



Lymphatic Filariasis

Eliminating a devastating global disease

GLOBAL COMMUNITY PARTNERSHIPS



GlaxoSmithKline



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Lymphatic Filariasis (LF), often known as elephantiasis, is a devastating parasitic infection spread by mosquitoes that affects 120 million people in 83 countries around the world.

The disease is one of the world's leading causes of disability and the economic cost of working days lost as a result of LF runs into billions of dollars. LF threatens almost one fifth of the world's population, yet few people outside the affected countries have ever heard of it.

LF is found in the tropical and sub-tropical areas of Africa, Asia, the Pacific, the Middle East and the Americas. It is transmitted from person-to-person via mosquitoes. When a mosquito bites someone already infected with LF, the mosquito ingests microscopic worms (microfilariae), which circulate in the blood. These develop into infective larvae, which later migrate to the mosquito's mouth ready to enter the bloodstream of the next person to be bitten.

Once a person is infected, the adult worm lives for several years, producing millions of immature worms. The adult

worms lodge in the lymphatic system (a network of vessels that regulate the body's fluid and is part of the immune system) causing damage. This can result in chronic swelling of the limbs (lymphoedema) and male genitals (hydrocele). With a compromised lymphatic system, the body is less able to resist common skin infections and a

vicious cycle of feverish acute attacks and painful inflammation results.

Most people are not aware they have the disease until years after the initial infection. Around half of those affected do not have any symptoms but they may still have active infection in their bodies.

Although the disease is not life threatening, infected individuals with physical symptoms are usually affected during their most productive years. The disability and the incapacitating acute attacks leave them unable to work, which leads to a life of poverty. Added to this, those affected are often stigmatised. They can be considered undesirable for marriage, normally an essential source of security.

GSK is one of the founding partners in the Global Alliance to Eliminate Lymphatic Filariasis – an organisation whose sole aim is to free the world of this disfiguring and disabling disease forever.



“None of the success could have been achieved without the unstinting commitment of GSK not only to donate albendazole but also to support a vigorous partnership exemplified by the Global Alliance.”

PROFESSOR DAVID MOLYNEUX, EXECUTIVE SECRETARY, GAELF AND PRESIDENT ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE

The GSK commitment

In early 1998 GSK announced a collaboration with the World Health Organization (WHO) to spearhead a global effort to eliminate LF. This has evolved into a major public-private partnership known as the Global Alliance to Eliminate Lymphatic Filariasis.

As part of our commitment we agreed to donate albendazole, an anti-parasitic drug essential for stopping the transmission of this disease, for as long as was needed to eliminate the disease worldwide.

Albendazole is given in combination with either Mectizan™ (ivermectin, donated by Merck & Co., Inc.) or diethylcarbamazine (DEC). To date (beginning 2008) we have donated over 750 million treatments, worth over \$140 million to 46 countries.

In addition to albendazole we provide Alliance partners with cash grants of around \$2 million a year to help fund coalition-building, monitoring and evaluation, training, education and communication initiatives. The company's contributions are managed by a dedicated team of GSK staff.

A global working alliance

The global elimination of a disease such as LF requires the active participation of many different organisations. Following GSK's LF commitment in 1998, we worked with the WHO and leaders in the LF community to build a public-private partnership to strengthen the elimination programme.

At a meeting in Spain in May 2000 the Global Alliance to Eliminate Lymphatic Filariasis was officially formed. This partnership includes the Ministries of Health from countries affected by LF and over 40 organisations amongst which are donors, international agencies, academic institutions and non-governmental organisations.

The Global Alliance provides fundraising, advocacy, communications and technical assistance in support of the programme's two goals:

1. the elimination of LF as a public health problem by 2020; and
2. the alleviation of physical, social and economic hardship in individuals who have LF-induced disability.

Stopping the parasite

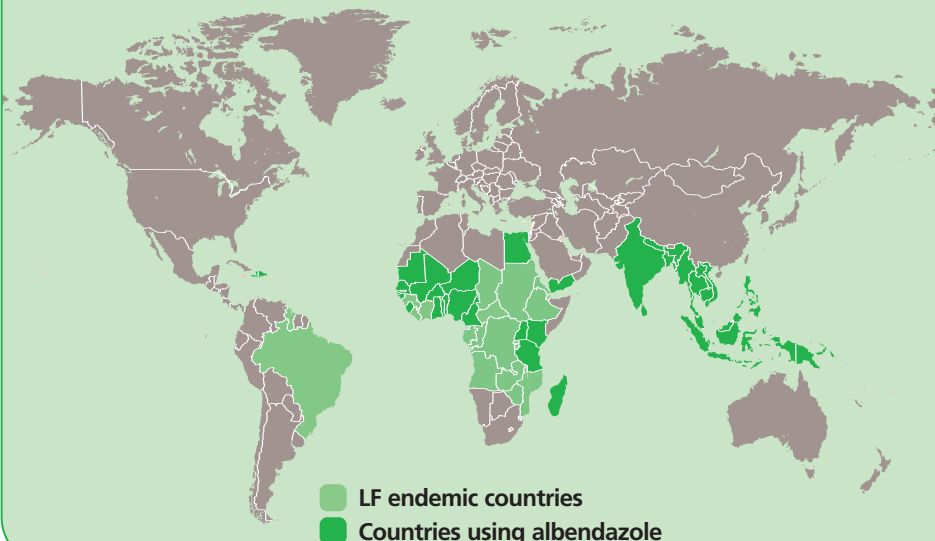
To eliminate LF successfully, transmission between mosquitoes and humans must be interrupted. This requires annual treatment of at least 80 per cent of all at-risk populations with albendazole plus one other co-administered antiparasitic medicine once a year for a minimum of five years.

