

*Dear Sir,
I am writing*

Lymphatic Filariasis Today

The parasitic disease *lymphatic filariasis* is a major social and economic burden in the tropics and sub-tropics of Asia, Africa, the Western Pacific and parts of the Americas, striking over 120 million people in 73 countries. Although the disease is global in its distribution, approximately one-third of people with this infection live in India. Another third reside in the countries of Africa, and most of the remainder in the countries of South-East Asia, Asia and the Pacific. More than 1.1 billion people – 20 % of the world's population – live in areas where they are at risk of infection from lymphatic filarial parasites (*Wuchereria bancrofti*, 90% of infections; *Brugia malayi*, 10% of infections).

with the hope that you may be able to help me.

In tropical and subtropical areas where the disease is well-established, the prevalence of infection is continuing to increase. This is due primarily to the rapid and unplanned growth of cities, which creates numerous breeding sites for the mosquitoes that transmit the disease. Today, lymphatic filariasis is a significant cause of acute and chronic illness in both urban and rural areas, affecting people of all ages and both sexes, particularly the poor and vulnerable.

The *World Health Report* in 1995 identified lymphatic filariasis as the second leading cause of permanent and long-term disability worldwide. In fact, the true extent of illness and disability due to this infection are only beginning to be quantified. What is clear, however, is that in addition to the direct costs of treating lymphatic filariasis, the enormous indirect losses resulting from incapacitation and loss of labour severely stress household, local and national economies. To this huge economic burden will be added the yet-unquantified effects of the newly-discovered subclinical pathology of the renal and lymphatic systems, affecting all those who have the disease.

Almost half of all people with lymphatic filariasis have overt clinical disease. The remainder harbour infections with hundreds of thousands – even millions – of worms in their bodies, but with the internal damage undetected and untreated.

Lymphatic filariasis

The thread-like, parasitic filarial worms *Wuchereria bancrofti* and *Brugia malayi* that cause lymphatic filariasis live almost exclusively in humans. These worms lodge in the lymphatic system, the network of nodes and vessels that maintain the delicate fluid balance in the tissues and blood, and an essential component of the body's immune defense system. They live for years, producing millions of immature microfilariae that circulate in the blood; these are picked up by mosquitoes that then transmit the infection to others.

Elephantiasis and lymphoedema are the most commonly-recognized consequences of lymphatic filarial infection. Genital damage, especially hydrocoele (fluid-filled, balloon-like enlargement of the sacs around the testes) and elephantiasis of the penis and scrotum in men, and of the breasts in women, occurs much more frequently but is generally kept hidden. More common but only recently recognized is the hidden damage to the kidneys and the lymphatic system of infected individuals.

The visible manifestations of the disease are severe and disfiguring. Lymphoedema and elephantiasis of the limbs or genitals, hydrocoele and scrotal pathology in men, recurrent infections associated with damaged lymphatics, lung disease, chyluria or abnormalities of renal function occur in an estimated 44 million men, women and children. Another 76 million have pre-clinical, internal damage to their lymphatic and renal systems.

In addition to the physical problems it causes, this profoundly disabling disease has serious psychological and social consequences. These include the sexual dysfunction and social exclusion of men afflicted with hydrocoele or other genital abnormalities, and of women with lymphoedema of the breasts or genitals.

The magnitude and worldwide scope of lymphatic filariasis once presented a dismal control prospect. Earlier methods were insufficient to control the disease in many countries. During the past decade, however, significant research advances have led to an increased understanding of the severity and impact of the disease, new diagnostic and monitoring tools and – especially important – new treatment and control methods.

The development of practical, feasible control measures that can be applied on a community-wide basis and integrated with existing public health activities has renewed hope for eliminating the disease and reducing the enormous toll of suffering and loss of opportunity it causes.

