

# LEISHMANIASIS in the WHO EUROPEAN REGION

This information leaflet contains six sections and is intended for a generic and public health audience:

## 1. Leishmaniasis is present in Europe.

What are the risks in European countries?

## 2. *Leishmania* is transmitted by sandflies.

How is the disease transmitted? What are the risk factors?

## 3. Disease characteristics of leishmaniasis.

What are the symptoms and how can it be treated?

## 4. Leishmaniasis can be prevented.

What measures can be taken to protect yourself?

## 5. WHO response.

How is WHO responding and what support could you get?

## 6. More information is available.

Where can you find more information and guidance on effective prevention and control activities?



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## Key messages

- *Leishmania* is a parasitic protozoan that is transmitted to humans by the bite of infected female sandflies. It causes three main forms of leishmaniasis: visceral (the most serious form of the disease), cutaneous (the most common form) and mucocutaneous.
- Leishmaniasis is a neglected and poorly reported disease. The burden of leishmaniasis is underestimated in most countries in the WHO European Region.
- Israel, Turkey, Turkmenistan and Uzbekistan are the countries in the Region most affected by cutaneous leishmaniasis, which accounts for almost 80% of total cases. Visceral leishmaniasis is found particularly in Albania, Georgia, Italy and Spain.
- Leishmaniasis mostly affects poor people, and is associated with malnutrition, population displacement, poor housing, a weak immune system and a lack of other resources.
- The disease is linked to environmental changes, such as those caused by deforestation, the building of dams, irrigation schemes, urbanization and climate change.
- Leishmaniasis is treatable and curable.



# 1. Leishmaniasis is present in Europe

Leishmaniasis is a neglected and poorly reported disease responsible for an underestimated burden in most countries in the WHO European Region. Its incidence and distribution depend on the characteristics of the parasite species, the local ecological characteristics of the transmission sites, and human behaviour. Reservoir hosts include domestic dogs, foxes, gerbils and jackals. The regional incidence of visceral and cutaneous leishmaniasis is estimated to be less than 2% of the global burden of leishmaniasis.

There are three main forms of the disease: cutaneous, mucocutaneous and visceral.

