Medical Risk Factors** | **❖ Response** | | | | **Details**  *iPHIS character limit: 50.* |
| **Yes** | **No** | **Unknown** | **Not asked** |
| **❖** Immunocompromised  (e.g., by medication/disease) |  |  |  |  | If yes, specify |
| **❖** Other (specify) |  |  |  |  | If yes, specify |
| **❖** Unknown |  |  | *→ For iPHIS data entry – check Yes for Unknown if all other Medical Risk Factors are No or Unknown.* | | |

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| **Date of Onset, Age and Gender** *Complete this section if submission of pages 7-8 to Public Health Ontario is required* | | | | | |
| Date of Onset: | YYYY-MM-DD | Age: | **Age** | Gender: | **Select an option** |

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| **Incubation Period** |
| *Enter onset date and time, using this as day 0, then count back to determine the incubation period.* |
| - 15 years - 5 years onset  Select a date Select a date Select a date & time |

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| **Behavioural Social Risk Factors in the 15 years prior to onset of illness** | **❖ Response** | | | | **Details**  (e.g., Brand name, purchase/consumption location, product details, date of exposure)  *iPHIS character limit: 50.* |
| **Yes** | **No** | **Unknown** | **Not asked** |
| **❖** Contact with contaminated soil |  |  |  |  | Specify |
| **❖** Contact with the feces/fur/environment of foxes, coyotes |  |  |  |  | Specify |
| **❖** Contact with the feces/fur/environment of domestic dogs and cats |  |  |  |  | Specify |
| **❖** Occupational – animal or animal product handler *(specify if contact is with dogs, foxes, coyotes, wolves)* |  |  |  |  | Specify |
| **❖** Occupational - veterinarian |  |  |  |  | Specify |
| **❖** Occupational (specify)  (e.g., wildlife worker, hunter, trapper) |  |  |  |  | Specify |
| *Definitive hosts for E. multilocularis include various carnivorous animals (e.g., household/wild cats and dogs, or wild animals (canids) such as foxes, coyotes, wolves), which may become infected if they consume the viscera of infected intermediate hosts. Although cats may be a definitive host of E. multilocularis, dogs (and other canids) are the primary source of human infection. People may become infected with the parasite through direct contact with tapeworm eggs shed by infected animals, or through indirect contact with their feces, contaminated fur/hair or environment.* | | | | | |
| **❖** Other (specify) |  |  |  |  | Specify |
| **❖** Travel outside province in the last 15 years (specify province or country) |  |  |  |  | Specify |
| *Per the* [*WHO*](https://apps.who.int/iris/bitstream/handle/10665/42427/929044522X.pdf)*, alveolar echinococcosis is confined to the northern hemisphere, and is endemic in certain regions of China, the Russian Federation, several European countries, and in parts of North America.* | | | | | |
| **❖** Unknown |  |  | *→ For iPHIS data entry – check Yes for Unknown if all other Behavioural Risk Factors are No or Unknown.* | | |
| **♦** CreateExposures *Identify Exposures to be entered in iPHIS.*  *→ For iPHIS data entry – record details of exposure(s) in* [*iPHIS Case Exposure Form*](https://www.publichealthontario.ca/-/media/Documents/I/2015/investigation-tool-iphis-case-exposure-form.docx?la=en&rev=d8fb16a37da3475fb46fba02e9505f0f&sc_lang=en&hash=47E3148895EB5991B7766C95B3CC96C5) *as required.* | | | | | |

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| **Contact Management** | | | | |
| *\*\*NOTE: no management of contacts unless others are identified as having been exposed to the same source as the case, then manage contacts as per* [*Appendix 1*](https://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/E_multilocularis_chapter.pdf)*.* | | | | |
| **Contact 1** | | | | |
| Name | Enter name | Relation to case | | Specify |
| Contact information  (phone, address, email) | Enter contact information | | | |
| Notes (specify nature and duration of exposure) | Enter notes | | | |
| *Contact exposed to the same source recommended to seek serological testing to monitor for antibodies to E. multilocularis.* | | | Yes  No  N/A | |
| *Close family member/associate of confirmed case of alveolar echinococcosis recommended to be examined for suspicious cysts or tumours using ultrasound, X-ray or other imaging* | | | Yes  No  N/A | |
| **Contact 2** | | | | |
| Name | Enter name | Relation to case | | Specify |
| Contact information  (phone, address, email) | Enter contact information | | | |
| Notes (specify nature and duration of exposure) | Enter notes | | | |
| *Contact exposed to the same source recommended to seek serological testing to monitor for antibodies to E. multilocularis.* | | | Yes  No  N/A | |
| *Close family member/associate of confirmed case of alveolar echinococcosis recommended to be examined for suspicious cysts or tumours using ultrasound, X-ray or other imaging* | | | Yes  No  N/A | |

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| **Education/Counselling** *Discuss the relevant sections with case* | | |
| **Hand Hygiene** |  | Wash hands with soap and water after handling animals/pets, their food or bedding, and before preparing or eating meals. |
|  | Hunters and trappers are recommended to wear plastic gloves when handling foxes, coyotes or other wild canids or their carcasses. |
| **Recovery** |  | If you continue to feel unwell, or new symptoms appear, or symptoms change – seek medical attention |
| **Food Safety** |  | Avoid picking or eating wild fruits and vegetables directly from the ground. |
|  |  | Thoroughly wash and/or cook all wild-picked foods before eating. |
|  |  | Clean and sanitize cutting boards, knives, meat grinders and other equipment/utensils after use. |
| **Animals** |  | Do not touch a fox, coyote or other wild canine, dead or alive, unless you are wearing gloves.  Hunters or trappers should use plastic gloves when handling wild animals or their carcasses  If living in an area known to be endemic for *E. multilocularis*, deworm all cats and dogs on a monthly basis using praziquantel if these may have access to wild rodents.  Prevent dogs and cats from eating rodents  If household cats/dogs are known to have *E. multilocularis* infection, regularly decontaminate surfaces such as pet beds, floors, carpets and car interiors. |

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| **Thank you** |
| Thank you for your time. This information will be used to help prevent future cases of *Echinococcus multilocularis*. Please note that another investigator may contact you again to ask additional questions if it is identified that there is a possibility that you are included in an outbreak. |

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| **❖ Intervention Type** | **Intervention implemented (check all that apply)** | **Investigator’s initials** | ♦ **Start Date**  **YYYY-MM-DD** | **❖ End Date**  **YYYY-MM-DD** |
| Counselling |  |  | **YYYY-MM-DD** | **YYYY-MM-DD** |
| Education  (e.g., disease fact sheet, , hand washing information) |  |  | YYYY-MM-DD | YYYY-MM-DD |
| ER visit |  |  | YYYY-MM-DD | YYYY-MM-DD |
| Hospitalization |  |  | YYYY-MM-DD | YYYY-MM-DD |
| Letter - Client |  |  | YYYY-MM-DD | YYYY-MM-DD |
| Letter - Physician |  |  | YYYY-MM-DD | YYYY-MM-DD |
| Other (i.e., contacts assessed, PHI/PHN contact information) |  |  | YYYY-MM-DD | YYYY-MM-DD |
| *→**For iPHIS data entry – enter information under* ***Cases > Case > Interventions.*** | | | | |

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| **Progress Notes** |
| **Enter notes** |

If you have any comments or feedback regarding this Investigation Tool, please email us at [ezvbd@oahpp.ca](mailto:ezvbd@oahpp.ca).