*I have a problem
over twenty-four*

Lymphatic filariasis-endemic countries



Eliminating Lymphatic Filariasis: Reasons for Hope

The rapid advances in the field of filariasis over the past decade were among the factors considered by the International Task Force for Disease Eradication in 1993 when they evaluated 94 infectious diseases for the feasibility of eradication, and identified lymphatic filariasis as one of only six diseases considered *eradicable* or *potentially eradicable*.

on my right leg which started swelling with pains years ago.

Both the nature of the disease and the new means available to halt transmission offer hope for elimination of lymphatic filariasis. Humans are effectively the only host for the parasite, and require relatively high exposure to develop the infection. The treatment is excellent, even as the sole means of control. Programmes to eliminate filariasis have already been successful in a number of countries around the world. The low costs for the programme and the potential to integrate filariasis control with other health care activities are also important advantages.

The remarkable advances in diagnosis, clinical understanding, treatment and control of lymphatic filariasis, the successes of recent control programmes, and increasing political commitment led the 50th World Health Assembly in May 1997 to pass a Resolution identifying as a priority *the elimination of lymphatic filariasis as a public health problem*. Elimination can be expected in all countries where the new filariasis control strategies can be implemented.

Controlling the disease

Control of lymphatic filariasis leading to its elimination is based on controlling transmission of the parasite and on preventing or easing the consequences of disease.

Control of transmission. If transmission can be reduced and ultimately interrupted, new infections will stop altogether. Interruption can be achieved by treating the affected population to eliminate the reservoir of microfilariae, by reducing human-vector contact, or both. The specific means for controlling transmission may vary from one area to another. These depend on the parasite-vector situation, the existing health care services and infrastructure, the availability of funds, and local culture.

Control of the effects of disease. Even when microfilariae have been eliminated in an individual, the adult worms and external microbial pathogens can continue to induce lymphatic pathology and secondary infection. Infections can still be symptomatic as they are dying out, and damaged, lymphoedematous limbs are particularly susceptible to bacterial superinfections. Attention to the problems of clinical disease can alleviate suffering and limit disability in infected persons while control of transmission is being established. Experience has shown that these efforts help considerably in enlisting the full cooperation of the public in filariasis control campaigns.

Reasons for Hope: Country Experiences in Control

Since the introduction of the drug *diethylcarbamazine* (DEC) in 1947, a number of countries have made considerable efforts to control or eliminate lymphatic filariasis, generally by using the 12-day DEC treatment regimens formerly recommended by WHO, sometimes supplemented by vector control. Even without the considerably more effective diagnostic and treatment tools available today, these earlier filariasis control programmes demonstrated that success is possible if efforts are both comprehensive and sustained.

Particularly effective were programmes in Japan (from which filariasis has been eliminated), China, Malaysia, Korea and a number of islands of the Pacific. They show what

This time it has grown worse,

can be done given adequate means of control and the will to apply them. In contrast, programmes in some countries of Africa, South

America, the Indian subcontinent and the Pacific had good reduction in filariasis prevalence initially, but when control efforts were relaxed, infection rates soared. Thus, in most endemic countries there has been little recent change in filariasis prevalence even where intervention has been attempted. Both sets of experiences, however, provide useful information in understanding the determinants of success and for ensuring more effective control efforts in the future.

Reasons for Hope: Advances in Diagnosis and Treatment

Filariasis is a field undergoing a rapid expansion of knowledge, the direct reward of investments made in research over the past 20 years. During the past decade these advances have included the development of techniques for examination and identification of hidden damage through lymphoscintigraphy and ultrasonography. The diagnosis of infection and monitoring of control efforts have been made feasible by the development of tools based on antigen and DNA detection. Enhanced understanding of the social and economic impact of the disease has underscored the importance of lymphatic filariasis as a public health problem. We now have an understanding of the disease and the means to control it, making elimination possible. In addition, advances in therapeutics can reduce the suffering and disability caused by this disease.

