Morbidity management and disability prevention in lymphatic filariasis

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Preface

Lymphatic filariasis (LF) is a chronic infectious disease caused by three thread-like parasites namely *Wuchereria bancrofti, Brugiamalayi* and *Brugiatimori*. The damage of the lymphatic system by these worms and obstruction to lymph flow gradually produces enlargement of limbs, breasts and genitalia, though involvement of genitals is seen only in bancroftian infection. The end result is gross disabilities with associated socioeconomic problems and the LF-related morbidities are now viewed as a great public health problem in the endemic countries.

An estimated 120 million people are infected in 73 countries endemic for LF, and the South-East Asia Region bears a major brunt with 63% of the world's population at risk and 50% people already infected.

A better understanding of the disease, its nature and cause is required in order to tackle and handle the health-related problems faced by the people affected by these diseases. This document details finer aspects of remedial measures to be taken, such as early detection symptoms, diagnosis and methods to prevent further damage and provides algorithms to be followed for morbidity management. This report also highlights the need for community-based programmes to educate, create awareness and proper methods and procedures to be followed in handling such cases along with systematic mapping, follow-up and treatment.

LF is a disease of low mortality and high morbidity. It has acute, chronic and acute-on-chronic phases of clinical manifestations. The acute phase mainly manifests as acute filarial lymphangioadenitis and epididymoorchitis. The chronic stage manifests as lymphoedema, hydrocele, manifestations of lymph stasis, chyluria and tropical pulmonary eosinophilia. The most debilitating problem is periodic attacks of acute dermatolymphangioadenitis (ADLA) superimposing on lymphoedema. The Global Programme for Elimination of LF (GPELF) rests on two factors: arresting transmission of the disease by mass drug administration (MDA) and reducing the suffering due to lymphoedema and hydrocele, through morbidity management. A single dose of anti-filaria drugs consumed once through MDA for 5–8 years resulted in elimination of LF in some countries. Similarly, practising simple methods of regular home-based self-care such as hygiene, elevation, exercise of the affected parts and use of footwear appears to be highly effective in improving quality of life by lessening suffering due to morbidity.

Success in morbidity depends on principles like 'Nothing for the community without the community'. Their ownership and practice, with demand generations for services from the health system is of paramount importance. This needs to be supported by a strong voice against stigma and discrimination.

The content of these guidelines goes beyond the technicalities of medical needs with additional insights into community empowerment, possible access to welfare and economic opportunities and similar issues. If these are adequately explored, the health and quality of life of people affected and their families would be greatly restored.

Acronyms

ACSM	Advocacy, communication and social mobilization
ADLA	Acute dermato-lymphangioadenitis
AFL	Acute filarial lymphangitis
ASHA	accredited social health activists
AWW	*anganwadi* workers
Bm	*Brugiamalayi*
Bt	*Brugiatimori*
BCC	Behaviour change communication
DALYs	Disability adjusted life years
DEC	Diethyl carbamazine citrate
GPELF	Global Programme for Elimination of LF
GA ELF	Global Alliance for Elimination of LF
ICF	International classification of functioning disability and health
IEC	Information education communication
LF	Lymphatic filariasis
Mf	Microfilaria
MDA	mass drug administration
MM	morbidity management
ME	monitoring and evaluation
PHC	primary health centre
PPP	public private partnership
SSG	self-support groups
Wb	*Wuchereria bancrofti*
WHO	World Health Organization
WHODAS	World Health Organization Disability Assessment Schedule
WHOQOL	World Health Organization Quality of Life
7D5L	7 domains 5 levels

Glossary

Chyle	Fat-laden white lymph mostly returning from the lymphatics of the intestine
Chyluria	A condition of passing white coloured urine due to influx of accumulated lymph from engorged lymphatic vessels of the urinary system
Dermatosclerosis	A condition of thickening and hardening of skin due to fibrosis
Chyloascites	Accumulation of chyle in the abdominal cavity
Elimination of LF	A state of bringing the microfilariae rate to below one per cent in blood samples examined. In such a low microfilaraemic state, LF ceases to be a public health problem due to gradual decline of transmission
Elephantiasis	An advanced stage of a grossly enlarged affected part with non-pitting oedema, thickened papillomous skin often bearing nodules and warty growths on the surface
Endosymbionts	These are organisms living together within other organisms enjoying mutual support. In the present context, the symbiont is a bacterium
Eosinophilia	A condition of increased eosinophils in the blood
Epididymitis	Inflammation of epididymis, one of the genital organs of male.
Filariasis	A common term for a group of parasitic diseases called nematodes. Filariasis caused by nematodes mostly living in the lymphatic system is called lymphatic filariasis or LF
Haematocele	Blood in the scrotal sac
Hydrocele	Accumulation of a straw-coloured fluid in the tunica vaginalis, a sac in which the testis rests
Hydrocelectomy	An operation for hydrocele
Hyperkeratosis	Thickening of the outer layer of skin
Hypertrichosis	A tuft of overgrown hair in an unusual site
Larvae	An organism in an early stage of development that differs greatly in appearance from its adult.
Intertrigo	An infection of inter-digital space
Lymphadinitis	Inflammation of the lymph glands
Lymphadenopathy	A condition of enlargement of the lymph glands

Lymphangitis	Inflammation of lymph vessels
Lymphoedema	A chronic progressive swelling of one or more parts of the body due to accumulation of fluid which is gradually replaced by fibrous tissue and hardening of swelling.
Lymphorrhoea	Oozing of lymph on the skin surface from the dilated lymphatics underneath
Mortality	Death due to a disease or other conditions
Morbidity	Suffering due to a disease or other conditions
Nematodes	A group of organisms having unsegmented, cylindrical bodies, often narrowing at each ends, and including parasitic forms such as filarial worms
Microfilariae	Microscopic baby forms of filaria worms
Occult filariasis	A condition in which the classical manifestations of filariasis are absent. Microfilariae are not present in the blood, but present in other tissues as that of lung. Tropical eosinophilia is such a condition
Oedema	Swelling of any part of the body due to accumulation of fluid in the tissue
Orchitis	Inflammation of the testis
Papillomatosis	A condition in which the skin surface shows minute warty growths on the surface
Paronychia	Nail infection
Pyocele	Pus in the scrotal sac
Vector	An agent, such as a mosquito that carries disease-causing microorganisms from one host to another