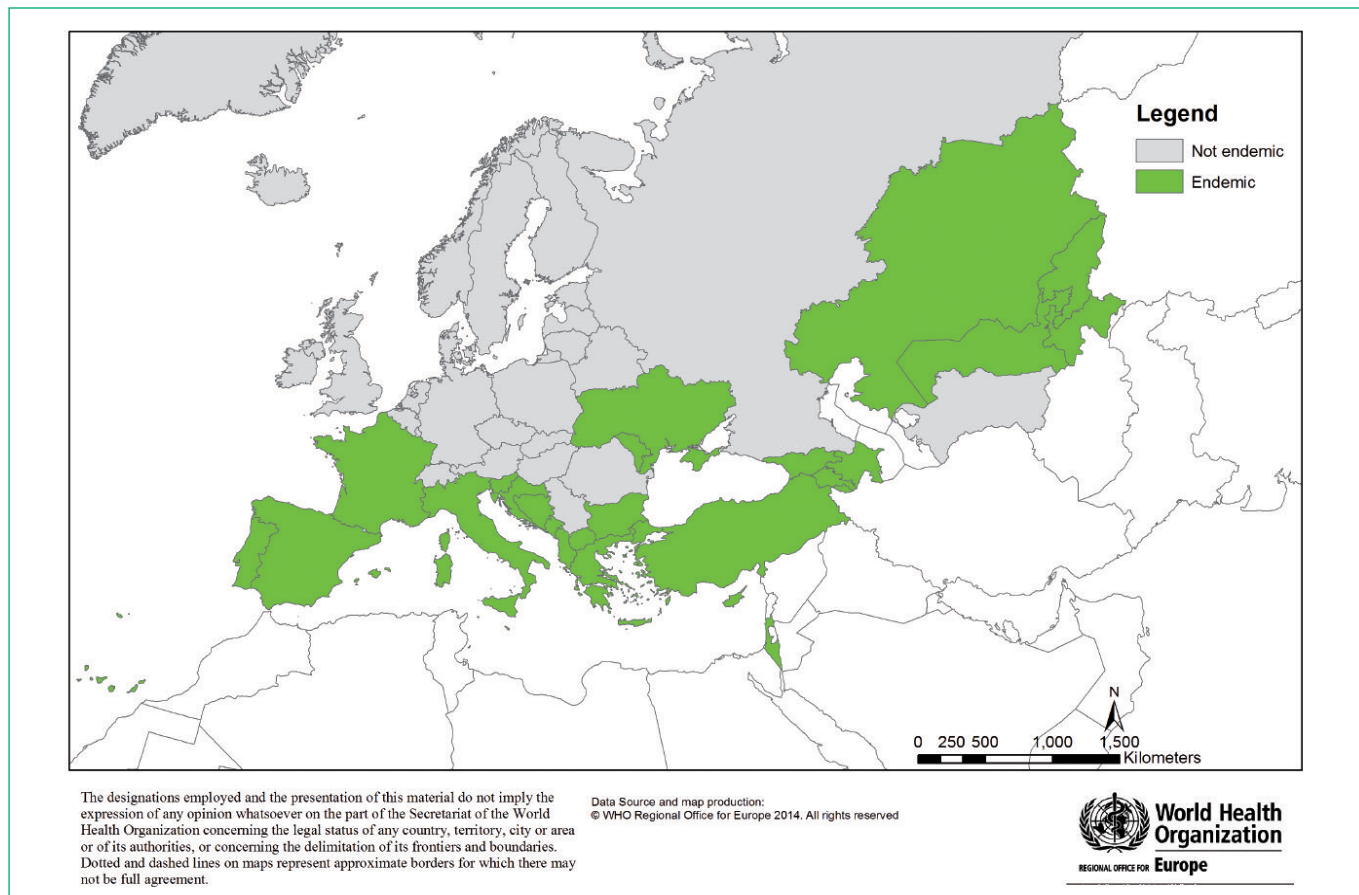
**Cutaneous leishmaniasis**, the most common form, accounts for about 95% of cases globally; these occur mainly in the Mediterranean basin, central Asia, the Americas and the Middle East. In the WHO European Region, Israel, Turkey, Turkmenistan and Uzbekistan are at present the countries most affected by this form of the disease, which accounts for almost 80% of the total number of cases reported in the Region. The Balkans, southern Caucasus and central Asia are also affected. In the WHO European Region, the disease is caused mainly by *L. major*, *L. tropica* and *L. infantum*. The

main vectors for cutaneous leishmaniasis in Europe are *Phlebotomus sergenti* and *Ph. papatasi*.

**Mucocutaneous leishmaniasis** occurs largely in the Plurinational State of Bolivia, Brazil and Peru, accounting for 90% of cases.

**Visceral leishmaniasis** (also known as kala-azar) is highly endemic in the Indian subcontinent and East Africa. It is mainly caused by *L. infantum* in Europe, where cases have been reported by countries in the southern and western parts, the Balkan region, central Asia and southern Caucasus, as well as Turkey. The overwhelming majority of these cases (nearly 75%) were found in Albania, Georgia, Italy and Spain. Between the mid-1990s and 2007, the number of cases of visceral leishmaniasis in Georgia, especially in children under 5 years of age, increased more than ninefold to over 180. In recent years, however, the number of adult patients with visceral leishmaniasis has grown; there was also co-infection with HIV before antiretroviral therapy was scaled up. Human leishmaniasis is a re-emerging problem in some parts of southern Europe with a steady increase in the prevalence of visceral leishmaniasis (Fig. 1).

Fig 1. Areas of endemic and non-endemic visceral leishmaniasis in the WHO European Region.