► Tools for diagnosis and monitoring

The study of lymphatic filariasis has been extremely limited because earlier diagnostic tools were so cumbersome. As a result we do not know the true prevalence and distribution of filarial infection. Until recently the only reliable way to diagnose infection was by drawing blood from patients and identifying microfilariae in the blood with a microscope. In most areas microfilariae can be found in the blood only at night: The need to draw blood between 9 p.m. and 3 a.m. made this diagnostic technique very unpopular both with health workers and the affected communities.

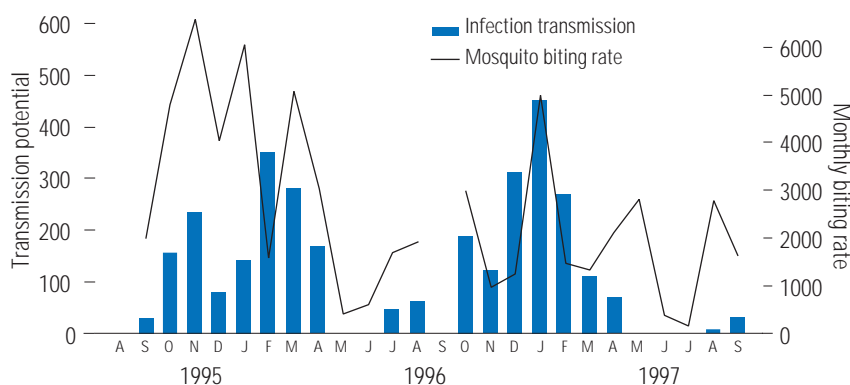
with all the tireless efforts

This difficult diagnostic situation has been transformed by the development of a circulating filarial antigen (CFA) assay that can be performed on finger-prick blood specimens taken from individuals *at any time of day*. It can identify circulating antigens of *W. bancrofti* in all microfilaraemic subjects and in many non-microfilaraemic persons with hidden infections. Two versions of this CFA assay are now available commercially for control programmes, one used for testing in a central laboratory (by the ELISA technique) and the other for testing in the field (by a card test). Since CFA levels decrease to zero after successful treatment of lymphatic filariasis infection, this method will be particularly useful for monitoring the effectiveness of control programmes. Unfortunately, no comparable assay exists as yet for *Brugia* infections.

The second new diagnostic tool detects parasite DNA in infected mosquitoes or human blood using the polymerase chain reaction (PCR). With this test, a technician

can screen 1000 blood samples or 3600 mosquitoes in a day. These PCR assays are highly specific and sensitive. They can provide “same day” results, or samples can be preserved at ambient temperature for months before they are examined. Their main drawback is the need for special training and equipment in a central laboratory with good quality control.

Filariasis transmission: no treatment



► Rapid epidemiological assessment

Rapid diagnostic techniques for *identifying communities with filarial infection* are now required, since the new control strategy no longer focuses on treating just those individuals with diagnosed infection, but on treating all members of an affected community. Among the diagnostic methods being evaluated in on-going research studies are: estimation of infection rates from review of existing health records; questioning for the

to get this undesirable situation off my nerves,

presence of hydrocoele in adult males; examination of mosquito vectors for infection; and evaluation of antigenaemia rates in daytime finger-prick blood specimens from children or other population groups. Further experience is needed with the use of these community diagnostic tools, but they are expected to have enormous practical application at the national and local levels.

