

## CHAPTER X . X .

INFECTION WITH *ECHINOCOCCUS*  
*MULTILOCULARIS*

## USA Comments

**General Comment:** Overall, the text on this first page is difficult to read. Clarity may improve as suggested text is adopted. In addition, throughout the document, the terminology, including the use of “competent authority” should be consistent with that used in Chapter 8.4 (Infection with *E. granulosus*). Preference is for how the terminology is used in this document.

## Article X.X.1.

**General provisions**

*Echinococcus multilocularis* is a cestode (tapeworm) which is widespread in some parts of the Northern Hemisphere, and it is maintained mainly in wild animal populations. The adult worms occur in the small intestines of canids (definitive hosts), particularly foxes, and larval stages (metacestode) in tissues of various liver and other organs of other mammals, in hosts (commonly rodents), (intermediate hosts), including humans are infected occasionally. Infection with the larval stage of the parasite of the parasite in the intermediate host, which causes severe disease, primarily in the liver, and is in humans (referred to as ‘alveolar echinococcosis’), but Infection does not cause discernible health impacts in livestock.

**Rationale:** The disease in humans primarily impacts the liver, resulting in severe, destructive lesions often confused with carcinoma and/or cirrhosis. Using only the term “alveolar echinococcosis” may not provide sufficient clarity to the reader of the typical disease impact in humans.

~~For the purpose of the *Terrestrial Code*, infection with *E. multilocularis* is defined as a zoonotic parasitic infection of domestic and wild canids, felids, rodents and pigs.~~

~~Transmission of *E. multilocularis* to canids (definitive hosts) occurs through ingestion of metacestode-infected viscera from a range of wild small mammalian species (intermediate hosts). Foxes and some other Wild canids, primarily foxes, are the most important definitive hosts in maintaining the cycle at the wildlife-human interface through contaminating both rural and urban environments. Dogs may also act as important and efficient definitive hosts in both rural and urban environments, providing an important potential source for human infections. Even though the potential role of felids in transmission of infection to humans cannot be excluded, their epidemiological role is considered negligible. Felids may also transmit infection to humans, however, their role in the epidemiology of the disease is considered to be negligible. Pigs may become infected but the parasite remains infertile; therefore, they have no role in transmission of the parasite.~~

**Rationale:** suggested text provides for improved clarity.

For the purpose of the *Terrestrial Code*, infection with *E. multilocularis* is defined as a zoonotic parasitic infection of domestic and wild canids, and rodents.

Transmission of *E. multilocularis* to canids occurs through ingestion of metacestode-infected organs from a range of wild small mammals.

Infection in intermediate hosts, as well as in humans, occurs by ingestion of parasite eggs from contaminated environments. In humans, infection may also occur following contact with infected definitive hosts or by consumption of food or water contaminated with *E. multilocularis* eggs from canine. In humans, infection may occur following contact with faeces from infected definitive hosts, including fecally soiled hair or articles. Infection in humans may also occur following consumption of food or water contaminated with *E. multilocularis* eggs from infected canid faeces.

Prevention of infection in humans is difficult, particularly in areas with a high infection pressure maintained by rural and urban foxes. The risk of infections ~~may~~ can be reduced by good food hygiene and personal hygiene, community health education and preventing infection of dogs ~~and cats~~. Good communication and collaboration between the *Competent Authority* and public health authorities is an important component in monitoring the extent of infection with *E. multilocularis* in human and animal populations.

**Rationale:** Canine refers to members of the subfamily Caninae (such as the genus *Canis* and its close relatives). Canids are all members of the family Canidae. Reference:

[http://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=180594](http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=180594)

Current phrasing is not specific as to why contact with infected definitive hosts would be sufficient for transmission. Also, fecal contamination of water and food is not sufficient for transmission, but rather requires contamination with feces containing infective materials.

This chapter provides recommendations for prevention, control and monitoring of infection with *E. multilocularis* in dogs ~~and cats~~, and monitoring in wild canids.

