

Animal Surveillance Case Definition

Leptospira Infection (Leptospirosis)

Clinical description

A communicable disease of animals and people caused by various serovars of *Leptospira*, several which are pathogenic in dogs including *Leptospira* serovars *bratislava*, *canicola*, *icterohemorrhagica*, *pomona*, and *grippotyphosa*. Cattle and other livestock, rodents, and a wide-range of wildlife can also become infected with *Leptospira* and may or may not develop clinical illness.

Canine infections may range from subclinical to peracute but the classical presentation is fever, lethargy, myalgia, anorexia, polyuria/polydipsia, vomiting and jaundice. Infection may be associated with acute renal failure, hepatic disease and vasculitis. The usual duration between exposure and onset of illness ranges from 5 to 10 days, but may be as long as 30 days or more. Leptospiuria (*Leptospira* in the urine of an infected animal) begins approximately 14 days after infection. Generally, younger animals are more seriously affected than older animals.

Case classification

Diagnosis of leptospirosis is difficult and no single diagnostic test provides optimal sensitivity. Therefore, a combination of diagnostic procedures is recommended.

Confirmed

+/- compatible clinical signs **and**

- isolation of *Leptospira* from a clinical specimen by culture; **or**
- identification of *Leptospira* antigen by use of immunofluorescence (fluorescent antibody or IFA) in a clinical specimen; **or**
- four fold or greater change in serologic antibody titer in 2 specimens obtained at least 2 weeks apart and assayed simultaneously at the same laboratory; **or**
- identification of *Leptospira* within fixed tissue or urine; **or**
- detection of *Leptospira* DNA in a clinical specimen via amplification of a specific target by PCR assay.

Probable

- A clinically compatible case with an elevated serologic titer in one or more specimens obtained after the onset of signs (i.e., titer of 1:800 or above).

Serologic interpretation is complicated by antibody cross reactivity, the presence of low titers during acute disease and previous vaccination against *Leptospira*. Convalescent titers may be inhibited after aggressive antimicrobial or corticosteroid treatment. The magnitude of the titer does not correlate with the prognosis or development of a carrier state, and titers may remain positive for years after infection. In general, the highest titer in a multi-serovar assay indicates the infecting serovar and the lower titers represent cross-reactivity.

A *Leptospira* 4-way vaccine is marketed with *canicola*, *icterohemorrhagica*, *pomona*, and *grippotyphosa* serovars. Titers from vaccination are not usually higher than 1:300, although vaccinal titers as high as 1:1250 have been reported for several weeks after vaccination. Titers of greater 1:800 from vaccination generally do not persist longer than 3 months.