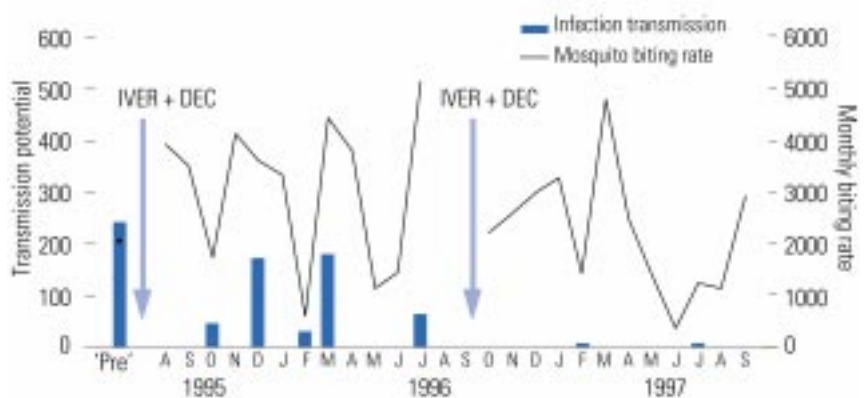
► Models for prediction and evaluation

Predictive models have recently been developed for lymphatic filariasis. These models constitute powerful tools for the analysis, prediction and evaluation of control strategies, as they factor in the complex interrelationships between the parasite and its human and vector hosts, all of which are affected by long-term control measures. Such models have proved to be of great value in guiding and assessing control efforts for other diseases; they are now ready for application to the problems of transmission, intervention and control of lymphatic filariasis.

► Geographical Information Systems (GIS)

Public health resources and disease patterns can be mapped in relation to their environment and existing health and social infrastructures through the use of *geographical information systems*. This technique is increasingly used for evaluation and management in public health. When used in disease control efforts, it provides a flexible and rapid means of analysis, making it possible to visualize and report on diseases more precisely. GIS is now available for use in planning and monitoring lymphatic filariasis control programmes.

Filariais transmission: after 2 rounds of once-yearly treatment



Reasons for Hope: A New Strategy

The new strategy for eliminating lymphatic filariasis is focused on community-based rather than individual treatment, in order to eliminate hidden infections. Vector control should be used only as an adjunct to programmes based on drug administration.

In the new approach, all community members take medication once a year *or* add fortified salt to their diet. The drug treatment is either a 2-drug regimen of ivermectin co-administered with DEC or albendazole, or a 1-drug regimen of DEC or ivermectin alone. The DEC-fortified salt is used daily as a substitute for regular table/cooking salt.

so much money spent has made me go down the drains as poverty has set in.

The limited data available suggest that the yearly treatment programmes should be continued for 4-6 years, and the DEC salt programmes for 1-3 years, to guarantee the elimination of lymphatic filariasis as a public health problem. These estimates may be revised downwards as more information is gained about the long-term effects of these drugs on the filarial worms and on the transmission dynamics of infection.

► The population to be treated

In the new control programmes, *mass drug distribution* is now recommended in those communities where lymphatic filariasis is endemic. In community-wide treatment, the entire population of an area is treated. Individual diagnosis and treatment is no longer necessary.

There is as yet no empirical answer to the question of at *what level of endemicity* mass treatment should be initiated. Some experts have advocated cessation of control efforts when microfilarial prevalence falls below 1% of the population. However, for practical purposes, efforts should be made to treat all those communities where lymphatic filariasis is endemic.

There are three reasons for this. First, premature cessation of control programmes in the past was largely responsible for programme failure and subsequent resurgence of filariasis. Second, the medications most likely to be employed in control programmes have broader public health benefits than those limited to filariasis alone, so their distribution on a community-wide basis can be readily justified. Third, recently-developed predictive models indicate that in areas where the prevalence of infection is very low, only one or two rounds of community treatment may be enough to interrupt transmission, in contrast to the multiple rounds required for high-prevalence areas.

► The drugs for treatment

Three drugs have been shown by intensive investigation to be safe and effective in treating lymphatic filariasis, including both old (DEC) and new (ivermectin and albendazole) anti-filarial drugs. The understanding of how these drugs should be used in control programmes has recently undergone two fundamental shifts. The first came from recognizing that single-dose treatment has the same long-term effectiveness on microfilaria levels as the formerly-recommended 12-day course of DEC. The second came from the discovery that combination treatment using 2 drugs is significantly more effective than use of any of the drugs alone. In addition, the effectiveness of these regimens makes them suitable for annual treatment designed for immediate interruption of disease transmission.

