

PUBLIC HEALTH REFERENCE SHEET

Leishmaniasis



Name	<i>Leishmania</i> species of parasites
Reservoir & Transmission	Humans, wild rodents, hyraxes, edentates, marsupials, domestic dogs Transmitted through bite of female sand flies
Incubation Period	At least 1 week to several months
Common Symptoms	Cutaneous, Mucosal, or Mucocutaneous: lesions, papules, nodules at site of inoculation, indolent ulcer, swollen glands near the sores Visceral: persistent irregular fever, weight loss, hepatosplenomegaly, lymphadenopathy, pancytopenia
Gold Standard Diagnostic Test	Microscopic identification
Risk Groups	Individuals in endemic areas
Geographic Significance	Most common in areas of South and Central America, parts of Mexico, Southern Europe, Asia, the Middle East, and Africa

What is Leishmaniasis?

Leishmaniasis is a parasitic disease caused by *Leishmania* parasites that are transmitted by the bite of infected sand flies. It is classified as a neglected tropical disease (NTD). The most common forms are cutaneous, mucosal, and mucocutaneous Leishmaniasis, which cause skin sores. Visceral Leishmaniasis, also called kala-azar, affects the internal organs (e.g., spleen, liver, and bone marrow).

What is the occurrence of Leishmaniasis?

Leishmania parasites are found in parts of the tropics, subtropics, and southern Europe. Overall, Leishmaniasis is found in regions of more than 90 countries. It is not found in Chile or Uruguay. U.S. military personnel have become infected in countries, such as Iraq and Afghanistan. The cases of Leishmaniasis evaluated in the United States reflect travel and immigration patterns. Occasional cases of cutaneous Leishmaniasis have been acquired in Texas and Oklahoma. No cases of visceral Leishmaniasis are known to have been acquired in the United States. Globally, the annual estimates range from 700,000 to 1.2 million new cases of cutaneous Leishmaniasis, and less than 100,000 new cases of visceral Leishmaniasis.

How are *Leishmania* parasites transmitted?

Leishmania parasites are spread by the bite of infected female phlebotomine sand flies. Sand flies are soundless, small (one-third the size of typical mosquitos), and the bite is often painless. Sand flies usually are most active from dusk to dawn. Although sand flies are less prevalent during the hottest time of the day, they may bite if they are disturbed from resting on the trunk of a tree. Some species of *Leishmania* parasites also may be spread via contaminated needles or blood transfusions. Congenital transmission has been reported.

Who is at risk for Leishmaniasis?

People of all ages are at risk for infection if they live or travel where leishmaniasis is found. Leishmaniasis is more common in rural than in urban areas. People at increased risk for infection (especially with the cutaneous form) include adventure travelers, ecotourists, Peace Corps volunteers, missionaries, Service members, ornithologists, and those who conduct research or are active outdoors at dawn or dusk.

What are the signs and symptoms of Leishmaniasis?

Some people are asymptomatic.

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Cutaneous: This illness is characterized by one or more lesions that develop on uncovered parts of the body within a few weeks or months of the sand fly bite. The face, neck, arms, and legs are most common. The sores can change in size and appearance over time. The sores may start out as papules or nodules at the site of inoculation, become superficial and usually painless ulcers that may be covered by scab or crust and leave a depressed scar. Certain strains can disseminate and cause disfiguring mucosal lesions. Some people develop swollen glands near the sores. Some people have had cutaneous leishmaniasis more than once.

Visceral: This is a chronic illness of people who become sick within months or as long as years after the sand fly bite. Illness is characterized by persistent irregular fever, weight loss, hepatosplenomegaly, lymphadenopathy, and pancytopenia.

What are potential complications of Leishmaniasis?

Mucosal, or Mucocutaneous: Some (not all) types of the parasite found in parts of Latin America can spread from the skin and cause sores in the mucous membranes of the nose, mouth, or throat. Mucosal Leishmaniasis might not be noticed until years after the original sores healed. The best way to prevent mucosal Leishmaniasis is to ensure adequate treatment of the cutaneous infection.

How is Leishmaniasis diagnosed?

Laboratory methods include microscopic identification; culture; DNA detection; or antibody from serum. Some methods are available only in reference laboratories. Microscopic identification of *Leishmania* is conducted from tissue specimens (e.g., skin sores for cutaneous Leishmaniasis; or bone marrow, spleen, liver, lymph node or blood for visceral Leishmaniasis). *Leishmania* DNA can be detected by PCR, sequencing, or nucleic acid amplification testing (NAAT) (e.g., lesion biopsy or aspirate for cutaneous; or bone marrow, spleen, liver, lymph node or blood for visceral Leishmaniasis). Blood tests that detect antibody to the parasite can be helpful for cases of visceral Leishmaniasis. Reinfection is possible for cases of cutaneous Leishmaniasis.

How is Leishmaniasis treated?

The CDC offers consultation to healthcare providers in the absence of diagnostic testing. Healthcare providers may contact the CDC's Parasitic Diseases Hotline at 404-718-4745, or e-mail parasites@cdc.gov. The relative merits of various treatment approaches/regimens can be discussed with CDC staff. In the United States, special considerations apply regarding the availability of particular medications to treat leishmaniasis.

Cutaneous, Mucosal, or Mucocutaneous: The skin sores of cutaneous Leishmaniasis usually heal without treatment. However, healing of the skin can take months or even years, and the sores can leave disfiguring scars.

Visceral: If not treated, severe (advanced) cases of visceral Leishmaniasis typically are fatal.

How can Leishmaniasis be prevented?

No vaccines or drugs are available to prevent infection. The best way to prevent infection is to use preventive measures to decrease the risk of being bitten by sand fly bites.

- Avoid outdoor activities from dusk to dawn when sand flies generally are the most active.
- When outdoors (or in unprotected living areas)—
 - Minimize the amount of exposed skin. To the extent that is tolerable in the climate, wear long-sleeved shirts tucked into long pants, and wear socks.

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- Apply insect repellent to exposed skin and under the ends of sleeves and pant legs. The most effective repellents generally are those that contain the chemical DEET (N,N-diethylmetatoluamide).
- When indoors:
 - Stay in well-screened or air-conditioned areas as sand flies are much smaller than mosquitoes and can get through smaller holes.
 - Spray living/sleeping areas with an insecticide.
 - If not sleeping in a well-screened or air-conditioned area, use a bed net and tuck it under the mattress. If possible, use a bed net that has been soaked in or sprayed with a pyrethroid-containing insecticide. The same treatment can be applied to screens, curtains, sheets, and clothing. Clothing should be retreated after five washings.
 - Bed nets, repellents, and insecticides should be purchased before traveling. Bed nets and clothing that already have been treated with a pyrethroid-containing insecticide are commercially available.

What are some public health considerations?

- Individuals with a history of Leishmaniasis may be disqualified from donating blood.
- Specify the clinical form of the disease.
- Document relevant travel and deployment history occurring within the incubation period (at least 1 week to several months).
- Identify potential sources of exposure.

References

Defense Health Agency. 2022. *Armed Forces Reportable Medical Events Guidelines and Case Definitions*

<https://www.health.mil/Reference-Center/Publications/2022/11/01/Armed-Forces-Reportable-Medical-Events-Guidelines>

Heymann, David L. ed. 2022. *Control of Communicable Diseases Manual*. 21st Edition. Washington DC: APHA Press.

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