LF endemic communities in Africa and Yemen which also have onchocerciasis (river blindness) are being treated with albendazole plus Mectizan™ (ivermectin). Communities in other at-risk countries are receiving a combination of albendazole plus the generic drug diethylcarbamazine (DEC).

In both cases, the aim is to suppress the infectious larval parasites in the blood and break transmission of the disease to uninfected members of the community. To do this effectively the programme has to reach out to the remotest communities and ensure that people actually take the medicines. Communities need to be informed of the disease and motivated to prevent it.

For infected people who already display LF symptoms there are disability prevention programmes which teach simple skin hygiene for lymphoedema and provide surgery for male hydrocele. By alleviating symptoms sufferers can begin to resume a normal life, including returning to work.

LF Endemic Countries





Sri Lanka has now completed the minimum five rounds of annual mass drug administration as recommended by WHO

What's been achieved so far?

From the start in 2000 until the end of 2006, over 400 million albendazole treatments have been co-administered in 46 countries. So far, Egypt, several Pacific Island countries, Sri Lanka, Zanzibar and Togo have completed the minimum five annual mass drug administrations as recommended by WHO. They are now undergoing post-programme surveillance and treating residual pockets of infection. Meanwhile other countries are joining the programme or expanding their existing activity to new areas.

It is estimated that 25 million babies have been born in areas undergoing treatment – all of whom have now been saved from the risk of contracting this debilitating disease.

Albendazole has the additional benefit of treating and preventing intestinal worm infections. In some areas of the world more than 90 percent of children are infected with them – anaemia, malnutrition and growth stunting are common consequences. It is estimated that over 50 million albendazole treatments have now been administered to children with intestinal worm infections.

In Tanzania LF patients going through the mass drug administration programme have reported that they are getting better. They say their legs are less swollen, with a reduction in the frequency and duration of their acute attacks. This surprising additional benefit is currently being researched to record and understand it further.

The future

The elimination programme poses a huge challenge; it involves treating over one billion people worldwide once a year for at least five years. Best estimates suggest that six billion treatments of albendazole, worth over \$1 billion, will be required for success.

The success so far achieved will continue as more countries expand their treatment programmes and others initiate national programmes. However, probably the greatest need is to raise global awareness of LF in order to attract additional partners and secure resources to ensure we reach a successful conclusion.

For many centuries LF was a neglected disease because there was little hope of treatment or prevention. This has now changed and there is real hope for both the control of the disease and for those afflicted by it. The goal is to have consigned lymphatic filariasis to history by 2020.

Additionally, several countries are starting to integrate the LF programme with other neglected tropical disease prevention initiatives, thus extending the public health benefits. Several sub-Saharan countries, for example, are distributing treatments for other parasitic diseases including schistosomiasis (snail fever) and onchocerciasis (river blindness), alongside LF treatments.

CASESTUDY

Living with LF – Sultan’s story from Tanzania

At 23 years of age Sultan is an imposing figure of a man. His large muscular frame shows through his reggae t-shirt. Despite this he doesn’t make eye contact; he wears his baseball cap with the brim pulled down over his eyes. He uses his wide leg jeans to cover his affliction, his massive swollen legs caused by lymphatic filariasis.



Sultan began to suffer at the age of 12 years. He started to get pain in his legs, together with unbearable itching and then his legs began to swell. He tried to continue at school but then his condition worsened and he had to leave.

Sultan says that his legs are much smaller when he wakes up in the morning, but by the afternoon he feels they have grown larger and heavier. Although his legs prevent him from leading a normal life, it is the acute attacks that cause him most discomfort. Sultan, like most LF patients, suffers these attacks regularly – once or even twice a month – with each attack lasting anything up to seven days. These feverish attacks make him feel very poorly and make working difficult.

His condition, together with a lack of secondary education, means that he finds it almost impossible to find regular employment. He is therefore self employed and carries water for money, when he can.