For most countries the choice of medication is open, but in those parts of sub-Saharan Africa where infections with *Onchocerca volvulus* or *Loa loa* are co-endemic with those of *W. bancrofti*, the use of DEC must be avoided, since it can induce dangerous adverse reactions by its rapid destruction of these two other parasites. The recommended treatment in these areas is therefore a yearly single dose administration of either a 2-drug regimen of ivermectin plus albendazole, or a 1-drug regimen of ivermectin alone.



Reasons for Hope: Treatment That Reduces Disease

► Elephantiasis, lymphoedema and acute adenolymphangitis (ADL)

Until recently it was not appreciated just how much could be done for individuals who were suffering from elephantiasis and the chronic clinical manifestations of lymphatic filariasis. In most instances, a sense of hopelessness and the severe social isolation of these individuals led to little active intervention. More aggressive approaches depended on somewhat heroic surgery, and the sheer number of sufferers meant that only a relatively few could benefit from treatment.

Now, however, we recognize that bacterial and fungal superinfections play an extremely important role in triggering the majority of adenolymphangitis episodes in tissues where lymphatic function was compromised from filarial infection. These recurrent episodes themselves cause further damage to the lymphatic vessels and progressively exacerbate the patient's lymphoedema and elephantiasis.

From this new appreciation that damaged tissues are especially susceptible to infection, it follows that preventing infection through simple hygiene measures, supplemented with antibiotics and antifungal agents, can have a profound effect in decreasing the debilitating and damaging episodes of ADL. These same simple hygiene measures even promote repair and recovery of some tissue already damaged by repeated filarial and bacterial infections.

To put such measures into effect in the usually poverty-stricken areas where lymphatic filariasis flourishes requires community health

*The swelling of
with much pains*

Controlling the effects of disease

Simple hygiene can profoundly reduce elephantiasis and associated infections. Basic measures include:

- twice-daily washing of the affected parts with soap and water
- raising the affected limb at night
- exercising, to promote lymph flow
- keeping nails clean
- wearing shoes
- using antiseptic or antibiotic creams to treat small wounds or abrasions, or in severe cases systemic antibiotics.

Such measures help to prevent the development of lymphatic disease in infected persons who are still asymptomatic and to halt its progression in those with slight lymphatic damage. People with advanced lymphoedema or elephantiasis can also be helped by these simple methods, as collateral lymphatic channels can re-establish lymph flow if kept free from secondary infection.

education and the establishment of self-help groups to continue the process. The success of these groups has been considerable. With clinical improvement, people regain hope and enthusiasm to rid themselves of their debilitating and socially-ostracising condition. They strive to prevent further disease development or recurrence, and to spare their children a similar fate. Thus, efforts to control the effects of lymphatic filariasis in individuals complement and help to ensure the success of concurrent mass treatment campaigns designed primarily to stop transmission of infection.



WHO/Bruce Greene

the leg has become rather enormous day in and out.

► Asymptomatic microfilaraemia

A second new approach to disease control stems from the realization that patients with what used to be called *asymptomatic microfilaraemia* must be treated. These individuals have internal organ damage and lymphatic changes, recognized by the presence of blood or protein in the urine, reflecting low-grade, but reversible, renal damage. Their lymphatic systems, when visualized by lymphoscintigraphy, show abnormally dilated lymphatics and abnormal lymph flow. These people require treatment to halt or reverse the damage to vital organs and the development of the more commonly-recognized manifestations of filarial disease.

Reasons for Hope: Country Programmes

► Establishing country programmes

For most countries, control programmes for lymphatic filariasis will be a new undertaking, providing an opportunity to take full advantage of the new tools and methods. In countries where control programmes are already operational but relying on older methods, the recent advances in control methods can be incorporated into existing activities at appreciable cost savings.

The specific details of national control programmes will differ from country to country, but the first steps in establishing programmes to eliminate lymphatic filariasis are common to all. These are: to assess the magnitude of the problem, using the most cost-effective diagnostic and mapping tools available; to design a filariasis control strategy

Surgeons in the teaching hospital have advised

that can be integrated with other health care activities; and to develop a national control strategy and plan of action.

