Fact sheet

Leishmaniasis

Key Facts

- There are three main types of leishmaniasis – visceral (often known as kala-azar and the most serious form of the disease), cutaneous (the most common), and mucocutaneous.
- Humans can become infected with leishmaniasis if bitten by female sandflies carrying a protozoa parasite of the genus leishmania.
- The disease affects the poorest people on the planet, and is associated with malnutrition, population displacement, poor housing, weak immune system and lack of resources.
- During the past 10 years, the disease has spread considerably.
- Leishmaniasis is linked to environmental changes such as deforestation, building of dams, irrigation schemes and urbanization.
- An estimated 1.3 million new cases and estimated 20,000 to 30,000 deaths occur annually.

Leishmaniasis is caused by a protozoa parasite from over 20 leishmania species and is transmitted to humans by the bite of infected female phlebotomine sandflies. There are three main types of the disease:

- **Visceral leishmaniasis** (VL also known as kala-azar) is fatal if left untreated. It is characterized by irregular bouts of fever, weight loss, enlargement of the spleen and liver, and anaemia. It is highly endemic in the Indian subcontinent and in East Africa. An estimated 200,000 to 400,000 new cases of VL occur worldwide each year. Over 90% of new cases occur in six countries: Bangladesh, Brazil, Ethiopia, India, South Sudan, and Sudan.

- **Cutaneous leishmaniasis** (CL) is the most common form of leishmaniasis and causes ulcers on exposed parts of the body, leaving life-long scars and serious disability. About one-third of CL cases occur in the Americas, the Mediterranean basin, and the Middle East and Central Asia. An estimated 0.7 million to 1.3 million new cases occur worldwide annually.

- **Mucocutaneous leishmaniasis** leads to partial or total destruction of mucous membranes of the nose, mouth and throat. Most cases are reported in Bolivia, Brazil and Peru.

Transmission

Leishmaniasis is transmitted through the bites of infected female phlebotomine sandflies. The epidemiology of leishmaniasis depends on the characteristics of the parasite species, the local ecological characteristics of the transmission sites, current and past exposure of the human population to the parasite and human behaviour.

Mediterranean Basin

In the Mediterranean Basin, kala-azar occurs in rural areas, in villages in mountainous regions and also in some periurban areas, where leishmania parasites live on dogs and other animals.

South-East Asia

Transmission generally occurs in rural areas below 600 m above sea level, with a heavy annual rainfall, with a mean humidity above 70%, a temperature range of 15–38 °C, abundant vegetation, subsoil water and alluvial soil. The disease is most common in agricultural villages where houses are frequently constructed with mud walls and earthen floors, and cattle and other livestock live close to humans.

East Africa

In East Africa, there are frequent outbreaks of kala-azar in the northern Acacia–Balanite savanna and the southern savanna and forest areas where sandflies live around termite mounds.

Cutaneous leishmaniasis occurs in the highlands of Ethiopia and other places in East Africa, where increased human–fly contact occurs in villages built on rock hills or river banks, which are the natural habitat of hyraxes.
Afro-Eurasia
Agricultural projects and irrigation schemes can increase the prevalence of one form of cutaneous leishmaniasis as people who have no immunity to the disease move in to work on the projects.

Another form is characterized by large outbreaks in densely populated cities, especially during war and large-scale population migration.

Americas
Kala-azar in the Americas is very similar to that found in the Mediterranean Basin. The habit of keeping dogs and other domestic animals inside the house is thought to promote human infection.

The epidemiology of CL in the Americas is complex, with variations in transmission cycles, reservoir hosts, sandfly vectors, clinical manifestations and response to therapy, and multiple circulating Leishmania species in the same geographical area.

Post kala-azar dermal leishmaniasis (PKDL)
PKDL is a sequela of visceral leishmaniasis that appears as macular, papular or nodular rash usually on face, upper arms, trunks and other parts of the body. It occurs mainly in East Africa and on the Indian subcontinent, where up to 50% and 5–10% of patients with kala-azar, respectively, develop the condition. It usually appears 6 months to 1 or more years after kala-azar has apparently been cured. But it can occur earlier. People with PKDL are considered to be a potential source of kala-azar infection.