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1. Introduction

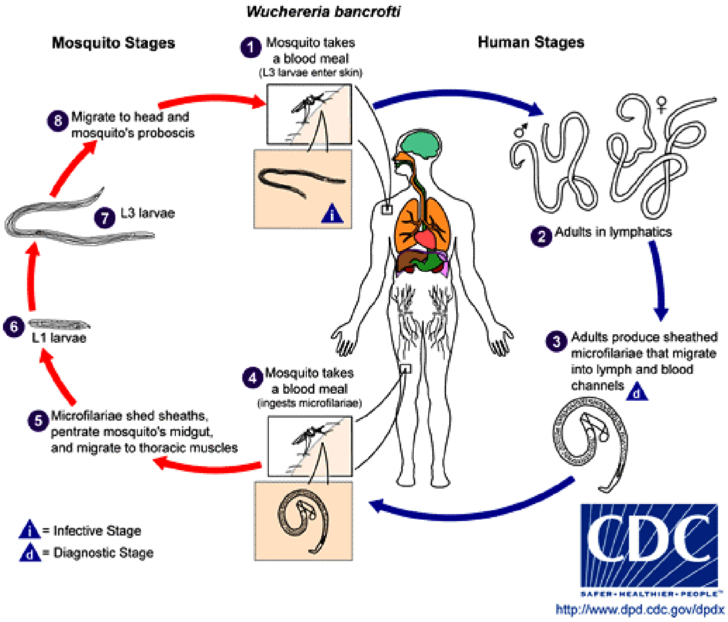
1.1 Lymphatic filariasis

Lymphatic filariasis (LF) is a chronic infectious disease spread worldwide. It is highly disabling and stated to be the second leading cause of long term disability and socioeconomic consequences in the world[1]. It is one of the neglected tropical diseases with high potential for elimination, due to better understanding of various factors and availability of newer tools[2]. Though the disease burden is high in the South-East Asia Region, strong political commitment and highly effective programmes have resulted in elimination of LF in some of the endemic countries. LF is a disease of low mortality but it is a global public health problem because it causes severe disabilities and socioeconomic problems. Disability alleviation continues to be a priority in the Region and there is immediate need to strengthen the morbidity management in these countries.

1.2 Agent and transmission of the disease

LF is caused by three nematodes, *Wuchereria bancrofti, Brugiamalayi* and *Brugiatimori*. These three species of parasite infect the human lymphatic system and are transmitted by *Culex, Anopheles* and *Mansonia* mosquito vectors[3]. About 95% of the disease is caused by *W. bancrofti*, in the SEA Region and the rest by *Brugiamalayi* and *Brugiatimori*.

Female mosquitoes suck the microfilariae during their blood meal. These microfilariae develop within the mosquito body through four stages and change into infective larvae within 2–3 weeks. These enter a healthy person during the next blood meal and the person gets infected. These larvae become adult male and female within a period of 8–12 months and starts producing microfilaria and continue the cycle. The adult worms live for a period of 5–8 years.



http://www.dpd.cdc.gov/dpdx

As a new dimension to lymphatic filariasis, an endosymbiont named *Wolbachia,* was demonstrated in the parasites and their microfilariae. This bacterium is found to be responsible

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[1] WHO Report of the Intercountry meeting of Lymphatic Filariasis Programme Managers, South-East Asia Region, New Delhi. 5–7 May 2005.

[2] The Regional Strategic Plan for elimination of Lymphatic Filariasis 2010–2015, WHO SEAR.

[3] Mc Mohan, J E, Simonsen P E, Filariasis, Ch.17, Manson's Tropical Diseases, Edition 20, Gordon Cook, W.B. Saunders, 24-28, Oval Road, London NW1 7DX, 1999, Pp 1321-1368.

for growth, viability and fertility of the parasites. Their liberation into the blood due to the death of parasites causes inflammatory reactions[4].

1.3 Disease manifestation

Lymphatic filariasis as a disease has a wide spectrum of clinical manifestations starting from few nonspecific symptoms to highly debilitating disabilities. Broadly, it has acute and chronic manifestations.

Acute filarial lymhangitis

After bite of an infective mosquito, the infective larvae enter the lymphatics and develop into adult males and females. The initial acute symptoms develop as a response to these adult worms both living and dead. The main clinical features are fever, skin rashes, inflamed red streaks on the skin, pain, swelling in axillae and groins due to lymph adenitis, mastitis in female and affection of male genitals resulting as orchitis, epididymoorchitis and funiculitis. These features generally manifest within six months to one year of infection.

Chronic or obstructive stage

The chronic and obstructive stage starts after 10–15 years of the acute stage. Due to obstruction, there is accumulation of fluid producing oedema. In the initial period, the oedema is pitting on finger pressure and subsides on elevation of the part. This condition is known as lymphoedema (grade I). The organs affected are feet, hands, breasts, scrotum and other genitalia of both sexes. Subsequently, the swelling becomes non-pitting, and remains irreversible on elevation (grade II). Gradually the overlying skin becomes thickened; rough, hard and folded (grade III). In the advanced stage the creases of skin folds become deeper and invisible; skin becomes papillomatous, hypertrichosis and in some cases knobs and warty growths are observed. Such large disfigured state of the limb is called elephantiasis. Hydrocele is a chronic condition in male in which there is excessive collection of a straw coloured fluid in tunicavaginalis - a two layer sac which holds the testis and epididymis. The scrotum enlarges to various sizes, in rare cases obliterating the entire penis. The overlying skin also becomes thickened and hard with accompanying problems of lymphoedema.

Acute dermatolymphangio adenitis (ADLA)

This acute chronic inflammation episodically occurs in cases with lymphoedema. Due to derangement of lymphatic function and resulting weak body defence, the limb with lymphoedema is prone to repeated bacterial and fungal infections. The resulting acute attacks are not only sources of great suffering, but also cause increasing disability and accompanied socioeconomic problems.

Lymph stasis

Obstruction to lymph flow causes accumulation of lymph known as lymph stasis. Problems due to lymph stasis are rupture of dilated lymphatics resulting in chyluria, lymph scrotum, chylocele, chyloascitis and chylothorax.

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[4] Keisar PL, Nutman TB. Update on lymphatic filarial infections. Current Infectious Disease Reports. 2000; 4:65-69

Tropical pulmonary eosinophilia (TPE)

TPE is an example of occult filariasis, in which the classical manifestations are not present and microfilaria are not found in blood, but mostly in the tissues of lungs. Peripheral blood shows high count of eosinophils with chronic cough and wheezing, turning more severe at night.

1.4 Regional disease burden and progress in the SEA Region

Lymphatic filariasis is one of the Neglected Tropical Diseases (NTD) and has emerged as a public health problem. It is the second leading cause of disability in the world with 15 million people suffering from lymphoedema (elephantiasis) and 25 million men suffering from hydrocele.

Currently, it is estimated that 120 million people in 73 countries are infected and 1.393 billion people live in endemic areas requiring mass drug administration (MDA). Among the 73 endemic countries, 53 are implementing MDA to interrupt transmission, of which 12 countries have moved to a post-MDA surveillance phase. During 2000–2011, more than 3.9 billion doses of medicine were delivered to a targeted population of 952 million people[5].

The WHO epidemiological record[5] indicated that, in the South-East Asia Region, out of the 11 countries, 9 are endemic for LF. The endemic countries are Bangladesh, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste with 63% of their population under the risk and requiring MDA. In 2011, overall 570.1 million people in the Region were targeted for MDA and 414.1 million (72.6%) were treated. The total number of people treated increased by 33.7 million between 2010 and 2011. This increase is due to higher acceptance of MDA by the people from India, Indonesia, Myanmar, Nepal and Thailand. Maldives and Sri Lanka are in post-MDA surveillance phase and proceeding for verification by conducting transmission assessment surveys. As a result of MDA, more than 200 implementation units reached <1% microfilaraemia prevalence after completing >5 rounds of MDA ending in 2011. Lymphatic filariasis is the cause of high economic burden in the Region. In 2002, it was estimated that LF is responsible for the loss of 4.4 million Disability Adjusted Life Years (DALYs) in men and over 1.3 million DALYs in women[6].

