

# LYMPHATIC FILARIASIS ELIMINATION: A PUBLIC HEALTH OPPORTUNITY

David Molyneux

No public health programme has expanded as quickly as the Global Programme to Eliminate Lymphatic Filariasis (GPELF). Governments in endemic regions increasingly view the programme as a tangible way to address poverty and improve health. The mission of the Global Alliance to Eliminate Lymphatic Filariasis (GAELF) is to bring together a group of international public-private health partners to support GPELF by mobilising political, financial and technical resources to ensure success, and to raise public awareness of LF as a debilitating and disabling poverty-related disease that is eliminable.

## Key words

Lymphatic filariasis (LF)  
Lymphoedema  
Mass drug administration (MDA)  
Public health

Lymphatic filariasis (LF, often called elephantiasis) is recognised by the World Health Organization (WHO) as one of the world's most disabling and stigmatising diseases (WHO, 2001). The disease is caused by a parasitic worm infection spread by mosquitoes that can lead to massive swelling of limbs, breasts and genitals. Considered a neglected tropical disease (NTD), LF almost exclusively affects the world's poorest people. The disease is found in more than 80 countries throughout the global tropics (Michael et al, 2006). Some 120 million people are infected with around one billion at risk of acquiring the infection.

In 1997, the World Health Assembly (WHA) passed Resolution 50.29 calling for the elimination of LF as a public health problem. This resolution was based on research findings (Centre for Disease Control [CDC], 1993; Ottesen, 1994; Addiss et al, 1997; Ismail et al, 1998; Ottesen, 2000), which showed that a combination of two medicines given annually could interrupt transmission between humans and mosquitoes. The drugs used were a co-administration of albendazole and ivermectin for Africa, or albendazole and diethylcarbamazine (DEC) outside Africa.

Following the World Health Assembly resolution, two key events provided momentum to the global elimination effort. The first was the commitment of GlaxoSmithKline (GSK) to donate the drug albendazole to WHO for use by every country that needs it until LF is eliminated. The GSK donation announcement was followed by Merck & Co Inc, with a commitment to expand the Mectizan Donation Program established for the control of river blindness (onchocerciasis) in 1988 to cover countries that had both LF and river blindness.

Mass drug administration (MDA) (Figure 1) of annual treatments has expanded rapidly with spectacular results. WHO reports that over 50

countries have active programmes and some 497 million people were treated in 2008. The total number of treatments delivered now exceeds two billion. Several countries and regions — Egypt, Zanzibar, Sri Lanka, Togo, Vanuatu and other Pacific Island nations — have now completed MDA and moved into a post MDA surveillance phase. In the meantime, evaluation of programmes in China, Republic of Korea, Suriname, Costa Rica, Trinidad and Tobago and the Solomon Islands show that previous interventions have successfully reached



Figure 1. Mass drug administration in Togo.

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a stage where elimination has been permanently achieved.

### Building a global partnership

During the early part of the LF movement, it was recognised that there was a need to create a partnership of the different constituencies interested in the elimination of the disease. This resulted in the formation of the Global Alliance to Eliminate Lymphatic Filariasis (GAELF) in 2000. GAELF is a public health effort that is:

- ▶ Expanding rapidly to achieve global reach
- ▶ Addressing the health of a billion of the poorest
- ▶ Supporting the achievement of several Millenium Development Goals (MDGs)
- ▶ Achieving elimination goals and strengthening health systems
- ▶ Learning from experience and building on scientific progress
- ▶ Building a solid partnership through representation and constituency building.

At the first GAELF meeting in Santiago de Compostela, Spain, representatives from endemic countries, international agencies, non-governmental development organisations (NGDOs), academia, bilateral donors and the pharmaceutical industry donors endorsed the WHO plan for the first phase of the programme.

