

**Alert: *Echinococcus multilocularis* Detected in New York State**

September 16<sup>th</sup>, 2022

This year, the Fish and Wildlife Disease Lab at SUNY College of Environmental Science and Forestry (SUNY-ESF) identified adult *Echinococcus multilocularis* parasites within the gastrointestinal tracts of two hunter killed coyotes from Dutchess County and one coyote from Montgomery County, NY. *Echinococcus multilocularis* was first identified in the state in 2018, through the detection of parasite DNA in coyote fecal samples from Fort Drum, NY. The three new cases were confirmed through genetic sequencing and morphological identification of the adult parasites. Further genetic analysis of these parasites revealed that they are most closely related to the European variant of the species, which is of veterinary and medical concern due to the increased zoonotic potential of this variant over the native North American genetic strain.

*Echinococcus multilocularis* is a small tapeworm that typically infects wildlife but can be transmitted to humans where it causes the disease echinococcosis, which can be fatal if left untreated. This parasite requires an intermediate host and definitive host to complete its lifecycle. Definitive hosts for the parasite are canines such as coyotes, foxes, wolves, and domestic dogs; small mammals such as mice and voles function as intermediate hosts. The parasite's eggs are shed in the feces of an infected definitive host, where they are immediately infective and can contaminate the environment, vegetation, and the body/fur of the host. Intermediate hosts become infected through ingesting the eggs, which hatch within the body and start to grow large hydatid (fluid filled) cysts that contain the larval parasite. These cysts are metastatic and can grow through budding, resulting in the proliferation of the cysts within the body of the infected host. Canids become infected through eating the cysts present in the body of an infected intermediate host, the larvae will mature into adult tapeworms within the host's digestive tract.

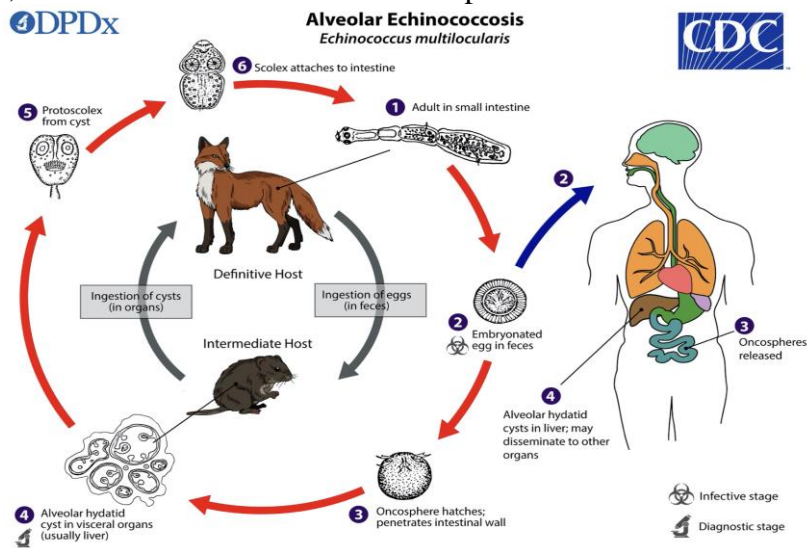


Figure 1. The lifecycle of *Echinococcus multilocularis* (CDC DPDx. <https://www.cdc.gov/dpdx/echinococcosis/index.html>)

Human infection occurs through the accidental ingestion of the parasite eggs, resulting in the development of the larval stage of the parasite in an infected person's body. The eggs can be found on anything that may have been contaminated with the feces of an infected canid. Areas where an infected canid may frequent could have the eggs present in water or on vegetation and produce. The eggs can also be stuck on the fur or body of the animal. After eggs are ingested, hydatid cyst growth and metastasis can lead to serious illness or death from interference with organ function.

Spillover of *Echinococcus* from wildlife to humans is a concern as domestic dogs can act as a definitive host. Infected dogs appear healthy and may not exhibit symptoms of disease as the worms are very small (1-3mm). Domestic dogs that hunt their own prey and interact with wildlife are at higher risk for parasite exposure. Dogs also act as an intermediate host, similarly through the ingestion of the parasite's eggs, and nonspecific symptoms are reported associated with growth of the cysts.

Precautionary measures should be taken by anyone who interacts with wild canids following the detection of *Echinococcus* across the state. Hunters and trappers should wear gloves while handling wild canid carcasses. Disposal of carcasses where domestic or wild scavengers cannot access them also helps to decrease transmission. Wildlife rehabilitators and veterinary workers should be especially careful handling fecal matter from wild or feral canids. Dog owners can reduce their dog's exposure to the parasite through restricting interactions with wildlife, preventing them from consuming animal carcasses, and starting regular deworming schedules. Veterinarians who suspect *E. multilocularis* should call the NYS Department of Agriculture and Markets, Division of Animal Industry at (518) 457-3502.

Preventative measures can be taken to avoid ingestion of *E. multilocularis* eggs. The NYS Department of Health and Center for Disease Control recommends the following precautions:

- Prevent infection in domestic animals by limiting their ability to have contact with infected animal carcasses, hunting their own prey, or eating viscera from wild animals
- Regularly deworm dogs and have them checked for tapeworms
- Hunters can dispose of animal viscera and carcasses so that domestic or wild animals cannot have access to it
- Wearing gloves and washing hands after handling feral dogs or wild canids (and their carcasses)
- Prevent wild and domestic canids access to gardens where produce and herbs are grown
- Wash all fruits, vegetables, herbs thoroughly before eating them to remove any potential fecal contamination
- Avoid eating undercooked meats
- Treat infected animals as instructed by your veterinarian
- Wear protective equipment (gloves) when handling fecal samples at a veterinary clinic

Further information can be found at:

<https://www.cdc.gov/parasites/echinococcosis/index.html>

For more information on the parasite in New York State or how to support the current surveillance efforts, please contact current graduate student Corinne Conlon at [clconlon@esf.edu](mailto:clconlon@esf.edu).