The review on morbidity management adopted by the Global Programme to Eliminate Lymphatic Filariasis (GPELF)[7]analysed the major clinical manifestations of acute inflammatory episodes, lymphoedema, hydrocele, along with their economic and psychological impact focusing on costs, productivity, quality of life, stigma and other aspects. The review also indicated cost-effectiveness of basic lymphoedema management and benefits of hydrocele surgery in filariasis-endemic areas. It emphasized the value of additional research to 'scale up' morbidity control and disability alleviation programmes at the national level and to document the extent to which antifilarial drug treatment influenced the course of filariasis-associated disease. Considering the present situation and the progress in addressing the disease, GPELF set the target to reach elimination by 2020.

2. Elimination of lymphatic filariasis

The strategic plan 2010–2020 has been formulated focusing on interrupting transmission by 2020 and providing basic care to all people suffering from LF-related morbidity.

It also addresses the specific challenges of MDA on coverage, scaling up, surveillance and challenges in initiating morbidity-management in all endemic countries. Its focus is to enhance and scale up related services to achieve full geographical coverage and access to lymphoedema management and hydrocele surgeries.

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[5] World Health Organization, Geneva, Weekly epidemiological record, 14 September 2012, 87th year. No. 37, 2012, 87, 345–356

[6] WHO (2002) Global Burden of Diseases

[7] Morbidity Management in the Global Programme to eliminate Lymphatic Filariasis: a Review of the scientific literature – David G Addis and Molly A Brady, Filaria Journal 2007.

2.1 Goal

The goal is elimination of lymphatic filariasis (LF)[8] as a public health problem, from the WHO South-East Asia Region by 2020.

2.2 General objectives

(1) To progressively reduce and ultimately interrupt the transmission of lymphatic filariasis with annual mass drug administration as the core strategy;

(2) To prevent and reduce disability in affected persons through community-based disability alleviation and management.

The current document describes the strategies for managing morbidity and preventing disability. The information with regard to reduction and interrupting transmission is available at Global Programme to Eliminate Lymphatic Filariasis, Progress Report 2000–2009 and Strategic Plan 2010–2020.

3. Strategies for managing morbidity and preventing disability

One of the objectives of the Global Programme to Eliminate Lymphatic Filariasis (GPELF) is to provide morbidity care for those who suffer from disabling clinical manifestations. The infection is stated to occur mostly in the childhood while the disabilities generally manifest after 10–15 years due to the obstruction to the lymph flow and resulting lymphoedema and hydrocele. LF is the most common cause of lymphoedema and hydrocele.

The strategy on morbidity management and disability prevention primarily focuses on the care of acute infections, lymphoedema including elephantiasis and hydrocele. Activities for managing other clinical forms of filarial disease such as chyluria, lymphocele, scrotal lymphoedema, tropical pulmonary eosinophilia, lymphadenopathy and haematuriaare covered under general clinical management since public-health approaches to these issues have not yet been established.

3.1 Goal

The strategic aim for 2020 in managing morbidity and preventing disability[9] is to provide access to basic care for LF-related disease to every affected person in endemic areas.

The strategic goals are:

(1) to alleviate sufferings of people with LF-related disease;

(2) to promote improvements in the quality of life of people with chronic LF-related disease;

(3) to prevent debilitating and painful episodes of acute dermatolymphangioadenitis (ADLA) amongst people with lymphoedema.

The goals of the global programme's morbidity management and disability-prevention are to alleviate suffering among people with lymphoedema, elephantiasis and hydrocele, and to improve their quality of life[10].

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[8] Global Programme to eliminate Lymphatic Filariasis, Progress Report 2000–2009 and Strategic Plan 2010–2020; WHO/HTM/NTD/PCT/2010.6

[9] Managing morbidity and preventing disability in the Global Programme to Eliminate Lymphatic Filariasis, WHO position statement document. WHO/HTM/NTD/PCT/2011.8.

[10] Programme to eliminate Lymphatic Filariasis, Progress Report 2000–2009 and Strategic Plan 2010–2020; WHO/HTM/NTD/PCT/2010.6

3.2 Overall objective

The overall objective is to provide the following package of recommended care to every person with lymphoedema/elephantiasis and hydrocele in areas where LF is endemic:

- providing access to surgery for hydrocele;
- preventing debilitating and painful episodes of acute adenolymphangitis/acute dermatolymphangioadenitis and the progression of lymphoedema and elephantiasis;
- providing antifilarial medicines to help destroy any remaining worms and microfilariae through the use of preventive chemotherapy, such as mass drug administration.

Morbidity management related to lymphoedema should aim at the management of three filarial-related conditions-acute inflammatory episodes; lymphoedema; and hydrocele. Research during the last two decades has confirmed the importance of bacterial infection as the main triggering cause of acute ADLA and also for lymphoedema progression. Simple intervention packages are widely in use and have resulted in dramatic reduction in ADLA episodes and arrested the progress in chronic inflammatory conditions[11].

3.3 Acute inflammatory episodes

The acute inflammatory episodes present with clinical features like filarial fever, pain along the lymph vessels due to lymphangitis, pain and swelling of lymph glands due to lymphadenitis, skin rashes, orchitis and epididymoorchitis in males and mastitis in females. The lymph channels appear as red and painful linear streaks and cords. This is the ideal stage of treatment and may prevent the late obstructive or chronic stages. The second phase of acute conditions are acute attacks occurring on lymphoedema. These are constant sufferings to the patient simultaneously, worsening the size and complications of lymphoedema, making their prevention crucial.

Strategies

- Health education messages to the patients to report on identification of these signs and symptoms;
- Improvement of hygiene and skin care;
- Assessment and management of acute lymphangiitis;
- Capacity-building of the peripheral health staff/volunteers for early management and referral;
- Integration of these activities along with other national health programmes.

3.4 Lymphoedema

Lymphoedema is a chronic manifestation of LF, occurring due to progressive oedema and repeated acute attacks. The organs affected are legs, hands, breasts and genitalia. Obstruction to the lymph flow results in accumulation of extra fluid in the tissue spaces, giving rise to swelling of the part. During the development of growing larvae, lymph channels and glands react to the parasites, which results in blockage of lymph flow. Adult parasites like to form nest and remain in embrace most of the time and are detected in radiography. This causes mechanical obstruction to

