LEPTOSPIROSIS

FREQUENTLY ASKED QUESTIONS

What is leptospirosis?

01

Acute, febrile zoonotic disease responsible for 1.03 million human cases globally per year
Caused by a spirochete bacteria (helical-shaped organism)
Affects both humans and animals

One of the leading zoonoses causing morbidity and mortality rates between 5 – 10%
Endemic in sub-saharan Africa
Clinical presentation: asymptomatic to mild (90% of cases) to life-threatening (10% of cases)

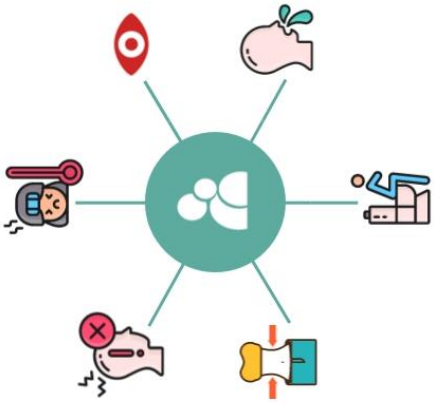
02

03

Natural nidality toward particular animal hosts as reservoirs, humans are incidental
Rodents carry the infection asymptomatically - maintenance hosts
Severe clinical form known as Weil's syndrome - kidney failure, liver damage, respiratory distress and death

Preventative measures

Wear protective clothing, Ensure wounds are covered with waterproof dressings, Wash hands or shower after potential exposure, Do not touch sick or dead animals, Do not wade or swim in potentially contaminated water, Ensure wounds are clean and dressed, Always consume clean drinking water

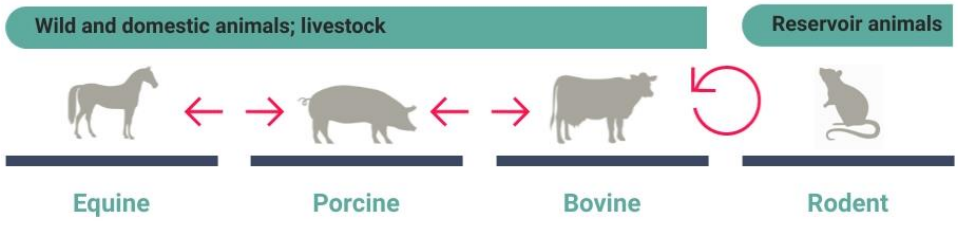


Complications

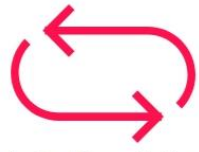
Jaundice, Acute kidney injury, Pulmonary hemorrhage, ARDS, Neuroleptospirosis – aseptic meningitis, Hypotension, Thrombocytopenia, Myocarditis, Ocular complications, Hypokalemic paralysis

How is leptospirosis transmitted?

Humans are accidently infected with the bacteria when they come into direct contact with infected animal carriers through urine or tissue, particularly rodents, companion animals (such as dogs) and livestock and/or indirect contact with environments contaminated with viable *Leptospira* bacteria, especially water, moist soil and vegetation. The bacteria enter through abraded skin or mucous membranes into the bloodstream.



Incidentally infected; contaminated environment, ingestion, wounds



Environment, Weather

Contaminated soil and/or water with urine

Natural calamaties associated with outbreaks

Signs and symptoms

An abrupt onset of symptoms usually occurs following an average 10 day (2–26 days) incubation period presenting pathognomonically, often emulating other febrile illnesses like dengue and malaria. Symptomatic persons exhibit subclinical anicteric infection progressing to icteric severe manifestations with multi-organ failure and death. Presentation is generally mild in 90% of cases resulting in a low clinical index of suspicion. The severe form known as Weil's disease is characterized largely by renal and hepatic injury but may also include pulmonary and skeletal muscle damage. Aseptic meningitis has been shown to be the commonest manifestation of neuroleptospirosis with patients presenting with headache, fever and neck stiffness.

