Fact Sheet
Lymphatic Filariasis

Key facts

- Lymphatic filariasis is caused by three species of parasitic worms and transmitted by mosquito. It is also commonly known as elephantiasis.
- More than 1.3 billion people are at risk, and approximately 65% reside in WHO’s South East Asia Region.
- Over 120 million people are currently infected, and about 40 million disfigured and incapacitated by the disease.
- Lymphatic filariasis can result in an altered lymphatic system and the abnormal enlargement of body parts, causing pain and severe disability.
- Acute episodes of local inflammation involving the skin, lymph nodes and lymphatic vessels often accompany chronic lymphoedema.
- To interrupt transmission WHO recommends an annual mass drug administration of single doses of two medicines to all eligible people in endemic areas.

The disease

Lymphatic filariasis (LF) or elephantiasis is one of the most debilitating and disfiguring scourge among all diseases. It is a major public health problem in many South-East Asian countries. Nine out of the 11 countries in the Region are known to be endemic for filariasis. The infection is caused by helminthic worms inhabiting the lymphatics. Though the disease is not fatal, it is responsible for considerable morbidity causing social stigma among men, women and children. It is usually acquired during early childhood. It mainly afflicts poor people in both urban and rural areas.

Infection occurs when filarial parasites are transmitted to humans through mosquitoes. When a mosquito with infective stage larvae bites a person, the parasites are deposited on the person’s skin from where they enter the body. The larvae then migrate to the lymphatic vessels where they develop into adult worms in the human lymphatic system.

Infection is usually acquired in childhood, but the painful and profoundly disfiguring visible manifestations of the disease occur later in life. Whereas acute episodes of the disease cause temporary disability, lymphatic filariasis leads to permanent disability.

Cause and transmission

Lymphatic filariasis is caused by infection with nematodes (roundworms) of the family Filarioidea. Of all filariasis infections, 90% are caused by Wuchereria bancrofti and the remaining are caused by Brugia malayi and Brugia timori. All the three lymphatic filaria...
parasites viz. *Wuchereria bancrofti, Brugia malayi* and *B. timori* are prevalent in the Region.

The male and female worms together form “nests” in the human lymphatic system and filariasis can cause blockage and disruption to this system. Adult worms can live inside for 6-8 years and, during their life time, produce millions of microfilariae (small larvae) that circulate in the blood and are ingested by mosquitoes that bite the infected human. The larval forms further develop inside the mosquito before becoming infectious to man. Thus, a cycle of transmission is established.

Lymphatic filariasis is transmitted by different types of mosquitoes such as *Culex* mosquito, or *Aedes*. Bancroftian filariasis transmitted by the ubiquitous principal vector, *Culex quinquefasciatus*, is the most predominant infection in South Asia while Brugian infections transmitted by *Mansonia* and *Anopheles* vectors predominate in Indonesian Archipelago.

**Regional burden of lymphatic filariasis**

Globally, an estimated 1.39 billion people live in areas where filariasis is endemic, and 876 million or 63% of them reside in the nine endemic countries in the Region, with Bhutan and the Democratic People’s Republic of Korea as the exceptions. The Region also accounts for approximately 57% of the total global burden of 5.1 million disability-adjusted life years lost due to LF.

**Symptoms**

Lymphatic filariasis infection involves asymptomatic, acute, and chronic conditions. The majority of infections are asymptomatic, showing no external signs of infection, albeit damage is still happening in the lymphatic system and the kidneys as well as alter the body's immune system.

Acute episodes of local inflammation involving skin, lymph nodes and lymphatic vessels often accompany the chronic lymphoedema or elephantiasis. Some of these episodes are caused by the body's immune response to the parasite. When lymphatic filariasis develops into chronic conditions, it leads to lymphoedema (tissue swelling) or elephantiasis (skin/tissue thickening) of limbs and hydrocele (fluid accumulation). Involvement of breasts and genital organs is common.

This disfigurement caused by LF brings with it huge social stigma, leading to economic and social loss. The socioeconomic burdens of isolation and poverty are immense.
Treatment and prevention

The recommended regimen for treatment through mass drug administration (MDA) is a single dose of two medicines given together - albendazole (400 mg) plus diethylcarbamazine citrate (DEC) (6 mg/kg). These medicines clear microfilariae from the bloodstream and kill most of the adult worms.

Mosquito control is another measure that can be used to suppress transmission. Measures such as insecticide-treated nets or indoor residual spraying may help protect populations in endemic regions from infection.

WHO’s response

Lymphatic filariasis as a public-health problem is recognized through World Health Assembly Resolution 50.29 in 1997 which encourages Member States to eliminate LF. Subsequently, WHO launched its Global Programme to Eliminate Lymphatic Filariasis (GPELF) in 2000. The goal of the GPELF is to eliminate lymphatic filariasis as a public-health problem by 2020.

The strategy aimed at achieving this goal is twofold:

- interrupting transmission through annual large-scale treatment programmes, known as mass drug administration, covering the entire at-risk population;
- alleviating the suffering caused by lymphatic filariasis through morbidity management and disability prevention.

Mass drug administration (MDA) and its impact

To achieve interruption of transmission first the disease is mapped to know where to administer MDA then community-wide annual MDA of single doses of albendazole plus diethylcarbamazine, the two drugs used in this Region. MDA should be continued for 4-6 years to fully interrupt transmission of infection, meaning reducing the micro-filarial rate declined to less than 1%.

The impact of MDA in LF elimination is encouraging, with all endemic countries in the region launched their national programme. In 2011, almost 45% of the total 1100 implementation unit (IU) endemic for LF reached the level desired. The Maldives and Sri Lanka initiated verification of elimination of LF in 2011 with WHO assistance. Thailand may follow suit. WHO continues to facilitate the drugs supply and assist the Transmission Assessment Survey (TAS) required to move the programme forward to post MDA surveillance phase.

Elimination of LF has the added benefit of controlling soil transmitted helminthic infections which will contribute in reducing morbidity among the target population,
especially school-age children, the most vulnerable group, and in improving their nutritional status and physical/cognitive growth.

**Morbidity management**

The common disabilities are lymphoedema, particularly of extremities in both males and females and hydrocoele in males. Affected patients are empowered to effectively manage lymphoedema, through simple but rigorous hygiene techniques. Most patients with symptoms require lifelong therapy to alleviate lymphoedema. However, surgery provides a lasting cure for patients with hydrocoels. A public health approach is encouraged for hydrocelectomy. Morbidity management and disability prevention are vital for public health improvement and should be fully integrated into the health system.