Leishmania-HIV co-infection
People living with HIV are particularly susceptible to kala-azar, and the disease can impair their response to antiretroviral treatment.

Major risk factors
Socioeconomic conditions
Poverty increases the risk for leishmaniasis. Poor housing and domestic sanitary conditions (e.g. lack of waste management, open sewerage) may increase sandfly breeding and resting sites, as well as their access to humans. Sandflies are attracted to crowded housing as these provide a good source of blood-meals. Human behaviour, such as sleeping outside or on the ground, may increase risk. The use of insecticide-treated bednets reduces risk.

Malnutrition
Diets lacking protein-energy, iron, vitamin A and zinc increase the risk that an infection will progress to kala-azar.

Population mobility
Epidemics of both main forms of leishmaniasis are often associated with migration and the movement of non-immune people into areas with existing transmission cycles. Occupational exposure as well as widespread deforestation remain important factors. For example, people settling in areas that used to be forests mean moving near sandflies habitat. This can lead to a rapid increase in cases.

Environmental changes
Environmental changes that can affect the incidence of leishmaniasis include urbanization, domestication of the transmission cycle and the incursion of agricultural farms and settlements into forested areas.

Climate change
Leishmaniasis is climate-sensitive, and strongly affected by changes in rainfall, temperature and humidity. Global warming and land degradation together affect the epidemiology of leishmaniasis in a number of ways:

- changes in temperature, rainfall and humidity can have strong effects on vectors and reservoir hosts by altering their distribution and influencing their survival and population sizes;
- small fluctuations in temperature can have a profound effect on the developmental cycle of Leishmania promastigotes in sandflies, allowing transmission of the parasite in areas not previously endemic for the disease;
- drought, famine and flood resulting from climate change can lead to massive displacement and migration of people to areas with transmission of leishmaniasis, and poor nutrition could compromise their immunity.

Diagnosis and treatment
In visceral leishmaniasis, diagnosis is made by combining clinical signs with parasitological, or serological tests (rapid diagnostic tests and others). In cutaneous and mucocutaneous leishmaniasis serological tests have limited value. In cutaneous leishmaniasis, clinical manifestation with parasitological tests confirms the diagnosis.

The treatment of leishmaniasis depends on several factors including type of disease, parasite species, geographic location. Leishmaniasis is a treatable and curable disease. All patients diagnosed as visceral leishmaniasis require prompt and complete treatment. Detailed information on treatment of the various forms of the disease by geographic location is available in the WHO technical report series 949 on the control of leishmaniasis.

Prevention and control
Prevention and control of leishmaniasis require a combination of intervention strategies because transmission occurs in a complex biological system involving the human host, parasite, sandfly vector and in some causes an animal reservoir. Key strategies include:

- Early diagnosis and effective case management reduces the prevalence of the disease and prevents disabilities and death. Currently there are highly
effective and safe anti-leishmanial medicines particularly for VL and access to these medicines is improving.

- **Vector control** helps to reduce or interrupt transmission of disease by controlling sandflies, especially in domestic conditions. Control methods include insecticide spray, use of insecticide–treated nets, environmental management and personal protection.

- **Effective disease surveillance** is important. Early detection and treatment of cases helps reduce transmission and helps monitor the spread and burden of disease.

- **Control of reservoir hosts** is complex and should be tailored to the local situation.

- **Social mobilization and strengthening partnerships** – mobilization and education of the community with effective behavioral change interventions with locally tailored communication strategies. Partnership and collaboration with various stakeholders and other vector-borne disease control programmes is critical at levels.

**WHO response**

WHO’s work on leishmaniasis control involves:

- supporting national leishmaniasis control programmes;
- raising awareness and advocacy on the global burden of leishmaniasis, and promotes equitable access to health services for disease prevention and case management;
- developing evidence-based policy guidelines, strategies and standards for leishmaniasis prevention and control, and monitors their implementation;
- providing technical support to Member States to build sustainable, effective surveillance system and epidemic preparedness and response;
- strengthening collaboration and coordination among partners, stakeholders and other bodies;
- monitoring the global leishmaniasis situation, trends and measure progress in the disease control, and financing;
- promoting research on effective leishmaniasis control including in the areas of safe, effective and affordable medicines, diagnostic tools and vaccines; facilitates the dissemination of research findings.