

Ehrlichiosis in dogs (*Ehrlichia canis*)

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Canine ehrlichiosos is a serious and often fatal bacterial infection caused by *Ehrlichia canis* (*E.canis*). It occurs worldwide, particularly in tropical and subtropical regions and was first detected in dogs in northern Australia in 2020. This was the first time ehrlichiosis had been found in dogs in Australia that were not imported from overseas. Ehrlichiosis is now established in dog populations in the Northern Territory and northern regions of Western and South Australia.

Infection with *E. canis* (ehrlichiosis) is a notifiable disease in Australia. If you suspect your dog may have ehrlichiosis you should notify the DPI either by calling the Emergency Animal Disease hotline on 1800 675 888 or in [writing](#) AND contact your veterinarian.

How do dogs become infected?

Dogs become infected with *E. canis* after being bitten by an infected tick, and the bacteria passes into the dog's bloodstream. *E. canis* is transmitted primarily by the brown dog tick (*Rhipicephalus sanguineus*). This tick is widely distributed globally and is present in much of northern Australia including areas of northern NSW.

Dogs do not transmit the disease to each other. The disease is maintained by a cycle of transmission between brown dog ticks and dogs. Dogs relocating from or moving through *E. canis* endemic areas are the most likely route of introduction of the disease to NSW.

These dogs may or may not be clinically unwell at the time of the movement but may be carrying the bacteria in their spleen and bone marrow (see below for further details). Some will develop chronic ehrlichiosis months or years down the track and will act as a source of infection for local tick populations.

Is there ehrlichiosis in NSW?

While the brown dog tick is known to occur in northern areas of New South Wales, no *E. canis* infections in dogs have originated in NSW to date. However, human-assisted movement of dogs from *E. canis* endemic areas has been shown to accelerate spread of the disease and represents a biosecurity risk for NSW. If *E. canis* were to establish in brown dog tick populations in northern NSW it would be very difficult to control and would pose a significant health and welfare risk to domestic dogs and dingoes in those areas.

Stages of disease

Ehrlichiosis can be divided into three stages: acute (early disease), sub-clinical (no outward signs of disease), and chronic (long-standing severe infection) (see Fig. 1).