## 2. *Leishmania* is transmitted by sandflies

Leishmaniasis is caused by species of the parasitic protozoa *Leishmania* and transmitted to humans through the bite of infected female sandflies. It is a mammalian disease and can be transmitted from zoonotic reservoir hosts, such as rodents and canids. The domestic dog is a reservoir host of major veterinary importance.

*L. infantum* can be transmitted from mother to child, from female dog to puppy and by shared syringes.

In the European Region, the main proven and suspected vectors for visceral and cutaneous leishmaniasis due to *L. infantum* include *Ph. alexandri*, *Ph. kandelakii*, *Ph. balcanicus*, *Phturanicus*, *Ph. halepensis*, *Ph. syriacus*, *Ph. longiductus*, *Ph. perfilliewi*, *Ph. perniciosus*, *Ph. ariasi*, *Ph. tobbi*, *Ph. transcaucasicus* and *Ph. neglectus*; cutaneous leishmaniasis is caused mainly by *L. major*, *L. tropica* and *L. infantum*. The main vector for anthroponotic cutaneous leishmaniasis, which is caused by *L. tropica*, is *Ph. sergenti*. *Ph. papatasi* is the principal vector for zoonotic cutaneous leishmaniasis caused by *L. major*.

The three main risk factors for leishmania infection are socioeconomic conditions, population mobility and climate change.

**Socioeconomic conditions**, such as poverty, increase the risk for leishmaniasis. Poor housing and domestic sanitary conditions (e.g. lack of waste management, open sewerage) may increase the sandflies' breeding and resting sites, as

well as their access to humans. Sandflies are attracted to crowded housing as this provides a good source of blood meals. Sleeping outside or on the ground may also increase risk. Malnutrition favours progress of the infection to visceral leishmaniasis.

Epidemics of leishmaniasis are often associated with **population mobility**: the migration and movement of people to areas where transmission cycles exist. Widespread deforestation is an important factor: people settling in areas that were previously forests may be moving near sandfly habitats, which could cause cases to increase rapidly. Urbanization is also a risk factor.

Leishmaniasis is strongly affected by **climate change**.

- Changes in temperature, rainfall and humidity can affect the sandflies and reservoir hosts by altering their distribution, survival and population size.
- Small fluctuations in temperature can have a profound effect on the developmental cycle of *Leishmania* protozoa in sandflies, allowing transmission of the parasite in areas not previously endemic for the disease.
- Drought, famine and flood can lead to the massive displacement and migration of people to areas with transmission of *Leishmania*.

Fig. 2. A sandfly endemic area in Urgut, Uzbekistan.



### 3. Disease characteristics of leishmaniasis

Most people infected with *Leishmania* do not develop the disease. In Europe, there are two main forms of leishmaniasis.

- **Cutaneous leishmaniasis**, the most common form, causes ulcers on exposed parts of the body, leaving life-long scars and serious disability.
- **Visceral leishmaniasis** is fatal if left untreated. It is characterized by irregular bouts of fever, weight loss, enlargement of the spleen and liver, and anaemia. Mostly, this form shows no symptoms. Malnutrition, immune suppression, and HIV infection predispose patients to the disease.

Leishmaniasis is a treatable and curable disease. Early diagnosis and effective treatment prevent disability and death. The treatment of leishmaniasis depends mainly on its form and the parasite species involved. There are highly effective and safe anti-leishmanial medicines, particularly for visceral leishmaniasis, and access to these medicines is improving. All patients diagnosed with visceral leishmaniasis require prompt and complete treatment.

Fig. 3. An example of cutaneous leishmaniasis.



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### 4. Leishmaniasis can be prevented

The prevention and control of leishmaniasis require a combination of intervention strategies because transmission occurs in a complex biological system involving a human

host, a parasite, a sandfly vector and, in some cases, an animal reservoir. Key strategies include:

- the control of sandflies to reduce or interrupt transmission of the disease they carry, especially in domestic conditions, through the use of insecticide spray, insecticide-treated nets, and personal protection;
- the control of reservoir hosts, which is complex and needs to be tailored to the local situation;
- effective disease surveillance, which is important for effective public health preparedness and response;
- social mobilization and partnerships, which are critical to engaging the community in behavioural-change interventions through tailored communication strategies and collaboration with key stakeholders and other vector-borne-disease control programmes.



