



Canine ehrlichiosis: guidelines for rescue, adoption and relocation of dogs in Australia

Canine ehrlichiosis (pronounced 'err-lick-ee-oh-sis') is a severe and sometimes fatal disease of dogs, caused by infection with the bacterium *Ehrlichia canis*. The bacterium is carried by ticks. In Australia, infection occurs when dogs are 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. More information is available on the Australian Government website Ehrlichiosis in dogs.¹

There is no vaccine for the disease, but preventing tick attachment protects against infection. 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.

Subclinical infection

Some dogs are obviously unwell in the acute stage, but other dogs can be infected and show no signs of disease. We call these dogs 'subclinical'. Once infected, they may clear the bacteria from the bloodstream naturally, or they may become carriers, with the bacteria hiding in the spleen and bone marrow for months or years. In this state, the bacteria cannot be detected in blood tests, and dogs may or may not have antibodies in their bloodstream. These dogs are unlikely to be seen at veterinary clinics unless they have a blood test before interstate movement, or the infection re-emerges and ehrlichiosis progresses to its chronic (late-stage) form.

Chronic infection

Dogs with chronic ehrlichiosis have many different signs of disease. They may have a fever, be lethargic, be off food and lose weight. Bleeding disorders include bloody noses, bleeding or bruising under the skin, or bleeding into the lungs. These dogs may have severe 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 is progressive and 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 immune system failure, the disease cannot be treated and is usually fatal, regardless of treatment. Blood tests that monitor the immune system and organ function can help to assess how badly a dog is affected.

Relevance to rehoming and relocation of dogs

Because subclinical cases of ehrlichiosis are not easy to detect, it is important to consider the risks around rehoming and relocating dogs who have lived in an area where *E.canis*-infected brown dog ticks exist. Dogs are potentially subclinically infected for life if they:

- originate from an area where *E.canis* is known or likely to be active (northern Western Australia and South Australia, the Northern Territory, northwestern Queensland)
- have an unknown history of movement or travel

1. <https://www.agriculture.gov.au/ehrlichiosis>

- have an unknown or poor history of tick control
- live or have lived with a confirmed case of ehrlichiosis
- have ever been diagnosed with ehrlichiosis, whether they were treated or not.

It is essential that new owners are aware of the risks of adopting dogs who could be subclinically infected and made aware of the clinical signs of chronic disease, which may develop months or years after adoption. Dogs who develop chronic ehrlichiosis are very likely to experience severe disease and to have limited lifespans.

There are a number of challenges around the long-term management of subclinically infected dogs, which should be considered before relocating, rehoming or adopting dogs from *E.canis*-infected regions:

- Dogs can appear to recover from acute infection but remain subclinically infected.
- The likelihood that subclinically infected dogs will go on to develop chronic, end-stage ehrlichiosis is currently unknown.
- Dogs who have lived or travelled in regions where *E.canis*-infected brown dog ticks exist may become subclinically infected without their owners' knowledge, and go on to develop chronic ehrlichiosis months or years later. Because of the time delay, the connection between travel and clinical signs may not be obvious.
- Interstate relocation and rehoming of subclinically infected dogs into areas where *E.canis* is not known to be active occurs regularly, and some of these dogs will develop chronic ehrlichiosis. If stringent tick control is not used, there is a high risk that these dogs will introduce the disease to areas that are currently free from infection.
- Some states and territories place a biosecurity obligation on people who move dogs (to minimise the risk of spread of disease), but there is no legal obligation to disclose the health status of infected dogs to adopting new owners. The history of adopted dogs (both veterinary and geographical) needs to be clear to new owners and future treating veterinarians.

Ethical considerations

The diagnostic challenges around ehrlichiosis raise ethical concerns about moving potentially infected dogs to regions that are currently free from the disease. Minimising the spread of this devastating disease is everyone's responsibility. Transparency, and awareness of the risks and potential outcomes of infection, are important in managing animal welfare. For these reasons, it is important that accurate veterinary and movement history is provided to new owners of all potentially infected dogs.

No easy or definitive test is available to distinguish uninfected from subclinically infected dogs. Therefore, when dogs are acquired or rehomed from areas where *E.canis* may be active, assume that all are potentially infected.

If a dog's history is unknown or unclear, individuals and organisations who transfer dogs to new owners should consider the following:

- Some dogs who have been treated for acute ehrlichiosis will recover and go on to live long, healthy lives, becoming much-loved family members for many years.
- Other dogs will be subclinical carriers and may go on to develop chronic ehrlichiosis. Many of these dogs will die from the disease within a relatively short time.
- It is impossible to know which outcome will occur for any individual dog. Adoption of infected animals may result in a significant financial and emotional burden in diagnosis and management of the disease.
- Relocation of an infected dog to a region where brown dog ticks exist but infection with *E.canis* does not, could spread the disease into new areas. Any potentially infected dog should be maintained on an effective tick preventative for life. If they become unwell, a veterinarian should be consulted.

Animal shelters may have high-level goals or mission statements, including targets for the number or percentage of dogs in shelters that are rehomed rather than euthanased. Adoption of *E. canis*-infected dogs may help to meet these aspirations. However, an ethical dilemma exists around the intent to 'save' dogs' lives, when the dogs might have short lifespans or low quality of life. Rehoming organisations should carefully consider the risks associated with rehoming dogs who are potentially infected with *E. canis* and put strategies in place to reduce these risks.

Risk-based guidelines for rescuing, rehoming and relocating potentially infected dogs

When adopting, rescuing, rehoming or relocating dogs from areas where *E.canis* is known or likely to be active:

- Obtain as much history as possible about where the dog came from or has lived, and provide this information to the new owners.
- Test potentially infected dogs for ehrlichiosis before adoption, preferably in their state or territory of origin.
- Seek veterinary advice and consider euthanasia on humane grounds for surrendered, rescued or adopted dogs who are actively unwell and severely affected with ehrlichiosis.
- Carefully consider organisational policy around treatment, rehoming or euthanasia of shelter dogs who are confirmed as infected with ehrlichiosis.
- Provide frank and open advice about the potential future health risks if confirmed or potentially infected dogs are rehomed.
- Use a tick repellent product on all dogs who live in or are travelling through brown dog tick–infested areas of northern Australia (Figure 1). Seek advice from a veterinarian about appropriate product use and dose frequency.
- Treat confirmed or potentially infected dogs with registered systemic tick control products for life, even if no ticks are visible on the dog. This will help prevent spread of the disease to other regions.
- Seek advice from the relevant state veterinary authority before moving potentially infected dogs to other parts of Australia. Some states require pre-movement testing, whereas others place a biosecurity obligation on the person in charge of the dog.



Figure 1. The red area indicates a higher likelihood of exposure to brown dog ticks. *E. canis*-infected ticks are currently only found in northern WA and SA, all of the NT and northwestern Queensland.