CHAPTER 8.5.

INFECTION WITH *Echinococcus multilocularis*

Article 8.5.1.

General provisions

Echinococcus multilocularis (*E. 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 intestine of canids (definitive hosts), particularly foxes. Larval stages (metacestode) occur in tissues of liver and other organs of other mammals (commonly rodents) (intermediate hosts). Humans are infected occasionally with the larval stage, which causes severe *disease*, referred to as 'alveolar echinococcosis'. *Infection* does not cause discernible health impacts in livestock.

Foxes and some other wild canids 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. Pigs may become infected but the parasite remains infertile; therefore, they have no role in transmission of the parasite.

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 *E. multilocularis* 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 faeces of canids.

Prevention of infection in humans is difficult, particularly in areas with a high *infection* pressure maintained by rural and urban foxes. Good food hygiene and personal hygiene, community health education and preventing *infection* of dogs reduces the risk of human infection. 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.

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

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

Article 8.5.2.

Safe commodities

When authorising import or transit of any *commodities* of livestock, *Veterinary Authorities* should not require any related conditions regardless of the status of the animal population of the *exporting country* or *zone*.

Article 8.5.3.

Programmes for the prevention and control of infection with *E. multilocularis* in owned and stray dogs

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*. Such programmes should include information on the importance of echinococcosis in *animals* and

humans, the role of foxes, other wild canids, and dogs, the need to implement preventive and control measures, and the importance of *responsible dog ownership*.

Whenever the epidemiological situation indicates that a control programme is necessary, the following measures should be undertaken:

1) *Owned dogs* should not be allowed to roam freely unless 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 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 treated every 21-26 days. Where possible, faeces excreted up to 72 hours post treatment should be disposed of by incineration or burial.

Article 8.5.4.

Monitoring for infection with *E. multilocularis*

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 assessing the prevalence of *infection*.
   b) Monitoring strategies should be appropriate to local conditions, in particular, where large populations of definitive hosts exist. Under these circumstances testing of environmental samples (faeces) may provide a useful indicator of *infection* pressure.
2) Surveillance in slaughterhouses/abattoirs

   As an indicator of the presence of the parasite in the environment, *Veterinary Services* should consider carrying out targeted *surveillance* for larval lesions of *E. multilocularis* in livers of pigs raised in outdoor conditions.

Veterinary Authorities should use information from public health authorities on cases of human infection, in the initial design and any subsequent modification of *surveillance* and monitoring programmes:

Article 8.5.5.

Recommendations for the importation of dogs and wild canids from an infected country

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

1) the *animal* has been treated between 24 and 72 hours prior to embarkation 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.