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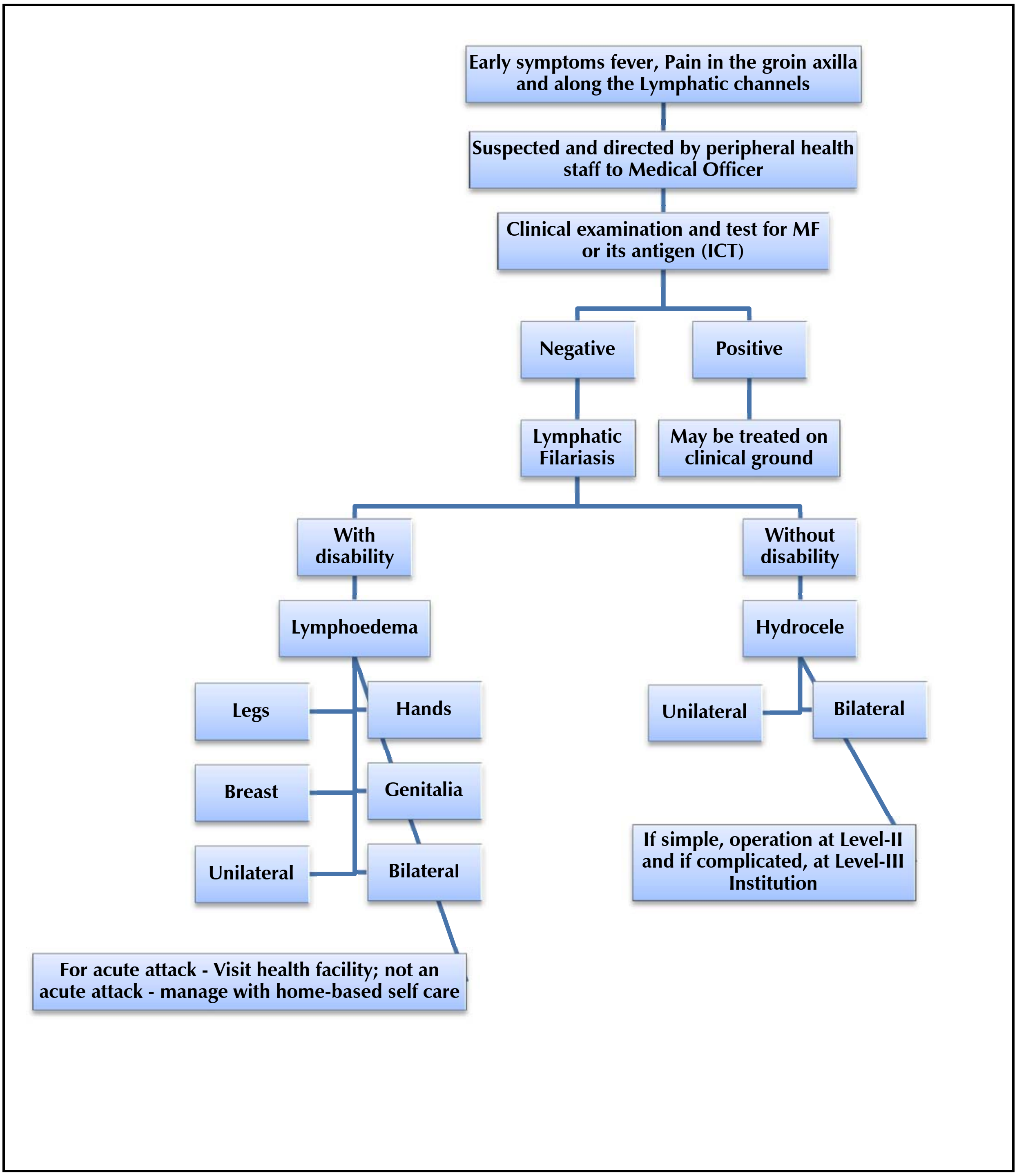
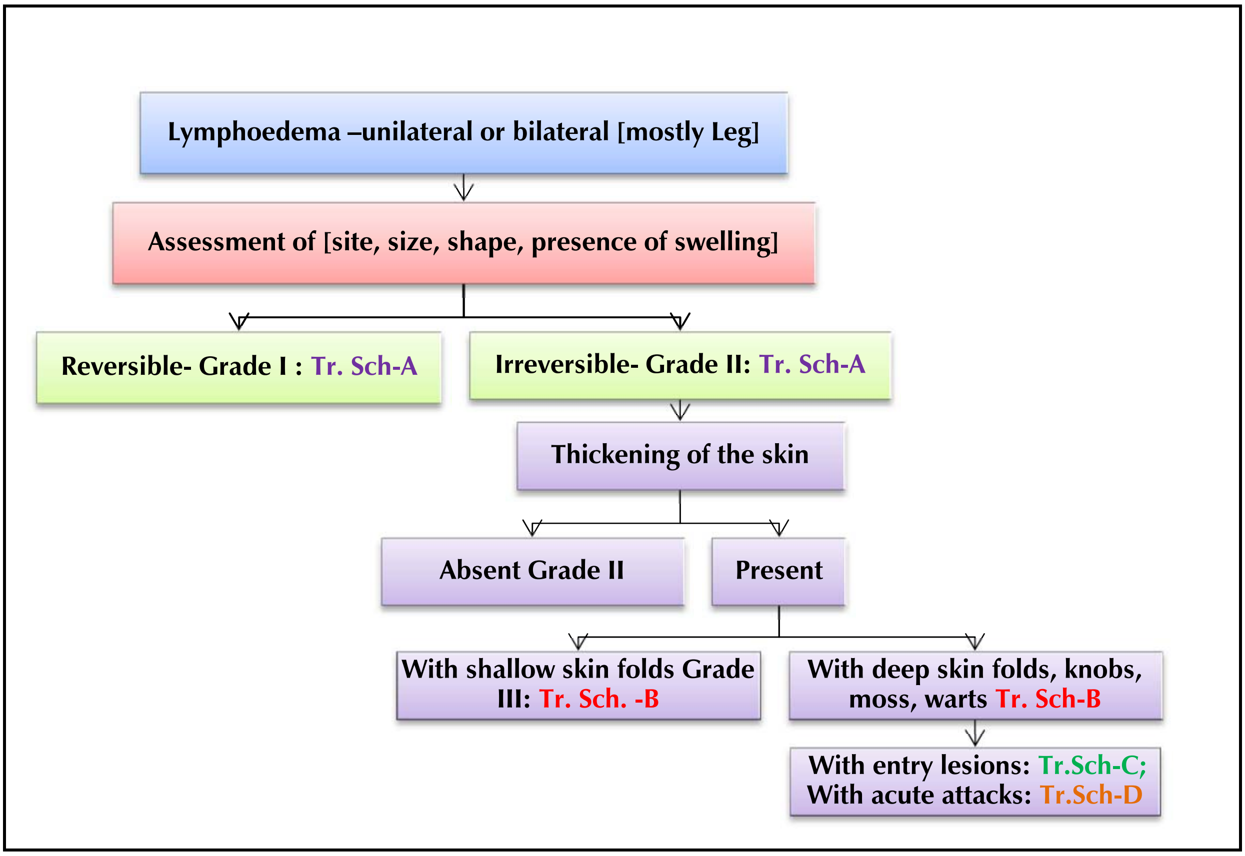
[11] Dreyer G, Medeiros Z, Netto MJ et al. Acute attacks in the extremities of persons living in an area endemic for bancroftian filariasis: Differentiation of two syndromes. Trans R Soc Trop Med Hyg. 1999; 93: 413–417

lymph flow, dilatation of the vessels, exudation of lymph and oedema. Subsequent fibrosis with adipose tissue results in dermatosclerosis and lymphoedema. The fibrosis is sometimes progressive, causing folded skin with deep creases; nodules, warty growths, papillomatosis, hyperpigmentation and hypertrichosis (elephantiasis). This is the most severe form of disease.

Flow chart for lymphoedema management



Flow chart for lymphoedema management (Contd.)



