

NATIONALLY NOTIFIABLE DISEASE DETECTION UPDATE (April 2021)

Ehrlichia canis has been detected in the APY lands in South Australia.

What is canine ehrlichiosis and how was it found in SA?

- Ehrlichiosis is a tick-borne rickettsial-like disease caused by the organism *Ehrlichia canis*, an obligate gram negative intracellular bacteria. *E. canis* occurs worldwide, particularly in tropical and subtropical regions.
- The Department of Primary Industries and Regions (PIRSA) recently conducted surveillance in dogs (including blood and tick samples) to determine whether the disease is present in South Australia.
- In SA, *E. canis* was detected for the first time in ticks in the APY lands in January 2021. Further tick samples collected in February 2021 confirmed widespread infection of ticks across multiple communities in the APY lands.
- Clinical disease in a dog was first diagnosed in March 2021 in the far north of South Australia.
- Once *E. canis* is present in the brown dog tick population it is very difficult to control. It is therefore likely that *E. canis* is present at low levels in dogs and ticks in the APY Lands.

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

Aetiology

- *E. canis* is transmitted primarily by the brown dog tick (*Rhipicephalus sanguineus*), which is widely distributed worldwide especially in tropical areas, and is present in Australia.
- The brown dog tick is thought to be found throughout South Australia, however is found in much higher numbers in the northern regions of SA.
- Transmission within the tick is transstadial (passed from larva to nymph to adult). Unexposed ticks acquire the organism after feeding on an infected dog, then transmit the infection to other dogs during successive life stages. The organism can also be transmitted through blood transfusions. Infection with *E. canis* causes ehrlichiosis, previously known as canine tropical pancytopenia.

Clinical signs

Dogs with a recent travel history to northern SA, or other northern tropical and subtropical regions of Australia are at highest risk of exposure to *E. canis*, where the brown dog tick occurs in higher numbers.

Ehrlichiosis has three phases of disease: acute, subclinical and chronic. Severity of disease can vary considerably among dogs. The incubation period for the development of acute disease is about 1–3 weeks, although the chronic form of ehrlichiosis may not manifest until months or years after infection.

Acute

- Acute disease is characterised by non-specific signs such as fever, lethargy, lymphadenopathy, anorexia and weight loss. Other signs include ocular and nasal discharges and bleeding tendencies including petechiae, ecchymoses and epistaxis. Thrombocytopenia is a common haematological finding. This phase typically lasts for 2–4 weeks.

Subclinical

- Some dogs that recover from the acute phase may become subclinically infected, along with a subset of dogs that show mild or no early clinical signs. This subclinical phase can persist for months to years. A mild thrombocytopenia may be present in the absence of clinical signs. Dogs in this phase may clear the organism, remain asymptotically infected or progress to the chronic form of ehrlichiosis.

Chronic

- Only some dogs will develop chronic ehrlichiosis. Clinical signs are similar to those seen in the acute phase but are more severe. Clinical signs can include fever, weakness, weight loss, bleeding disorders, pallor, dyspnoea, splenomegaly, hepatomegaly, ocular and neurological abnormalities and increased susceptibility to secondary infections.
- Haematological abnormalities include severe thrombocytopenia and nonregenerative anaemia. Pancytopenia can occur as a result of bone marrow hypoplasia.

Differential diagnoses

Differential diagnoses may include lymphoma, multiple myeloma and other immune-mediated disease. Also included may be other tick-borne diseases not currently present in SA, e.g. anaplasmosis and babesiosis.

Sampling and diagnosis

Infection with *E. canis* is a nationally notifiable disease. If you have a suspect case, **please compile a detailed history, including any interstate or northern SA travel, and contact the Emergency Animal Disease hotline on 1800 675 888** so that PIRSA can assist with managing the case and advise on sampling requirements. Please contact PIRSA (see details below), as suspect cases may be tested **at no charge**.

Diagnosis of ehrlichiosis is achieved through serological and/or molecular testing. The diagnosis is supported by clinical signs, haematological and serum biochemistry abnormalities and response to treatment.

Submission of samples

Vets investigating a suspected case of ehrlichiosis should first notify PIRSA veterinarian, Dr Allison Crawley on 0459 888 133 (or the **Emergency Animal Disease Watch Hotline** on **1800 675 888**), and then submit the following samples to PIRSA's contracted veterinary laboratory, Gribbles VETLAB at 33 Flemington Street, Glenside, South Australia, 5065:

- blood samples in EDTA and serum tubes
- blood smear (preferably from a peripheral site)
- ticks (if present) collected from the affected dog either dry or placed in ethanol.

Zoonotic aspects

While infected dogs do not transmit ehrlichiosis to people, in rare cases, infected ticks may transmit *E. canis* to people. See [SA's Department of Health website](#) for information on human health implications associated with Rickettsial infections, as well as tick prevention measures.

Information for dog owners

- Urge dog owners to ensure dogs are on an appropriate tick repellent program. Repellent tick collars and spot-ons may be used in combination with tablets and chews. A tick repellent can potentially kill ticks before they attach on/or prevents attachment, thereby reducing the risk of potential transmission of *E. canis*.
- Inspect dogs regularly for ticks.
- Movement of dogs from tick infested areas interstate and within SA should only occur if dogs are healthy, tick free and on a current tick control program. This includes rescue dogs.
- Look for any signs of the disease such as fever, lethargy and appetite loss. Seek veterinary assistance if symptoms develop in their dog, if there is a history of exposure to ticks or travel to regions with high tick numbers in northern SA or interstate.