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# Leptospirosis Fact Sheet

## What is leptospirosis?

Leptospirosis occurs worldwide but is most common in tropical and subtropical areas. It is an infectious disease caused by pathogenic bacteria called leptospires, which are maintained in nature in the kidneys of certain animals such as rodents, livestock, canines and wild mammals. These organisms are transmitted directly or indirectly from animals to humans, i.e. zoonosis.

## Do leptospires always cause disease?

Some animal species have a commensal relationship with certain types of leptospires (serovars), i.e. natural hosts for those serovars. These animals continuously excrete leptospires in urine, though they do not suffer from the disease. If other animals, including humans, are infected by the same serovars, they often become ill. If a natural host for a particular serovar is infected with another serovar, it may also develop the disease. Serovars found in rats and bandicoots are often identified as the cause of serious illness in humans.

## How do leptospires enter the body of humans?

Man is an incidental or accidental host. Exposure through water, soil, contaminated by the urine of affected animals is the most common route. Leptospire-contaminated environment caused by, for example, local agricultural practices and poor housing and waste disposal gives rise to many sources of infection. Leptospires enter the body through abraded or traumatised skin, or nasal, oral, or eye mucous membranes. Ingestion of contaminated water can also lead to infection. After infection, they enter the blood and invade practically all tissues and organs.

## How soon do symptoms appear?

Symptoms normally appear within 5 - 14 days following exposure to the germ. The range is between 2 - 30 days.

## What are the symptoms?

Leptospirosis may present with a wide variety of clinical manifestations. These may range from a mild flu-like illness to a serious and sometimes fatal disease. It may also mimic many other diseases such as dengue fever, influenza, meningitis, and hepatitis. Jaundice is a relatively common symptom in leptospirosis, but is also found in many other diseases involving the liver. However, diagnosis of leptospirosis should be considered in any patient

presenting with an abrupt onset of fever, chills, conjunctival suffusion, headache, muscle tenderness (notable in calf and lumbar areas) and jaundice. A nonproductive cough may indicate involvement of the respiratory system. Case fatality rate is reported to range from less than 5% to 30%, and important causes of death include renal failure, heart failure, pulmonary haemorrhage and widespread haemorrhage.

### **How is leptospirosis diagnosed?**

Knowledge of local epidemiology and varied clinical presentation, and a high index of suspicion are essential to make a diagnosis. Suspicion should be further increased if there is a history of occupational or recreational exposure. Confirmatory diagnosis is mainly by detecting antibodies (e.g. MAT) and PCR. However, simple investigations like urine full report (albumin +) and white blood cells/ differential count (polymorpholeucocytosis) would help the clinicians to make a probable diagnosis and also to decide on the need for hospital admission. For epidemiological and public health reasons also laboratory support is also important. Identifying serovars (serotyping) is costly, time-consuming, and the results are not likely to affect the treatment of an individual patient. However, the resulting information is useful in investigating its source/ potential reservoir and planning and evaluating interventions.

### **How is leptospirosis treated?**

Leptospirosis is a potentially serious but treatable disease. Treatment with effective antibiotics should be initiated as soon as the disease is suspected. Clinicians should never wait for the results of laboratory tests before starting treatment with antibiotics because serological tests do not become positive until about a week after the onset of illness, and culture may not become positive for several weeks. Supportive care with strict attention to fluid and electrolyte balance is essential. Dialysis is indicated in renal failure.

### **When does leptospirosis occur?**

In Sri Lanka, leptospirosis is reported throughout the year. High humidity and heavy rainfall intensify outbreaks because of widespread contamination by rodent urine in flood water (Rodents are displaced from their burrows and drains by the flood water). Annually, there are two peaks in the disease incidence, at the time of the monsoons, a smaller one during March-May and a larger one during October-December. This seasonal variability should be taken into consideration while planning prevention and control activities.

### **Is it possible to get leptospirosis more than once?**

Yes. Serovar-specific antibodies produced following infection are protective, and a patient is immune to re-infection with the same serovar as long as the specific antibody titre is high enough. However, it will not protect against

infection with other serovars.

### How can you prevent leptospirosis?

Preventive measures must be based on knowledge of the high-risk groups and the local epidemiological factors. It is very important to raise awareness about the disease among the risk groups, health care providers and the general population, so that the disease can be recognised early and treated as soon as possible. If you are involved in occupations such as farming, mining, cleaning drains and canals, etc., please inform your area MOH or PHI. They will explain how to prevent you from getting the disease. The following specific measures can help to prevent leptospirosis.

- Proper waste management and keeping areas around human habitation clean to control rodents
- Keep animals away from gardens, playgrounds, sandboxes, and other places where children play.
- Where appropriate, protective clothing, knee-high boots, gloves, etc, should be worn, and wounds covered with waterproof dressing
- Use boiled water (chlorination is seldom useful, as virulent organisms withstand up to 4 ppm; filtered water is also not safe)
- Avoid walking in floodwater.
- Doxycycline has been reported to give some protection against infection and disease.