Incorporation of filariasis control activities with on-going public health efforts can contribute to the success of all programmes. For example, in areas where onchocerciasis is co-endemic with lymphatic filariasis and where yearly distribution of ivermectin is already used in control programmes, the addition of albendazole gives the community a means of controlling both diseases. An added benefit is its effectiveness against intestinal worms. Similarly, the addition of yearly ivermectin treatment for filariasis control can be cost-effectively integrated with school-based or other intestinal parasite control programmes already using intermittent albendazole treatment.

CTD's approach to eliminating lymphatic filariasis

In coordination with WHO Regional and Country Offices, and with its Collaborating Centres, CTD assists in:

- Developing national control strategies with each endemic country;
- Designing training materials and workshops;
- Promoting strategies for integrating filariasis control with other public health programmes;
- Securing funds for initiating and sustaining control programmes; and
- Coordinating and monitoring programmes and their effectiveness.

► Managing the programmes

An elaborate management structure is not required for lymphatic filariasis control programmes, particularly when there is good integration with other components of the health care system. Medication costs are likely to be minimal, as all of the drugs for treatment are expected to be available at very low cost.

The new techniques for simplifying and streamlining control activities can be of enormous help in the efficient management of filariasis control programmes. These techniques include:

- rapid epidemiological assessment methods;
- simple drug regimens for control of transmission;
- diagnostic tests detecting antigenaemia or parasite DNA for survey and monitoring needs;

me that such surgery can be perfectly done overseas through a Medical Teamwork.

- predictive mathematical models;
- modern vector control methods to supplement medication-based transmission control;
- disease control methods promoting hygiene, health education and community participation;
- integration of control efforts, particularly annual mass treatment, with other health care activities.

► Control of mosquito vectors

Vector control has traditionally played an important supporting role in the control of lymphatic filariasis. Measures designed to reduce vector biting densities and/or human-vector contact supplement chemotherapy measures to reduce transmission, but cannot be relied on exclusively for filariasis control.

Several current vector control technologies appear helpful in reducing transmission of filarial parasites, but most still require assessment of their cost-effectiveness and validation of their long-term impact through large-scale control programmes.

Reasons for Hope: Cost-Effectiveness of the New Strategy

As the public health and socioeconomic consequences of this disease have become more apparent and as more effective and cheaper methods of epidemiological assessment, mass treatment to control transmission, and means for controlling morbidity have become available, a stronger case can be made for shifting resources toward filariasis control. Previously this disease was often not accorded a high priority by health planners, and was not a part of national health budgets. Now that the nature and expected duration of costs for control are recognized and it is understood that lymphatic filariasis is an infection that can be eliminated, resources are likely to be made available.

Programme costs, estimated from ongoing efforts in a number of different countries, are low. US \$.05-.15 per person per year covers training, initial prevalence determination, treatment, and post-treatment monitoring. In the most remote areas, these costs may be somewhat higher, but a *proven alternative to bring down the costs of filariasis control programmes is to link them with already established public health efforts sharing similar intervention strategies.*

The hospital

Ivermectin is the best drug available today for treating onchocerciasis and scabies, and the combination of ivermectin plus albendazole is probably the most effective available regimen to reduce the burden of intestinal parasites. The cost-effectiveness of each of these public health interventions can be greatly enhanced if the approaches to treatment of lymphatic filariasis, onchocerciasis, intestinal parasites and ectoparasites can be coordinated.

Annual cost of lymphatic filariasis in India

The annual economic losses caused by lymphatic filariasis in India have been conservatively estimated at US \$1.5 billion. Contrasted to this huge amount is the relatively small cost of community-wide annual treatment programmes for filariasis, where a single dose of DEC would be administered for 4-5 consecutive years. Total programme costs for implementing this revised strategy, which began on a limited scale in 1996, averaged Rs 1 per person. If this programme is extended to include all 420 million endemic area residents, the total yearly investment, for the 4-5 yrs required for elimination, approximates Rs 420 million, or US \$12 million. This is less than 1% of the economic burden of lymphatic filariasis to the country.

