Ehrlichiosis in dogs (*Ehrlichia canis*)

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*Ehrlichia canis* was detected in a small number of dogs in the Kimberly region of Western Australia in May 2020 and in Katherine and Alice Springs in the Northern Territory in June 2020. This is the first detection of ehrlichiosis in dogs in Australia that have not been imported from overseas.

**What is ehrlichiosis?**

Ehrlichiosis is a bacterial infection caused by *Ehrlichia canis*, which is transmitted through tick bites. *E. canis* occurs worldwide, particularly in tropical and subtropical regions.

Infection with *E. canis* (ehrlichiosis) is a notifiable disease in Australia. If you suspect ehrlichiosis, call the Emergency Animal Disease hotline on 1800 675 888.

**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*) (Figure 1), which is widely distributed worldwide and is present in Australia. Dogs do not transmit the disease to each other. The disease is maintained by a cycle of transmission between ticks and dogs.

**What are the signs of ehrlichiosis?**

Signs of ehrlichiosis can be divided into three stages: **acute** (early disease), **sub-clinical** (no outward signs of disease), and **clinical or chronic** (long-standing infection).

The severity of the disease varies considerably among dogs. The incubation period for the development of acute disease is approximately 1–3 weeks after the tick bite, but the chronic form of ehrlichiosis may not manifest until months or years following infection.
Acute phase

Initial signs of infection are non-specific and can include:

- fever
- lethargy
- enlarged lymph nodes
- loss of appetite
- discharge from the eyes and nose
- weight loss
- bleeding disorders (spontaneous haemorrhage or bleeding)

There are usually abnormalities on blood tests, including low platelets and mild anaemia. Although dogs may seem pretty sick in this phase of the infection, it is rarely life-threatening. Most dogs clear the organism if they are treated in this stage, but those that do not receive adequate treatment will go on to the next phase after 1 to 4 weeks.

Subclinical phase

Some dogs that recover from the acute phase may become subclinically infected, in which the organism is present, but not causing any outward signs of disease. The subclinical phase can persist for months to years. These dogs may recover, remain infected without visible disease signs, or progress to the chronic form of the disease.

Chronic phase

Only some infected dogs will go on to develop the chronic form of ehrlichiosis. Visible signs in the chronic phase of the disease are similar to those in the acute phase but are more severe. They can include:

- fever
- weakness
- weight loss
- bleeding disorders
- pale mucous membranes
- eye abnormalities
- neurological abnormalities.

Infected dogs may have increased susceptibility to secondary infections. Blood tests often show severely low platelets, low white blood cells and anaemia. This form of the disease can be fatal.

Diagnosis & treatment

Infection with *E. canis* (ehrlichiosis) is a notifiable disease in Australia. If you suspect a dog has ehrlichiosis, call your private vet, or the Emergency Animal Disease hotline on 1800 675 888.
Infection with *E. canis* is diagnosed by a combination of clinical signs and blood tests. It is important to confirm the diagnosis via testing, as the disease can resemble other conditions with similar signs, including tick-borne diseases such as anaplasmosis in dogs.

Treating an *E. canis* infection involves antibiotics, supportive care and may require hospitalisation depending on the severity of the infection. Early treatment provides the best chance of recovery.

**Prevention**

Prevention of ehrlichiosis is enhanced by controlling ticks on dogs:

- Maintain dogs on a **tick control program** – ask your vet for the most suitable product and application regime.
- **Avoid taking dogs into tick-infested areas** such as the bush where possible.
- **Inspect dogs for ticks** after being in tick-infested areas (especially around the neck, head, ears, armpits and belly) (Figure 2) and carefully remove any ticks. Your vet can advise on the best methods of tick removal.

**Zoonotic aspects**

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.