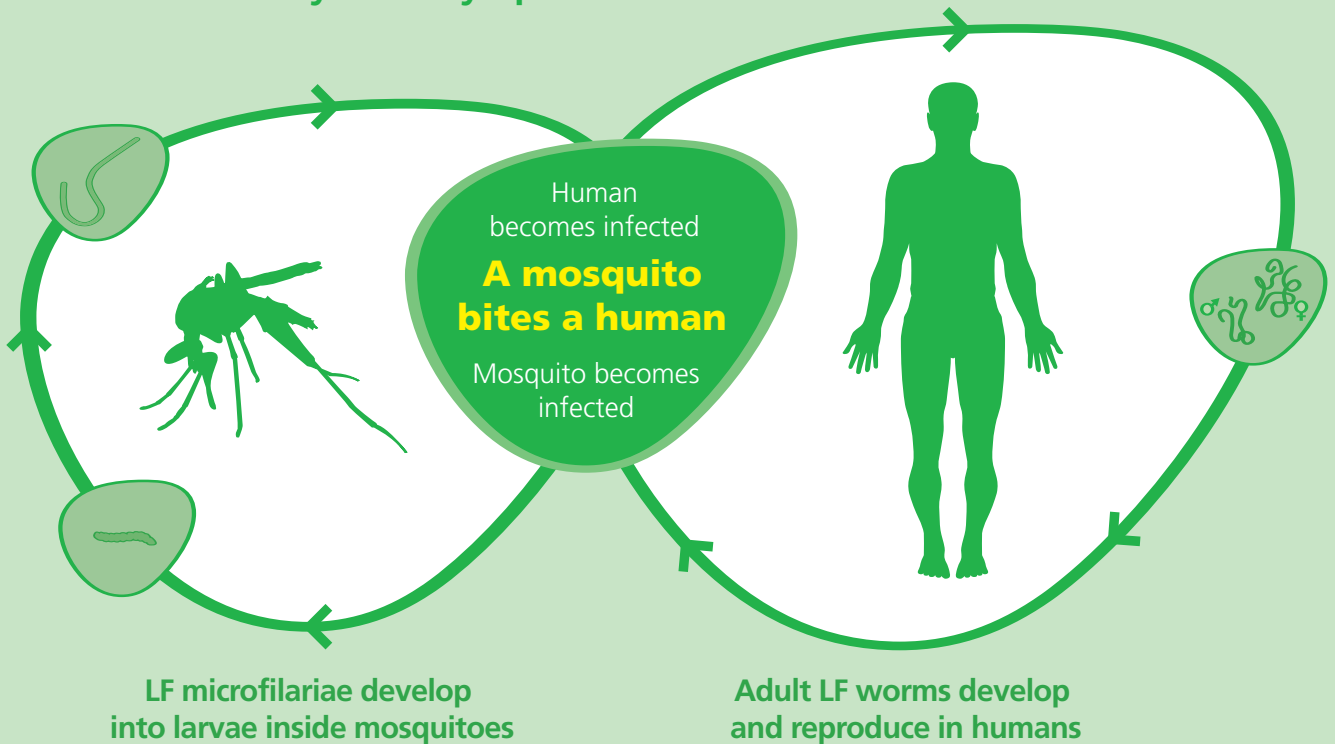
The reactions to his condition from his local community are difficult to



understand and explain. People have different reactions; some are sad for him, others are revolted by his condition.

He has used traditional medicine but it had no effect. The lymphatic filariasis elimination programme has now come to his town, Morogoro, in Tanzania and he is taking part in the mass drug administration. He is also being taught how to care for his legs, which will help him manage and hopefully reduce the disabling effects caused by his condition.

The transmission cycle for lymphatic filariasis



People behind the programme

LF is a disease associated with poverty. Patients frequently endure poor living conditions while the disabling aspects of the illness exacerbate the cycle of poverty as those infected are often unable to work.

In order to rid the world of LF, affected communities need to be educated about the disease and motivated to take the drugs to stop it. This requires dedicated local teams working in remote or inaccessible areas, often in countries already experiencing funding shortages, other chronic diseases and civil unrest.

Setting up and running an elimination programme is a complex process requiring committed programme managers and devoted teams of workers out in the field (many of whom are volunteers). These people are the unsung heroes of this initiative, without them the current and future successes of this programme would not be possible.



GlaxoSmithKline's global mission is to improve the quality of human life by enabling people to do more, feel better and live longer. It pursues this mission not only through the medicines and vaccines it develops and makes available, but also through a wide variety of community programmes.

Website

For more information on GlaxoSmithKline and lymphatic filariasis visit www.gsk.com/filariasis

Contact

Lymphatic Filariasis programme director
Global Community Partnerships
GlaxoSmithKline
980 Great West Road
Brentford, Middlesex
TW8 9GS
UK
Or E-mail: community.partnerships@gsk.com



A FUTURE FREE OF LF
Global Alliance