Management/treatment schedules			
Schedule –A	**Schedule –B**	**Schedule –C**	**Schedule –D**
• Skin hygiene, washing & drying • Elevation • Exercise • Footwear • Massage • Bandage • Psychosocial support	• Skin hygiene, washing & drying • Elevation • Exercise • Footwear • Massage • Bandage • More attention, frequency • Psychosocial support	• Early detection • Skin hygiene, washing and drying • Elevation • Exercise • Footwear • Cleaning of entry lesions • Applying anti-fungal or antibiotic creams • Washing with Pot. permanganate if smelling • No scratching/ puncturing • Psychosocial support	• Early detection • Skin hygiene, washing and drying • Elevation, complete rest to the part and person • Cold application • Treating headache, pain and fever • Plenty of fluid • Avoid hot application, exercise, bandaging • Refer if no relief/ worsening • Psychosocial support

Mapping of lymphoedema cases and service facilities

This exercise will include line listing of cases through review of existing information from the health institutions; special surveys and involvement of key informants of the area. Since support of informal care givers is crucial in the home and community-based care for lymphoedema, a list of potential caregivers will be prepared. Detailed information on the status of health facilities and the social and cultural set-up of the area is also required to be listed for designing a home-based care protocol and a strong referral mechanism. To design for a multi-intervention package, a rough estimate of similar disability in the area seems relevant**.**

Grading of deformities

The severity of lymphoedema is graded as described below[12].

- *Grade I lymphoedema*: Mostly pitting oedema and spontaneously reversible on elevation.
- *Grade II lymphoedema*: Mostly non-pitting oedema and not spontaneously reversible on elevation.
- *Grade III lymphoedema (elephantiasis)*: Gross increase in volume in a grade II lymphoedema, dermatosclerosis, holding up skin with papillomatous and warty lesions (elephantiasis).

To reflect the more severe cases, a seven-stage classification has also been developed, based on experience in Brazil and Haiti. WHO has recommended this to be further tested to correlate with simpler clinical approaches that can be implemented by affected persons and community members with limited education. Four additional grades/stages to be added to the existing three are as indicated below[13].

- **Stage 1** : Lymphoedema reversible overnight;
- **Stage 2** : Irreversible lymphoedema with normal skin;
- **Stage 3** : Irreversible lymphoedema with thickened skin and shallow folds whose base is visible;
- **Stage 4** : Irreversible lymphoedema with knobs (bumps and lump);
- **Stage 5** : Irreversible lymphoedema with deep folds whose base is visible when separated by finger;
- **Stage 6** : Irreversible lymphoedema with mossy foot;
- **Stage 7** : With irreversible lymphoedema, disability to do routine activities adequately.

Strategies for management of lymphoedema

Early diagnosis:

Early diagnosis of initial acute infection and prompt treatment is crucial. Particularly, in endemic areas, people should not ignore the clinical features described above. Treatment at this stage is likely to arrest both the transmission of infection and progression to lymphoedema.

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[12] Guidelines on Elimination of Lymphatic Filariasis, India. Directorate of National Vector-Borne Disease Control Programme. DGHS, 22 Shamnath Marg, Delhi. 2009

[13] Greyer G, Addiss D, Bettinger J, Dreyer P, Nroes J and Rio F. Lymphoedema staff manual-Treatment and presentation of problems associated with Lymphatic Filariasis-Part 1 : Learners Guide, World Health Organization, Geneva 2001.

Diagnosis of entry lesions

Early detection of entry lesions and their management prevents acute attacks. The entry lesions include inter-digital fungal infection, small wounds, blisters, minor cuts, paronychia, cracks, fissures, eczema, ulcers, scratches on skin folds and others. During the home visits, the health workers should be keen to detect such lesions, demonstrate to affected persons and emphasize prevention and early care. They should also teach the patients about community home-based care for prevention of disability.

Prevention and care of entry lesions

The strategies to be followed for prevention and cure of entry lesions are early detection, maintenance of hygiene (washing and drying) and local application of antibacterial and fungal ointments. This is ensured by:

- daily examination of skin for entry lesions;
- carefully washing the limb showing entry lesions washed with soap and clean water;
- applications of antibiotic ointment after drying;
- avoiding scratching the skin.

If an entry lesion is severely infected, the affected person should be referred to a doctor for consultation.

Diagnosis of acute attack

The main causes of acute attacks are entry lesions. Awareness-building on entry lesions is required among the persons of lymphoedema and health providers. They must know that the entry lesions allow dirt and germs to enter the skin and cause acute attacks. The symptoms of acute attack include swelling of affected part with pain, redness, local warmth and fever. These features help in early diagnosis. The health worker and LF-affected persons need to be vigilant about signs and symptoms of acute attack.

Management of acute attack

The main steps of managing acute attack are to relieve pain, ensure good hydration and provide rest. These measures are described in some detail. Rest includes resting of the affected person and rest of the leg with lymphoedema. The leg should be rested comfortably in an elevated position. Pain relief is obtained by cooling of the affected limb or other part of the body either by application of clean cloth soaked in cold water and changing it as soon as it becomes warm, or by soaking the affected part in a bucket of cold water. The cooling process should continue until the pain subsides. This can be supplemented by analgesic and antipyretic to bring down the pain and fever quickly. For maintaining adequate hydration, plenty of water should be taken.

During acute attacks, affected persons are advised **not to:**

- exercise (it can be very painful);
- put anything which is warm or hot on the skin;
- open or slit a blister;
- cut the skin for any reason;
- bandage the leg;
- apply herbs, ashes, or anything else on the skin that has not been advised by a doctor or nurse.

A person with acute attack should be referred to the health facility if antibiotics or other measures fail to relieve the symptoms within 24 hours, or if the acute symptoms increase.

Community home-based prevention

Lymphoedema is the main problem in filariasis. It mostly worsens due to negligence in the initial treatment. Once lymphoedema develops, it cannot revert to normal condition after certain stage. But encouragingly, it also does not deteriorate if regular self-care is adopted. A deranged lymphatic system lowers the resistance to infection. If it is infected repeatedly, the condition worsens and it becomes a source of constant suffering. Hygiene of the part prevents infection by fungus and bacteria. If regular care is taken at home, acute attacks are prevented to a great extent. Care of an affected part needs to be taken almost throughout life, often assisted by family and community.

A prerequisite for community home-based care is to entrust a person, either from family, friends or community, apart from the LF sufferer, to assist and monitor the home-based care. The following are the key components:

Inspection:

Every day, the affected part needs to be observed keenly to detect the points/sites of the entry lesions, especially the inter-digital spaces and the skin folds.

Washing:

The affected limb should be washed with clean and cold water with soap in a downward direction. Attention should be paid to the cleanliness of toe web spaces. Cleaning should be gentle, without rubbing. In case of unilateral lymphoedema, the normal leg is to be washed first, followed by the affected leg, whereas for bilateral cases, the more affected leg should be washed first, then the less affected one. The washing should be continued till clear water comes and this procedure is to be performed preferably twice a day, one washing being before going to bed. One should make a daily habit for life time. In the presence of bad smell or infection, potassium permanganate or other antibiotic (@ one gram per litre of water) is added. Use of turpentine oil removes maggots.

Drying:

Drying should be done carefully and gently, being more attentive to affected parts, skin folds and inter-digital spaces. This will reduce moisture, thus minimizing risk of intertrigo. Precaution should be taken not to rub the skin to avoid injury. In case of fungal or bacterial infection, appropriate ointment should be applied.

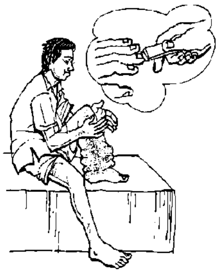
Exercise:

Simple exercises help in lymph flow. The following exercises can be carried out in any place and at any time.

- Rising up and down on toes - this exercise can be done standing or sitting.
- Flexing the foot upwards and making circular movements at the ankle joint.

In case of acute attack, exercise should be avoided.