For example, when the African Programme for Onchocerciasis Control reaches its peak activity, 50 million people per year, many living in areas where lymphatic filariasis is co-endemic, will be receiving a single dose of ivermectin. The addition of a single dose of albendazole to this ivermectin treatment would provide optimal treatment for lymphatic filariasis elimination as well. Similarly,

tens of millions of children are already receiving doses of albendazole each year to treat their intestinal parasite infections. Many live in areas endemic for lymphatic filariasis, and the addition of ivermectin would provide, at the same time, optimal treatment for lymphatic filariasis.

Reasons for Hope: International Support

The costs to countries for filariasis control are low in comparison to other programmes, so that while external support for such programmes will be required by some countries, it will not be required by all. The reallocation of funds already committed to filariasis control using older, less efficient strategies to national programmes based on revised methods will enable even some of the most seriously-affected countries to take on most of the control costs themselves.

For all countries, however, there will be a paramount need to continue to forge partnerships: with WHO Divisions, Collaborating Centres, and Regional Offices; countries engaged in filariasis elimination efforts; pharmaceutical companies furnishing the necessary supplies of drugs; private industries working in the affected countries; and both

doesn't have equipment for such Plastic Surgery here in my country.

governmental and nongovernmental organizations able to support programmes at critical points. Through such partnerships, with their sharing of experience, responsibilities, and resources, filariasis control programmes can begin in all endemic countries, taking advantage of the new, more efficient tools and strategies available and working together to eliminate lymphatic filariasis as a public health problem.

► Control programmes already underway

By early 1996, only a few countries with endemic lymphatic filariasis had national control programmes. Efforts by the WHO Division of Control of Tropical Diseases to share information about the new approaches to filariasis control have led, by early 1998, to the rewriting of national filariasis control strategies in 13 countries (American Samoa, Bangladesh, Brazil, Cook Islands, Egypt, Fiji, French Polynesia, Ghana, India, Niue, Philippines, Samoa and Tanzania). Eight of these have already begun implementation of their revised national filariasis control programmes, including India which has initiated a National Filaria Day for administering DEC yearly. Other countries expressing interest in revising or initiating filariasis control activities are at different stages in the development of their programmes.

The Division of Control of Tropical Diseases is working closely with the Regional Offices, WHO (country) representatives, and WHO Collaborating Centres together with national health authorities to:

- Formulate national control strategies and plans of action;
- Integrate lymphatic filariasis control efforts with public health programmes, including primary health care and community activities;
- Secure funds and obtain supplies of drugs required for initiating and sustaining control programmes;
- Coordinate and monitor programme effectiveness;
- Develop training materials and regional and country workshops to ensure the availability of trained staff.

I therefore kneel and plead to be touched by your for a humanitarian feeling, to try and

► Ensuring the drug supply

The Division of Control of Tropical Diseases, with its partners, is working to ensure the safety, quality, availability and affordability of the drugs that hold such promise for eliminating lymphatic filariasis. It is crucial to the worldwide effort to have these drugs thoroughly evaluated and registered for their eventual use against this disease. Concerned drug manufacturers have generously agreed to help in this global effort.

SmithKline Beecham, plc, (SB), recognizing the extraordinary opportunity to advance public health, has targetted the elimination of lymphatic filariasis as a specific goal of its Community Partnership Programme. Working in a collaborative relationship with WHO it has generously pledged the donation of all supplies of albendazole required by WHO's global programme to eliminate lymphatic filariasis. In addition, to ensure the success of this programme, SB will further supplement its donation of drug with assistance in public health education and training, and with support for logistical and operational research needs.