Risk factors

Environmental	Occupational	Recreational
Rainfall, flooding, monsoon season	Farmers	Swimming in fresh water
Contaminated environment	Sewage work	Sailing, rafting
Poor sanitation	Abattoir and butcher workers	Marathon runners
Inefficient solid waste disposal	Veterinarians, medical and laboratory staff	Gardening
Inadequate drainage	Miners	Adventure travel
Presence of reservoir animals (rats)	Inland fishermen	Water sports
Walking bare foot	Soldiers	Ecotourism in the tropics, international travel
Wading through contaminated water		
Absence of proper lavatories		
Urban slums		
Outdoor manual work		




Leptospirosis in animals

During the 1920s and 1930s, records show the disease manifested in wild and domestic animals, insect populations, as well as, livestock where the disease in cattle was first seen in Russia which sparked veterinary interest in leptospirosis. Today, chronically infected carrier animals serve as leptospiral reservoirs with spontaneous abortion being a common outcome in infected cattle, swine, sheep, and goats. Rats, mice, and moles are regarded as major hosts of pathogenic *Leptospira*, excreting high concentrations of leptospires through urine, months after their initial infection. Dogs, rabbits, horses, deer, pigs, skunks, mongoose, and certain aquatic mammals carry and transmit the pathogen as secondary hosts. Domestic dogs shed the bacteria in their urine but not via saliva. Dogs, livestock, and horses become ill following infection and show a variety of symptoms. A vaccine is available to protect cattle, dogs and horses from certain strains of *Leptospira*.

Leptospirosis in SA

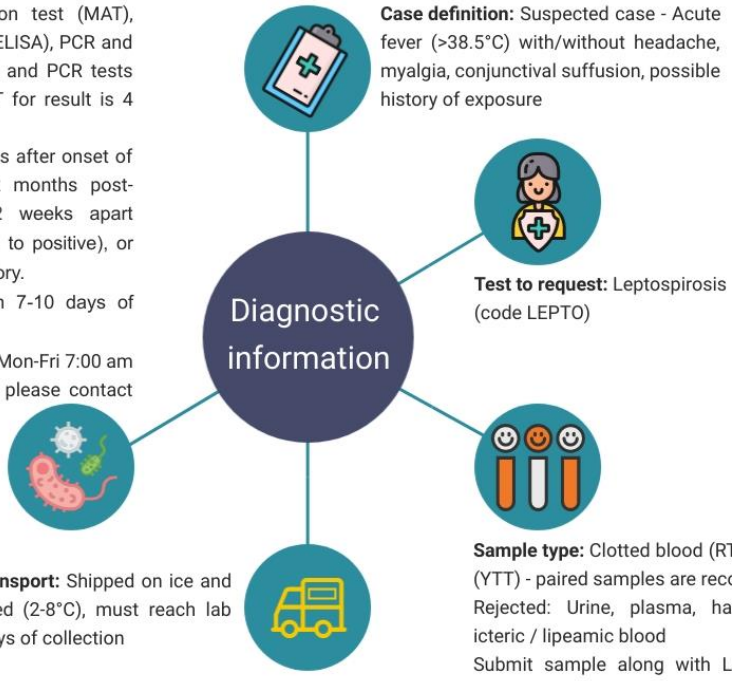
Leptospirosis is globally endemic, though it is often not recognized as a cause of febrile non-specific illness. It is particularly common in sub-tropical and tropical climates with high humidity. In South Africa, sporadic cases of leptospirosis have been reported, but the condition is probably underdiagnosed, as evidenced by surveillance studies that indicate dogs and cattle have seroprevalence rates of up to 20%.

Investigation: Microscopic agglutination test (MAT), lateral flow assay (LFA), serology (IgM ELISA), PCR and culture. NICD/SBPRL offers IgM ELISA and PCR tests for suspected leptospitosis cases (TAT for result is 4 days).

Antibody levels are detectable ~4-7 days after onset of illness and can remain positive 3-12 months post-exposure. Paired sera collected 1-2 weeks apart showing seroconversion (from negative to positive), or an increase in titre (MAT), are confirmatory.

Infection is detectable via PCR within 7-10 days of illness.

Testing will be done during office hours Mon-Fri 7:00 am to 4:00 pm. For additional information please contact the lab using the details below.



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UPDATED 8th FEBRUARY 2022

Treatment

Mild leptospirosis: Doxycycline, Amoxicillin, Ampicillin, Azithromycin

Severe leptospirosis: Penicillin, Ceftriaxone, Fluid therapy and diuretics (mild AKI), Dialysis, Ventilation (ARDS, pneumonia)