Standards for diagnostic tests are described in the *Terrestrial Manual*.

[NOTE: The following terms 'owned dog', 'responsible dog ownership' and 'stray dog' used throughout this chapter are defined in Chapter 7.7. Once this chapter is adopted, this note will be deleted and these definitions will be moved to the glossary of the *Terrestrial Code*.]

Article X.X.2.

**Prevention and control of infection with *Echinococcus multilocularis* in domestic dogs ( owned and stray ) dogs ~~(owned and stray)~~ and cats**

In order to achieve success in the prevention and control of infection with *E. multilocularis*, the *Competent Authority* should carry out community awareness programmes to inform people of the risk factors associated with transmission of *E. multilocularis*. These awareness programmes should include information on ~~and~~ the importance of alveolar echinococcosis in ~~animals and~~ humans, the role of foxes, ~~and other wild canids, and dogs (including stray dogs), and cats,~~ the value of the need to implement preventive and control measures, and the importance of responsible dog ownership ~~and cat ownership~~.

**Rationale:** The sentence as proposed is very long and covers many key points. Suggested text divides the original sentence to avoid loss of important information. Also, the disease is only referred to as alveolar echinococcosis in humans, not animals.

Whenever the epidemiological situation ~~makes~~ indicates that a prevention and a control programme are necessary, the following measures should be considered ~~undertaken~~:

1. Owned dogs ~~and cats~~ should not be allowed to roam freely unless tested or treated according to point 3.
2. For control of stray dog populations, the *Competent Authority* should ensure compliance with relevant aspects of Chapter 7.7.
3. Dogs ~~and cats~~ known to be infected should immediately be treated with praziquantel (5 mg/kg) or another cestocidal product with a comparable efficacy; dogs suspected of having access to rodents or other small mammals should be tested or treated ~~at least~~ every 21–26 days. Where possible, faeces excreted up to 72 hours post treatment should be disposed of by incineration or burial.

Article X.X.3.

**Monitoring for infection with *Echinococcus multilocularis***

Veterinary Authorities should collaborate with public health authorities in the initial design and subsequent modifications of surveillance and monitoring programmes.

1. Monitoring in foxes and other wild canids
  - a) Monitoring for infection with *E. multilocularis* in foxes and other wild canids should be undertaken as ~~it is an essential component for~~ necessary to assessing the current situation regarding prevalence of infection.

- b) Appropriate monitoring strategies should be designed according to local conditions, in particular, where the parasite and large populations of definitive hosts exist. Under these circumstances environmental sampling of canid (faeces) may provide a useful indicator of infection pressure.

2. Surveillance in slaughterhouses/abattoirs

- a) As an indicator of the parasite in the environment ~~The~~ *Veterinary Services* should consider routine monitoring of livestock liver condemnations during meat inspection for ~~carrying out targeted surveillance for larval lesions of *E. multilocularis* in livers of pigs~~ Targeted surveillance in abattoirs of animals raised in outdoor conditions may also be incorporated ~~as an indicator of the presence of the parasite in the environment.~~

**Rationale:** suggested changes made under Article X.X.3 are made to improve clarity, improve syntax, and minimize confusion.

~~b) Data collected will provide useful additional information regarding prevalence of infection.~~

~~Veterinary Authorities should use any information on cases of human infection, provided by public health authorities, in the initial design and any subsequent modification of surveillance and monitoring programmes for estimation of parasite transmission.~~

Article X.X.4.

Recommendations for the importation of domestic dogs, and wild canids ~~and cats~~ from an infected country

**Rationale:** specification needed

*Veterinary Authorities of importing countries* should require the presentation of an *international veterinary certificate* attesting that:

1. the *animal* has been treated between 48 and 72 hours prior to shipment with praziquantel (5 mg/kg), or another cestocidal product with a comparable efficacy against intestinal forms of *E. multilocularis*
2. adequate precautions have been taken to avoid reinfection of the *animal* between treatment and embarkation.

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 — Text deleted.