

# 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.