Massage:



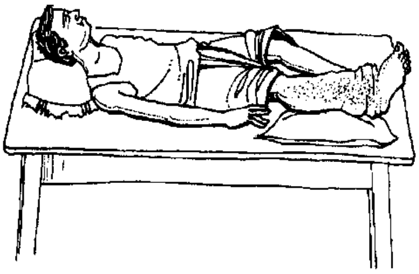
The affected limb is massaged from the foot upwards after applying any of the edible oils. This process reduces swelling by increasing the lymph flow. Simple lymphatic drainage (SLD) is a self-administered process and manual lymphatic drainage (MLD) is a gentle massage technique recognized as a key component of decongestive therapy administered initially under the supervision of a trained person. Massage should be avoided during acute attack. It is advisable to check the nails and trim them to avoid injuries.

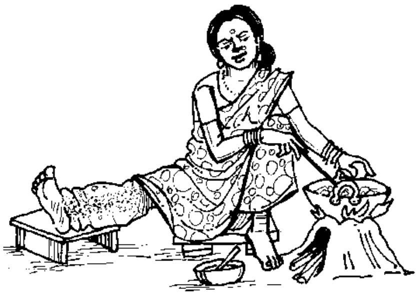
Compression:

Various compression methods apply pressure on the tissue of the affected limb, thus aiding in the natural drainage of excess fluids, and minimizing and preventing increase during acute attacks of swelling. Lymphoedema can be compressed with bandages, compression aids and garments. Compression should be avoided. The massage and compression techniques need to be followed under the guidance of a trained person. In India, it is successfully implemented by the Institute of Applied Dermatology. Further, these practices were acknowledged in the document on best practice for management of lymphoedema[14].

Elevation

Elevation is a simple measure which lessens the suffering due to lymphoedema. It enhances lymph flow from the affected part and enables the affected person to carry out daily activities with more comfort. Elevation can be done by:





- placing a pillow under the mattress or bricks under the cot while sleeping;
- placing a pillow or a folded blanket under affected breast, arm or scrotum;
- placing the affected leg on some support at the level of the waist during cooking, playing, working, breastfeeding and so on.

3.5 Use of footwear

Suitable footwear is essential to protect, keep the foot clean and prevent entry lesions. The swelling being on the dorsal side of the foot and irregular, special modification is essential in designing suitable footwear. It is important to select the right footwear in the right size, because poorly fitted ones can cause more harm than good. Footwear should keep the feet in place while walking, and not be tight. Footwear needs to be prepared only by an experienced shoe technician. The criteria for good footwear are as follows:

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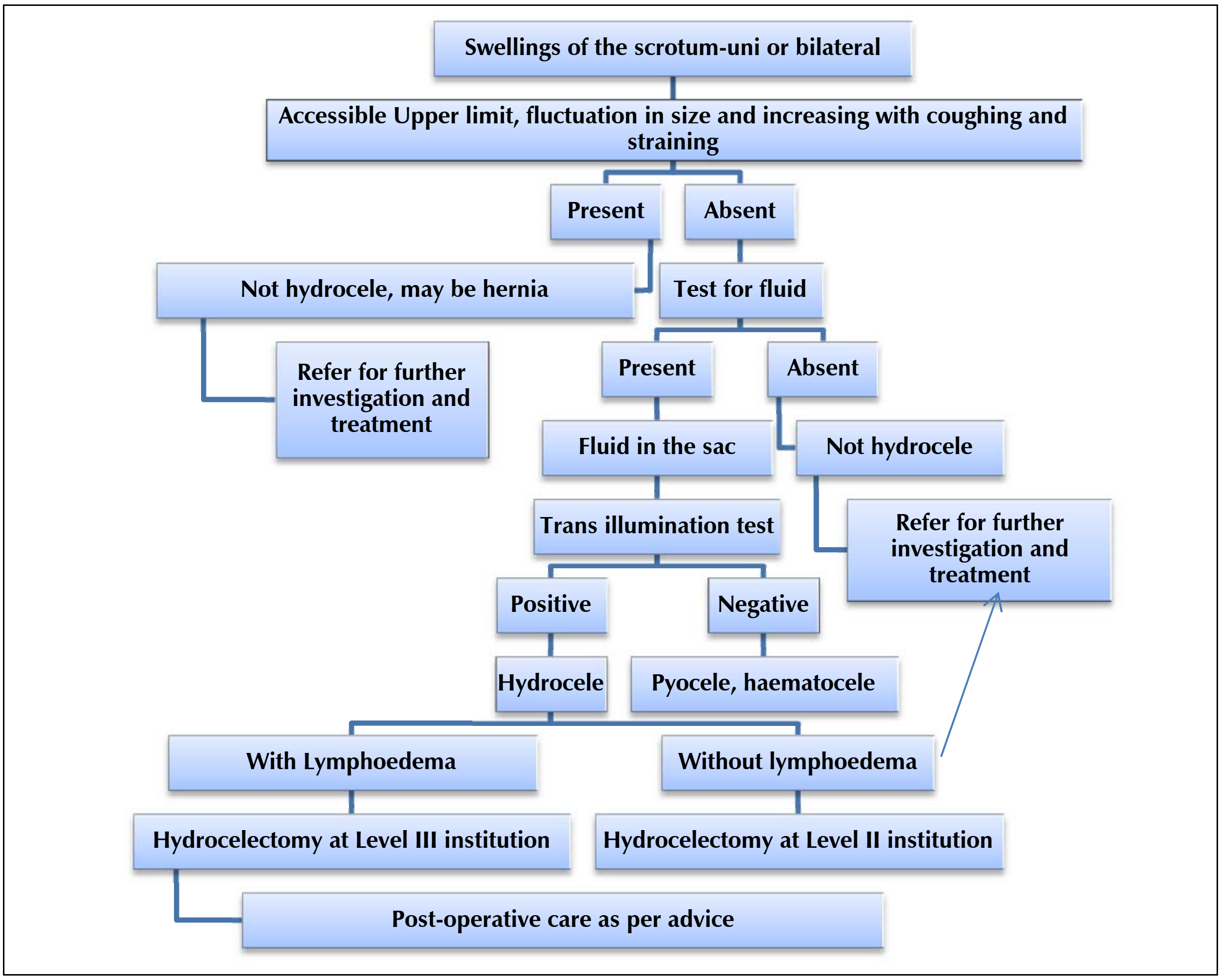
[14] Best practices for the management of lymphoedema, International consensus, London, MEP Ltd 2006

- It should fit like gloves but should not be too tight or too loose.
- It should not slip at the heel and there should be plenty of space at the toes.
- It should not have heels and iron material; nails are not to be used in its manufacture.
- The outer sole should be 10 mm thick with 60 degree shore with inner sole made of EVA, 6 to 8 mm thick.
- Upper straps should be of nylon (woven straps), 1 or 2 inches wide and adjustable with Velcro.

4. Hydrocele

There are about 27 million men with hydrocele worldwide. A hydrocele testis is an accumulation of clear fluid in the tunicavaginalis testis. It may be either unilateral or bilateral or associated with elephantiasis of scrotum. The cardinal signs are a scrotal swelling, getting over it with positive transillumination test. If untreated, it may give rise to complications as ADLA, lymphurea, pyocele, chylocele, haematocele, calcification of the sac, testicular atrophy and rupture of hydrocele.