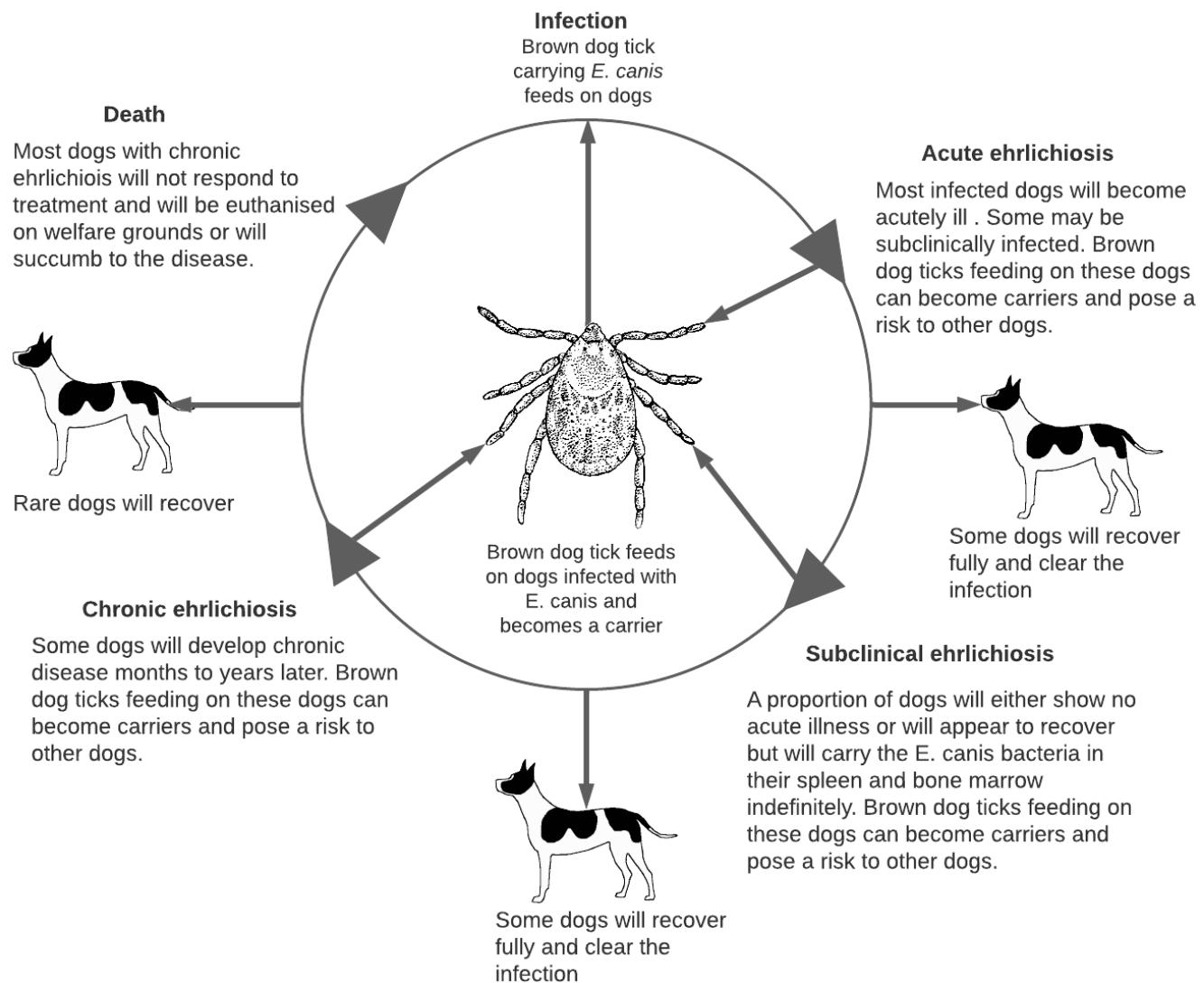


Fig. 1. Acute disease develops approximately one to three weeks after the tick bite and generally lasts two to four weeks. While the disease may appear severe and animals benefit from treatment, many dogs will spontaneously recover. Some dogs are then able to clear the infection. However, an unpredictable proportion of animals will remain infected subclinically, carrying the *E. canis* bacteria in their spleen and bone marrow indefinitely. The sub-clinical phase can last for months to years, with dogs appearing healthy and, critically, showing no signs of active infection on diagnostic tests. Some of these dogs will clear the infection over time but others will go on to develop chronic disease. There are currently no tests to accurately differentiate recovered animals from subclinical carriers or to indicate which dogs are likely to develop chronic disease. Dogs that develop chronic infection become very unwell and are susceptible to secondary infections. Even with intensive care in referral hospitals, the majority of dogs with chronic ehrlichiosis will not recover.

Acute and chronic ehrlichiosis tend to have similar clinical signs but the chronic phase tends to be more severe and non-responsive to treatment.

Clinical signs of infection can include:

fever	spongy swelling of limbs or scrotum
weakness	excessive panting or rapid breathing at rest
loss of appetite and weight loss	incoordination and collapse
enlarged lymph nodes	seizures
discharge from the eyes and nose	jaundice (pale or yellow gums and inner eyelids)
cloudiness or bleeding in eyes	spontaneous bleeding from the nose or gums
blood in urine, faeces or vomit	pinpoint to widespread bruising on skin and gums

Diagnosis & treatment

Infection with *E. canis* can mimic many other diseases and must be confirmed using laboratory testing. Testing can also be performed in apparently healthy or recovered animals being imported to NSW. Any dog that is diagnosed with acute or subclinical ehrlichiosis is assumed to be subclinically infected for life.

Treatment of acute ehrlichiosis generally involves prolonged antibiotics, supportive care and hospitalisation. While this may be beneficial in hastening convalescence, it often fails to completely clear the infection. Chronic ehrlichiosis is usually non-responsive to therapy and animals are euthanised on welfare grounds or succumb to the disease.