Merck & Co., Inc., through Merck Research Laboratories, has recognized that ivermectin is especially needed for treating lymphatic filariasis in Africa because of its overlap with onchocerciasis and loiasis, diseases for which community-wide exposure to the alternative drug (DEC) may be unsafe. By making ivermectin available for research programmes to be carried out with the Division, country-wide in scope if necessary, they are making an important contribution to the growing body of knowledge and experience in treating this disease.

The Division is pleased to collaborate with these and other industry members committed to producing drugs that are safe, effective, and affordable, and it will also continue to work with other companies to produce high-quality, low-cost DEC and DEC-fortified salt for lymphatic filariasis control.

The Division of Control of Tropical Diseases is moving forward to make the elimination of lymphatic filariasis a reality. The current challenges include: increasing the number of countries with active, revised programmes; identifying funding for country control efforts already planned but not yet begun; integrating control efforts into broader health care packages; ensuring the continued availability of drugs; convening Regional and sub-regional meetings on epidemiological assessment, programme monitoring, criteria for elimination of infection and intervention modelling; and developing a consortium of

WHO Collaborating Centres in the Regions where lymphatic filariasis is endemic. The focus of these centres will be on activities to eliminate lymphatic

innermost heart do your best to help me.

filarial disease globally, and a network of support will be established through them to assist WHO in serving the needs of countries and Ministries of Health undertaking filariasis control.



Lymphatic Filariasis: Hope for Tomorrow

Without a doubt, advances in science and technology in the past two decades have benefited many people, but this new knowledge must get to the people who need it most. There are many people today who do not have access to the simplest of available technologies. The uncomfortable truth is that successive generations of people in many parts of the world still face lives of ill health and suffering from parasitic infections from birth to death. WHO and the Division of Control of Tropical Diseases is seeking to change this. With sufficient support and partnerships around the world, in 20 years diseases such as lymphatic filariasis will have become a memory.

The commitment to eliminating lymphatic filariasis must be based on the fundamental premise that lack of care today denies people the chance to lead full and productive lives tomorrow. This disabling and disfiguring condition can and must be prevented so that it does not continue to exact its toll of human misery nor slow the process of development through lost opportunities, high costs, and enormous strain on health systems.

Rarely is the translation of knowledge into action so simple and self-evident. Rarely is there such a clear formula for providing effective and affordable treatment to peo-

Sir, I will be looking forward for your co-operation.

ple who so badly need it. But the challenge cannot be met alone. The pressure of limited resources and competing needs threatens to limit people's access to treatment that is finally effective and feasible. The resources and necessary resolve must be found. This requires partnerships at every level, linking the public and private sectors, domestic and international bodies, multilateral, nongovernmental, and community-based organizations.

The evidence shows that a coordinated, well-planned national programme to eliminate lymphatic filariasis can achieve its goal within five years. With programmes in a host of countries already underway, in 20 years the end of lymphatic filariasis as a public health problem can be a reality. Supporting these countries in their efforts today will enable people tomorrow to contribute more effectively to the development of their families, their communities, and their countries. What will make the difference tomorrow is the commitment made today – to eliminate lymphatic filariasis as a public health problem in our lifetime.



God richly bless you. Thank you.

*Yours faithfully,
Victoria*

Lymphatic filariasis, known commonly as elephantiasis, strikes vulnerable people of all ages and both sexes in the tropics and sub-tropics. This widespread, profoundly disfiguring and disabling disease once presented a dismal control prospect. Today, however, remarkable advances in our understanding of the disease and the availability of safe and reliable treatment offer new hope for the elimination of lymphatic filariasis as a public health problem. The treatment is simple and convenient: all community members take medication once a year. Together with its partners, the Division of Control of Tropical Diseases is moving forward to make this effective and inexpensive treatment widely available, and to help countries make the elimination of this disease a reality.

Lymphatic filariasis: Reasons for hope



*Division of
Control
of Tropical
Diseases*



**World Health
Organization**

Lymphatic filariasis: in our lifetime

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The elimination of a public health problem

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