Flow chart for hydrocele management



4.1 Management of hydrocele

The management of hydrocele is carried out at following three levels of health units[15]:

- **Level I:** At the community level, where patients with scrotal swellings are detected by the health care worker or the patient himself. Once detected, skin care needs to be provided, the patient is referred or reported to level II facility.
- **Level II:** This centre could be a primary health centre or a rural/community hospital with availability of surgical facility with trained surgeon. Surgery is performed for uncomplicated hydrocele.
- **Level III:** These institutions are equivalent to the district hospital, where patients with more serious problems, such as complicated hydrocele can be operated and associated complications tackled.

4.2 Strategy

Mapping and identification of patients

An accurate diagnosis of hydrocele can usually be made solely on the basis of physical findings. A complete examination of the scrotum consists of inspection, palpation, and transillumination is made in every case suspected for this condition. Mapping of hydrocele cases at village level is an important activity and needs to be conducted by periphery and primary health staff for identifying the patients who need surgery. Patient support groups or affected patients are the important stakeholders to be included in the process. The information to be collected includes type, side and size of hydrocele.

Patients and family education

The information pertaining to the importance of surgery, and advantages of follow-up need to be provided through comprehensive education/counselling to patients and family members. This will not only motivate them to accept surgery, but also reduce the anxiety and fear common with many persons.

Public–private partnership

The expertise for surgery related to hydrocele is available in the government institutions of level II and level III. Without mobilizing this technical service this operation is not feasible. On the other hand, NGOs do not have this expertise. Hence, a programme of successful hydrocele operation is feasible only in a public private partnership (PPP) mode. In this approach civil service organizations need to:

- line-list the cases with hydrocele;
- motivate the patients and family to accept surgery;
- scrutinity of patients by willing surgeons of government institutions;
- get operated on a scheduled date;
- assist in follow-up;
- mobilize resources from government or donor to compensate wage loss.

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[15] Global programme for the elimination of lymphatic filariasis, Surgical approaches to the uro-genital manifestations of Lymphatic Filariasis. WHO/CDS/CPE/CEE/2002.33

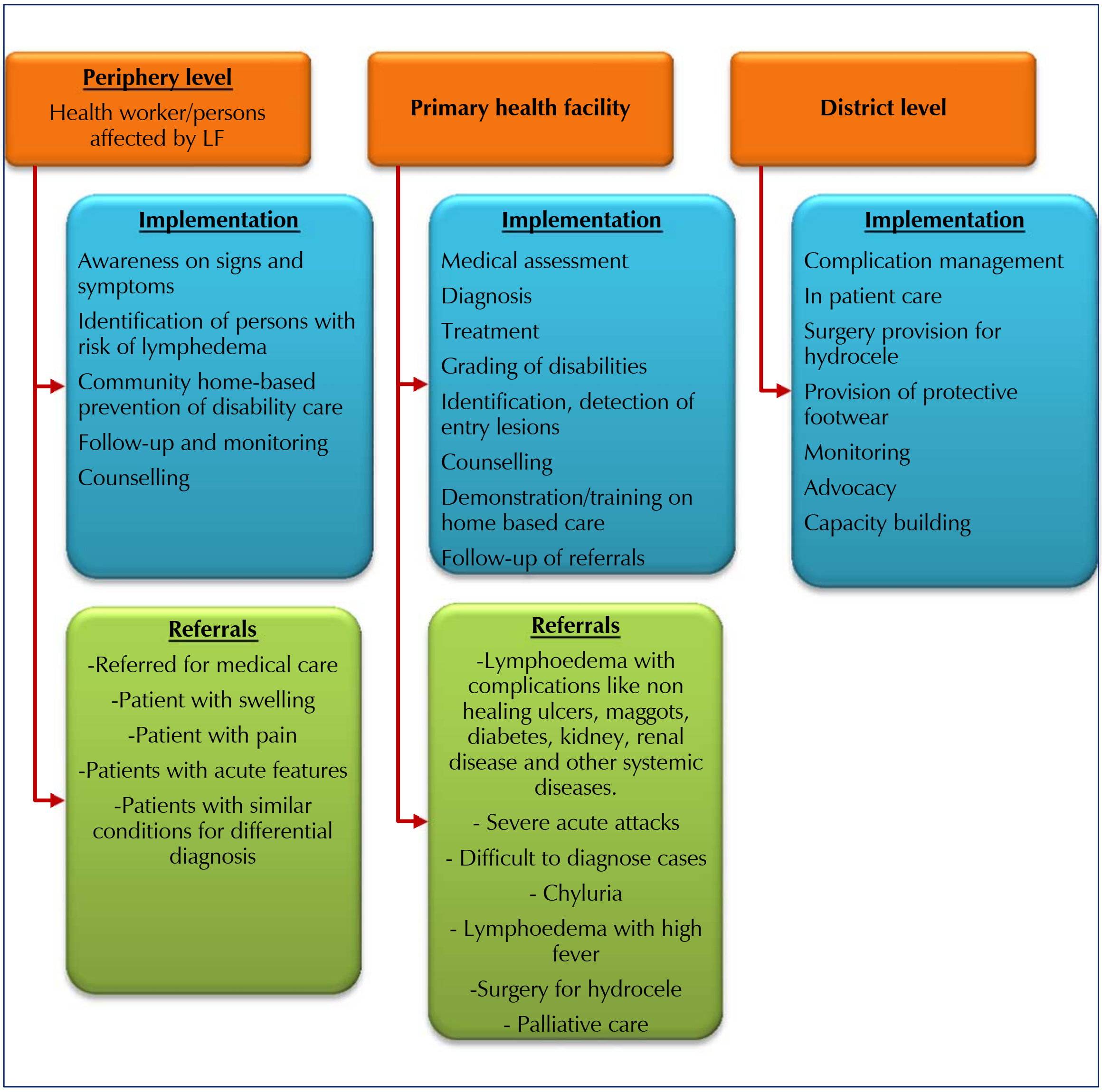
This type of periodic operation camp for hydrocelectomy (and reconstructive surgery for disabled leprosy cases) is being practised in LEPRA projects in some states.

Considering the availability of facilities for surgery, the national programmes may consider involvement of NGOs, trust hospitals and the corporate sector in scaling up the surgery facilities with standard operating procedures for pre-operative care, surgery, and post-operative follow up.

5. Referral system

Even if home-based care is the main stage for arresting lymphoedema, in reality, rare cases worsen to the brink of life-threatening septicaemia needing institutionalized care. Mainstream health providers need to be sensitized in organizing required facilities and affected persons are cautioned about such an eventuality and prompt reporting. As a routine practice, all cases with complications voluntarily report to the PHCs. An organized referral system is necessary to provide suitable service for the problem.

