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Canine ehrlichiosis: guidelines for dog owners

What is ehrlichiosis?

Canine ehrlichiosis (pronounced 'err-lick-ee-oh-sis') is a disease of dogs caused by infection with a bacterium called *Ehrlichia canis*. The bacterium is carried by ticks. In Australia, dogs can be infected with *E. canis* after being bitten by an infected brown dog tick. *E. canis* occurs worldwide, particularly in tropical and subtropical regions. The first detection of ehrlichiosis in Australia was in May 2020. Since then, the disease has been diagnosed in the northern regions of Western Australia and South Australia, all of the Northern Territory and northwestern Queensland.

This fact sheet provides important facts about this disease, and why it is important to prevent further spread of the disease to areas where brown dog ticks exist but ehrlichiosis currently does not.



This map shows the areas of Australia where the brown dog ticks that spread *E. canis* are likely to be found. This is different from the distribution of the paralysis tick, which is found along the east coast.

What happens when a dog is infected with *E. canis*?

Some dogs become unwell 1–3 weeks after being bitten by an infected tick. This is called an **acute infection** and needs veterinary treatment. In countries where ehrlichiosis has been present for a long time, most dogs experience mild and treatable illness. However, in Australia, where the dog population has no previous exposure to the disease, there is a high rate of severe illness and death during the acute phase, especially if unwell dogs do not receive veterinary care.

Other dogs may be infected but show no signs of disease, which is known as **subclinical infection**, meaning it is a hidden infection. Infected dogs may clear the bacteria from the bloodstream or they may become subclinical carriers of the bacteria in the spleen and bone marrow, with no signs of illness, for months or years. Subclinical carriers may develop another form of the disease, known as **chronic ehrlichiosis**, which tends to be severe and is often untreatable.

Treatment

Is my dog completely cured after treatment for acute ehrlichiosis?

Most dogs who receive veterinary treatment for acute infection respond well and appear to make a full recovery. Unfortunately, however, there is no straightforward way to monitor the long-term success of treatment of acute infection. There is no easy test to assess whether the bacteria remain in the tissues, but not in the bloodstream. This is because the bacteria can hide in the tissues and be undetectable in blood tests.

The only way to detect the bacteria in this case is by sampling the spleen or bone marrow. This procedure is risky, because it requires anaesthetising the dog, and may cause severe bleeding from the sampling site, which could be fatal. There is also no guarantee that the bacteria will be found. Because of these challenges, a dog who is diagnosed with acute or subclinical ehrlichiosis is considered potentially subclinically infected for life, even after treatment.



Photo courtesy of Professor Peter Irwin

Is Chronic ehrlichiosis treatable?

Dogs with chronic ehrlichiosis have many different signs of disease. Infection with *E.canis* can look like other diseases such as pneumonia, some forms of cancer, other tick-borne diseases, and bleeding disorders including rodenticide poisoning. The disease is difficult or impossible to treat successfully.

Dogs may have a fever, be lethargic and lose weight, even if they are provided with plenty of food. Bleeding disorders include bloody noses, bleeding or bruising under the skin, or bleeding into the lungs, causing breathing difficulty. Large lymph nodes might be visible or felt as lumps under the jaw, in front of the shoulders and in the back legs. Eye abnormalities, including discharges and cloudy eyes, are common. Many dogs are lame or stiff.

Chronic ehrlichiosis gets progressively worse, because it becomes an autoimmune disease, where the tissues that produce both red and white blood cells are attacked from within the dog's body. When a dog has complete immune system failure, it is usually fatal, regardless of treatment. Your veterinarian is likely to recommend blood tests to check disease progression. These tests will assess your dog's immune system and organ function. The vet may recommend humane euthanasia, based on these blood test results and the severity of symptoms the dog is suffering.

Why does it matter if my dog is still infected?

Long-term management of potentially infected dogs poses a number of challenges:

- The number of subclinically infected dogs who go on to develop chronic ehrlichiosis is unknown.
- Dogs who live in, or travel to, regions where *E.canis*-infected ticks exist may be bitten and subclinically infected without their owners' knowledge, but go on to develop chronic ehrlichiosis months or years later. Because of the time delay, the connection between travel, tick bites and clinical signs may not be obvious.
- Subclinically infected dogs may move interstate into noninfected areas, and some of these dogs will develop chronic ehrlichiosis. Infected dogs can spread ehrlichiosis, so that the disease becomes established in areas that are currently free from the disease. This can happen if a dog is relocated to an area where brown dog ticks already exist, but the ticks are currently not infected with *E.canis*.
- The veterinary history of adopted or rescued dogs and the geographical areas that they have been in may not always be known to new owners or treating veterinarians. Gaining a complete understanding of a dog's movement history can be difficult when dogs have passed through multiple owners or organisations.

Not knowing that a dog is infected with *E.canis* may result in delayed diagnosis or misdiagnosis. It could also result in disease spread and transmission to other dogs and communities that are currently free from the disease. Dog owners who travel with their pets and people who acquire dogs from areas where ehrlichiosis is known to occur need to be aware of these risks.

For all these reasons, dogs who live in, travel through or are acquired from brown dog tick-infested areas of Australia should be provided with lifelong, continuous tick control. Kill-and-repel tick control products provide the best protection against tick attachment, and therefore protection from infection for individual dogs.

To prevent transmission to other dogs, dogs with suspected or confirmed ehrlichiosis who live in an area where brown dog ticks are likely to exist need lifelong treatment with registered systemic tick control products, even where there are no ticks visible on the dog's body. This will reduce the risk of disease in other dogs.

How do I protect my other dogs from infection?

There is no vaccine for ehrlichiosis. Use a registered product that both kills and repels ticks, at all times, for dogs that are at risk. This is the best protection against tick attachment. In brown dog tick-infested regions, if one of your dogs has potential or confirmed ehrlichiosis, prevent further transmission to other dogs in your household using registered systemic tick control products. Check dogs regularly for attached ticks, and keep long or fluffy coats clipped short so that you can find ticks more easily.

Reporting requirement

Ehrlichiosis is a notifiable disease. This means that a veterinarian who suspects or diagnoses the disease is legally required to report it to their state or territory animal biosecurity authority. You can find out more information on notifiable diseases and movement restrictions for different states and territories on the Australian Government website [Ehrlichiosis in dogs](https://www.agriculture.gov.au/ehrlichiosis).¹

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