

# LYMPHATIC FILARIASIS

## INTRODUCTION

Lymphatic Filariasis, also known as elephantiasis, affects more than 120 million people in 80 countries worldwide, and is an extremely painful, debilitating and disfiguring disease. Found mainly in tropical and sub-tropical climates, the disease is caused by the thread-like parasitic filarial worms *Wuchereria bancrofti* and *Brugia malayi*, which live in the lymphatic system and can cause extreme swelling of the extremities and genitals. More than 40 million sufferers of elephantiasis are seriously incapacitated and disfigured from the disease. More than a billion people around the globe -- 18 percent of the world's population -- are at risk for contracting elephantiasis.

The disease is transmitted to humans by mosquitoes. Mosquitoes bite infected humans and pick up the microfilariae (larvae) which then develop inside the mosquito, hatch, and migrate to the insect's mouth. When a mosquito bites a human, it transmits these newly-hatched larvae into the skin, where they migrate to the lymphatic vessels and live for up to six years. Adult worms release millions of microfilariae that circulate in the blood where they are transmitted to mosquitoes, beginning the cycle again.

The human lymphatic system is a complex network of nodes and vessels that maintain the fluid balance between blood and tissues, and is a critical component of the body's immune system. Elephantiasis severely disrupts this delicate balance and can cause devastating and painful manifestations including severe swelling of the arm, leg, breast or vulva (in women) and swelling of the scrotum and penis (in men). The parasite can often live in the body for years without symptoms, and many of the chronic sufferers with the most severe symptoms tend to be adults, leading many scientists to believe that the disease is usually contracted in childhood and exacts damage slowly over a period of years. Approximately 25 million men have genital swelling from the disease and an estimated 15 million more suffer from lymphedema (swelling) of the leg.

Elephantiasis is closely associated with poverty. It is found in both rural communities and urban slums, and is spread by mosquitoes which tend to breed in these areas. Those with severe symptoms of the disease are often unable to work and may suffer significant social stigma as a result of their disfigurement. Many are ostracized or even shunned by those in their communities.

## DISEASE OVERVIEW

### Risks

- Tropical and sub-tropical climates
- Rural or urban areas where infected mosquitoes tend to breed
- Poverty-stricken areas
- Children

### Symptoms

Initially, no symptoms may be present, but as the disease progresses, some or all of the following may occur:

- Swelling or hardening of the skin
- Severe swelling/lymphedema of the extremities or genitals
- Men can also develop a condition called hydrocele – fluid-filled balloon-like enlargement of the scrotum
- Sometimes, acute episodes of severe swelling can occur in chronic patients (“filarial fevers”)

### Transmission

Infected mosquitoes bite humans and pass microfilariae into the skin. Larvae migrate through the body and settle in the lymphatic system, where they lay eggs that pass into the bloodstream. Worms can live in the body for up to six years, and when they die can cause the severe disfiguring ailments most commonly associated with the disease.

### Treatment

- A combination of albendazole and diethylcarbamazine (DEC)
  - Albendazole is donated by GlaxoSmithKline
  - DEC costs 1¢ per pill
- In cases of acute swelling/lymphedemic episodes, careful cleansing of the skin to remove bacteria can reduce or reverse skin or tissue damage
- There is no cure for the disease, but symptoms can be managed with the current treatment plan
- Currently no vaccine exists for lymphatic filariasis

## DISEASE BURDEN

### Prevalence

- Found mainly in tropical and sub-tropical climates in Africa, India and South Asia, the Pacific and the Americas
- Affects 120 million people worldwide in 80 countries
- Found mainly in poverty-stricken areas of the world

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## Disease Impact

- 40 million people live with painful, disfiguring symptoms that can hinder their ability to work and sometimes ostracize them from society
- Inability to work due to disfigurement from the disease contributes to reduced economic capacity and development
- Over one billion people at risk for contracting the disease worldwide

## EFFORTS AT CONTROL

The World Health Organization's Global Programme to Eliminate Lymphatic Filariasis aims to stop the spread of transmission and to lessen the severity of the disease in those already infected. In those areas suspected to be highly disease-endemic, DEC and albendazole are distributed once a year for up to six years to help stop the spread of infection. Hygiene education efforts are also aimed at alleviating acute episodes of filarial fevers, and have been particularly effective at lessening the social stigma associated with the most prominent outward manifestations of the disease.

## FACTS AT A GLANCE

- Over 120 million people in 80 countries affected
- Forty million people currently living with severe disfigurement or debilitating handicaps from the disease