Since then, the Alliance has met every two years and created a loose governance structure which facilitates representation of all interested constituencies. The Alliance Secretariat, supported by the UK Department for International Development and based in the Liverpool Centre for Neglected Tropical Diseases, works closely with WHO and through an Executive Group to run Alliance affairs on behalf of all partners.

### Helping LF patients and preventing disability

A highly important aspect of the Global Programme is the need to address the effects of the disease on

those who currently show symptoms. In addition to the strategy of MDA which interrupts transmission and hence prevents further infection and symptoms, those disabled by elephantiasis and genital deformity require supplementary care ranging from simple washing and hygiene (Figure 2) to surgery for hydrocele. In addition, there is some evidence indicating that drugs can alleviate or reduce disease symptoms, including the frequency of filarial

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fevers. Financial and other resource constraints currently limit the expansion of this component of the programme.

### Health impact and economic benefits

Detailed analysis shows the overall health benefits since the programme began are remarkable. The annual costs of programme delivery are modest, in light of what even the least developed countries can afford. Costs vary, but in general are less than US\$1 per person, with costs as low as US\$0.10 in Burkina Faso (Goldman et al, 2007).

A recent analysis (Ottesen et al, 2008) of the health impact of the Global Programme indicates that the 1.9 billion treatments delivered to the end of 2007 resulted in some 56.6 million children being treated with albendazole, and 66 million babies were born into areas protected from LF transmission as a result of the ongoing MDA programmes. Around 560 million individuals have been treated for LF in endemic areas, preventing in future nine million cases of hydrocele, five million cases of



**Figure 2. Patient education teaches the importance of washing to maintain skin integrity and reduce the risks of infection.**

elephantiasis and 27 million cases of sub-clinical lymphatic damage (Ottesen et al, 2008).

Worldwide, hundreds of millions of people are infected with intestinal parasites (de Silva et al, 2003). In addition to playing a role in fighting LF, albendazole and ivermectin can prevent the ravages of intestinal parasites. So far, over 310 million treatments of albendazole have been delivered to women of child-bearing age and school children (Figure 3), providing relief from the consequences of intestinal parasites that include malnutrition, maternal anaemia, low birth weight in newborns, excess infant mortality, stunted growth and



**Figure 3. Sri Lankan distributor with school children.**

development, and diminished cognitive performance (WHO, 2002).

Therefore, the LF programme has a much wider reach than its focus on interrupting transmission of one of the most disabling diseases. The programme makes a major contribution to the progress to other MDGs — children's health, maternal health, education, partnership, as well as the other diseases of MDG 6 (human immunodeficiency virus [HIV]/acquired immunodeficiency syndrome [AIDS]), malaria and other diseases).

### A public health opportunity

Few interventions in the area of health have this reach and are so cost-effective. The LF programme has been described as a best health buy in global health.

What has emerged is that:

- ▶ There is country commitment to the programme
- ▶ The intervention has wider health benefits in relation to the MDGs
- ▶ LF is the key platform for the broader NTD agenda, as it emerges increasingly as a global health priority
- ▶ It has been the programme with the greatest reach over the past decade in terms of delivering quality drugs to poor people.

With a goal of global elimination of LF by the year 2020, the programme is at the half-way point. A future free of LF will reduce poverty and bring better health to poor people, prevent disability, strengthen health systems and build partnerships.

The programme is an unheralded global health success story based on country ownership, loose governance of a representative partnership, well-monitored programmes and ongoing science related to programmatic needs.

To build on this success, now is the time for more donors to join the fight to eliminate LF by 2020 and spare future generations from this disease. JL

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### Key points

- ▶ Lymphatic filariasis (LF, often called elephantiasis) is recognised by the World Health Organization (WHO) as one of the world's most disabling and stigmatising diseases (WHO, 2001).
- ▶ Mass drug administration (MDA) of annual treatments has expanded rapidly with spectacular results.
- ▶ A highly important aspect of the Global Programme is the need to address the effects of the disease on those who currently show symptoms.
- ▶ The LF programme has been described as a best health buy in global health.

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