Reducing the risk of canine ehrlichiosis in NSW

Under the [Biosecurity Act 2015](#) there is a general biosecurity duty or **legal obligation** to notify authorities if you suspect or know that a dog has ehrlichiosis and to take measures to prevent or minimise the risk of introduction and spread of *E. canis* in NSW. Your vet can help you formulate an appropriate risk management plan for your dog in order to discharge your biosecurity duty and keep NSW *E. canis* free. This plan may include:

- Appropriate tick control for dogs travelling into areas where *E. canis* is known or suspected to occur.
Note: adequate protection from *E. canis* generally requires a combination of products that your vet can recommend.
- Close monitoring of your dog for clinical signs and seeking prompt veterinary attention for diagnosis and treatment of *E. canis*.
- Ongoing appropriate tick control if your dog has originated from or travelled through an *E. canis* endemic area or if it has ever tested positive for *E. canis*, even if it is currently well.

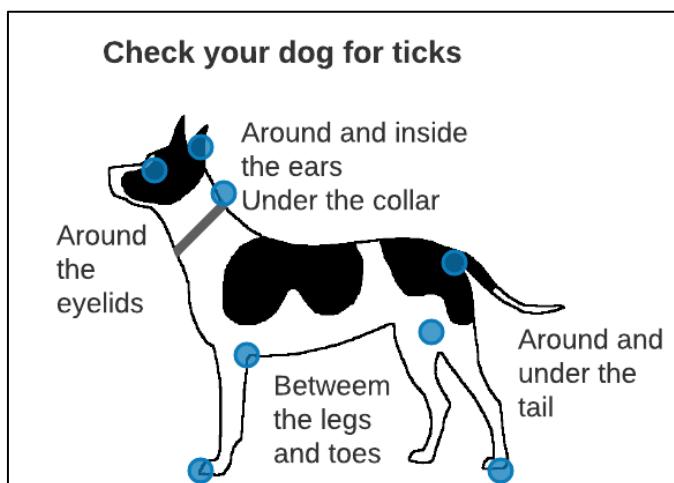
Diagnostic testing of dogs from *E. canis* endemic areas prior to entry into NSW is recommended, even in apparently healthy animals. However, it is important to remember that a proportion of dogs that test negative will be subclinical carriers and some of these dogs will go on to develop a chronic and fatal disease. It is therefore vital that any dogs relocating from *E. canis* endemic areas should be accompanied (where possible) by records of where the dog is from, its medical and travel history, and whether the dog has been on an effective tick prevention treatment whilst in high risk areas. New owners of dogs potentially exposed to *E. canis* infection should be provided with details of the clinical signs of chronic ehrlichiosis and need to have a risk management plan in place. Not knowing that a dog may be a subclinical carrier can result in delayed or missed diagnoses which impacts both the infected dogs and increases the risk of spreading infection.

Any dog relocating from or travelling through an *E. canis* endemic area should be maintained on appropriate continuous tick control for the rest of its life to manage the risk of ongoing transmission in NSW. Appropriate tick control is particularly important if you live in an area of NSW with brown dog ticks as the risk of establishment and spread of *E. canis* is much higher.

Prevention

There is no vaccine available for ehrlichiosis and it can only be prevented by controlling ticks on dogs. Depending on your specific circumstances, this may include:

- Maintaining dogs on an appropriate tick control program – ask your vet for the most suitable product and application regime.
- Avoiding taking dogs into tick-infested areas where possible.
- Inspecting dogs daily for ticks after being in tick-infested areas, paying particular attention around the head, ears, neck, belly, armpits, between their toes and around their mouth and gums. Your vet can advise on the best methods of tick removal.
- Having any tick infestations in your house or yard managed by a pest controller.



E. canis infection in people

While infected dogs do not transmit ehrlichiosis to people, in rare cases, infected ticks may transmit *E. canis* to people. See the [Department of Health website](#) for information on human health implications associated with ticks, as well as prevention, removal and first aid advice.