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## 5. WHO response

WHO supports leishmaniasis control by:

- developing evidence-based policy guidelines, strategies and standards for prevention and control, and by monitoring their implementation;
- supporting national leishmaniasis control programmes in building sustainable, effective surveillance systems and programmes to prepare for and respond to epidemics;
- promoting equitable access to health services for prevention and treatment;
- strengthening collaboration and coordination among partners, stakeholders and other relevant bodies;

- promoting research on effective leishmaniasis control, including safe, effective and affordable medicines, diagnostic tools and vaccines.

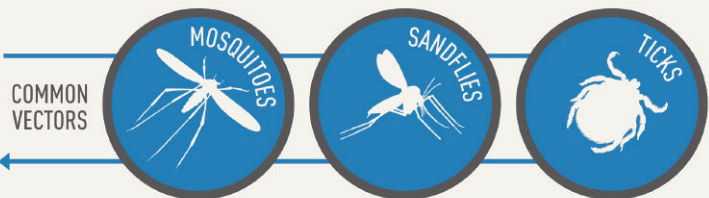
World Health Assembly resolution WHA60.13 (2007) and the WHO Expert Committee report, *Control of the leishmaniasis* (2011), highlight the urgent need for updated information on the burden of the disease in the WHO European Region, paving the way towards adequate policies and strategies for dealing with it at the regional and national levels. Research on the local epidemiology of visceral and cutaneous leishmaniasis has been conducted in Georgia, Tajikistan and Uzbekistan.

### Box 1. What is a vector-borne disease?

- Vector-borne diseases are illnesses caused by pathogens in human populations.
- These diseases are spread by vectors: living organisms that can transmit pathogens between humans or from animals to humans.
- Many vectors are bloodsucking insects, which ingest pathogens during a blood meal from infected hosts (humans or animals) and transfer them to new hosts during subsequent blood meals.
- Mosquitoes are the best known disease vectors. Others include certain species of ticks, flies, sandflies, and fleas.

## VECTORS MAY BE A THREAT TO YOU, AT HOME AND WHEN TRAVELLING

**VECTORS** ARE SMALL ORGANISMS  
THAT CARRY SERIOUS DISEASES



## 6. More information is available

### WHO documents

Berg H van den, Velayudhan R, Ejov M. Regional framework for surveillance and control of invasive mosquito vectors and re-emerging vector-borne diseases 2014–2020. Copenhagen: WHO Regional Office for Europe; 2013 (<http://www.euro.who.int/en/health-topics/communicable-diseases/vector-borne-and-parasitic-diseases/publications/2013/regional-framework-for-surveillance-and-control-of-invasive-mosquito-vectors-and-re-emerging-vector-borne-diseases,-20142020>).

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### External resources

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Assimina Z, Charilaos K, Fotoula B. Leishmaniasis: an overlooked public health concern. *Health Science Journal*. 2008;2(4):196-205 (<http://www.hsj.gr/volume2/issue4/3Leishmaniasis196-205.pdf>).

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Phlebotomine map. European Centre for Disease Prevention and Control [web site]. Stockholm: European Centre for Disease Prevention and Control; 2013 ([http://www.ecdc.europa.eu/en/healthtopics/vectors/vector-maps/Pages/VBORNET\\_maps\\_sandflies.aspx](http://www.ecdc.europa.eu/en/healthtopics/vectors/vector-maps/Pages/VBORNET_maps_sandflies.aspx)).

Gramiccia M et al. The burden of visceral leishmaniasis in Italy from 1982 to 2012: a retrospective analysis of the multiannual epidemic that occurred from 1989 to 2009. *Eurosurveillance*. 2013;18(29):20535 (<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20535>).

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