Flow chart for services and referral to cater to the needs of severity of different grades:



Periphery level
Health worker/persons affected by LF

Implementation
Awareness on signs and symptoms
Identification of persons with risk of lymphedema
Community home-based prevention of disability care
Follow-up and monitoring
Counselling

Referrals
-Referred for medical care
-Patient with swelling
-Patient with pain
-Patients with acute features
-Patients with similar conditions for differential diagnosis

Primary health facility

Implementation
Medical assessment
Diagnosis
Treatment
Grading of disabilities
Identification, detection of entry lesions
Counselling
Demonstration/training on home based care
Follow-up of referrals

Referrals
-Lymphoedema with complications like non healing ulcers, maggots, diabetes, kidney, renal disease and other systemic diseases.
- Severe acute attacks
- Difficult to diagnose cases
- Chyluria
- Lymphoedema with high fever
-Surgery for hydrocele
- Palliative care

District level

Implementation
Complication management
In patient care
Surgery provision for hydrocele
Provision of protective footwear
Monitoring
Advocacy
Capacity building

6. Support activities

6.1 Advocacy, communication and social mobilization (ACSM)

Advocacy activities include developing national policies and strategies to support morbidity management and disability prevention, and creating partnerships and collaborations with nongovernmental organizations, academic centres, donors and other partners to synergistically work for the success of the morbidity management. This activity will also reduce stigma in the society. Advocacy activities, taken up at the district level in support with persons with LF-related morbidity is likely to gain community support against discrimination. This will help particularly in sharing with community resources and promotion of greater participation in social activities. Formation of self-support and self-care groups will also be supplementing in this direction. Support will also be mobilized in strengthening action against human right violation and repeal of discriminatory laws. Activities focussing on these issues needs to be taken up with rights-based approach.

6.2 Capacity building

It includes strengthening health systems to ensure that morbidity-management and disability-prevention activities are sustainable. Capacities of the health staff at periphery, secondary and tertiary levels will be developed through training programmes to enhance skills on the following:

- signs, symptoms, causes and risk factors associated with lymphoedema;
- identification of people at risk of lymphoedema;
- assessment of severity of lymphoedema;
- community home-based prevention of disability.

6.3 Health system strengthening

For improved access of the community to the service required for the disease and to sustain the services, initiatives will be taken to train all the cadres of the health functionaries in the operational area. The medical officers, multi-purpose health workers, *anganwadi* workers (AWW) and accredited social health activists (ASHA), of the health unit of the area will be trained and sensitized to promote participate in LF-related service delivery. AWWs and ASHAs are village level health functionaries in India and similar workers/volunteers are likely to be active in other countries as well.

Home-based self-care being the main stay, enhancing the patients' skill will need to be simultaneously addressed. The health workers will make home visit to the LF patients, their families, friends and train them on morbidity management. This would yield good results in reaching more number of patients, developing ownership among the people and encouraging home based care.

6.4 Information education and communication (IEC)

Information Education and Communication (IEC) also plays a major role in increasing the level of awareness on facts of the disease supplements the outcomes of Advocacy, communication and social mobilization (ACSM). Morbidity management programmes need a wider publicity and advertisement through electronic, mass and print media coverage. It is essential to develop IEC to suit the local context. Involving the local community and including its inputs in preparing IEC material has been more effective in enhancing health- seeking behaviour and service compliance.

6.5 Empowerment of persons with lymphoedema (support groups)

To cope with the problem of the chronic condition of LF, strong commitment of the affected person is essential. For sustenance of self-care practice in the community, self-support groups (SSG) needs to take affected persons, AWWs, ASHA and volunteers as members. The self-support groups should meet at regular intervals, creating a platform for promoting self-care practices by sharing information about benefits from self-care practices. A study conducted on 89 LF-affected persons involved in such practices in one of the LEPRA projects has shown very encouraging findings.

Formation of the self-help support groups by the affected persons is found helpful to stimulate and generate personal commitment to sustain personal hygiene and cleanliness of the locality, so essential for “morbidity control". Such initiatives will empower affected persons to be self-reliant and reduce stigma.

7. Multi-intervention package

Integrating disability management for more than one disease

The Regional Strategic Plan for Integrated Neglected Tropical Diseases Control in South-East Asia Region, 2012–2016 emphasizes the need for integrated disability prevention, alleviation, care and rehabilitation for disability-prone diseases like LF and leprosy. Lymphatic filariasis and leprosy are two major neglected tropical diseases with disabling conditions attached with chronic manifestations affecting health, social and economic status. Both the diseases share attributes which are cost-effective and common for disability prevention. The table below provides a glimpse of the above description.

Components	Leprosy	Lymphatic filariasis	Commonalities for Intervention
Mobility	Activity limitation	Activity limitation	Prevention of activity limitation
Commonly affected parts	Foot, hands and eyes	Foot hands and genitalia	Care of hand, foot and other organs
Impairment	Nerve function	Lymphatic function	Need long-time care
WHO grading	Two grades	Three grades	Appropriate care
Preventive measures	Early detection of anaesthesia, care for dryness , cracks and fissures, ulcers	Early detection and care of entry lesions and check acute attacks	Early home-based care to prevent worsening and referral
Self-care and referral for institutional care	Daily inspection, soaking, scraping, retaining moisture, care of skin dryness cracks, wound and ulcer health	Daily inspection, washing, drying, elevation, exercise, skin hygiene, health education to	Daily home-based self-care, skin care, avoid injuries wound and ulcer care; Early referral health education to individual

Components	Leprosy	Lymphatic filariasis	Commonalities for Intervention
	education to individuals and care givers	individual and care givers	and care givers
Medical emergencies	Reactions, neuritis, severe wounds	Acute attacks, ulcers and infections	Fever, swelling, pain and loss of function
Role of surgery	Reconstructive surgery	Hydrocelectomy	Corrections of disability
Protective device for feet	Customized protective footwear	Customized protective footwear	Adequate footwear provision
Need for economic uplift	Associated with poverty, long DALYs and wage loss	Associated with poverty, long DALYs & wage loss	Revolving loan, SSGs formation and linkage with welfare schemes
Social impact	Stigma, prejudices, discrimination, deprived human rights	Stigma, prejudices, discrimination, deprived human rights	Advocacy and social mobilization

8. Monitoring and evaluation - Indicators for morbidity management and prevention of disabilities

8.1 Indicators

Monitoring is a vital element in programme management that enables to gauge the success of the strategy. Proper supervision of each activity and close monitoring and evaluation needs to be built in all aspects, activities and all stages of the programme. This would include assessing results of mapping, reported cases and actual coverage, mid-term assessment/evaluation and impact assessment, including impact of social mobilization, disability alleviation and other activities. All available ways and means of information, education and communication (IEC) and all avenues of advocacy will have to be used to obtain the highest reach to the population.

Major issues with home-based care system depend on a strong follow-up system as monitoring and sustainability crucial for success. If the number of cases is more than five, community home based care is suggested and if less than five in addition to this family home-based care or institution-based care are other preferable options. In the former, a community care provider monitors and in the latter, informal family carers monitor[16]. This would include assessing results of mapping, reported cases and actual coverage, mid-term assessment/evaluation and impact assessment, including impact of social mobilization, disability alleviation and other activities.

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[16] World Health Organization. Preventing and managing disability related to lymphatic filariasis at implementation level. F3-87-11 DISABILITY MANUAL

Strategies	Indicators
Reduce disabilities of LF through morbidity management	1. Percentage of countries that have implemented morbidity management programmes. (i.e. countries systematically collecting and reporting data on morbidity management) 2. Percentage of countries classified by coverage of morbidity management services and access to basic care 3. Population of the country
Capacity building of health workers	1. Number of existing service providers trained in morbidity management 2. Number of new service providers trained in morbidity management 3. Population of the country
IEC activities	1. Number of countries having LF as one of the IEC components. 2. Number of countries with LF morbidity management as a component of IEC
Advocacy and social mobilization	1. Number of countries having advocacy programmes on LF 2. Number and type of advocacy efforts made by each country 3. Number of countries with social mobilization programmes in place for LF
Managing morbidity and ensuring timely access to health care services	1. Estimated number of existing LF cases at the end of the year 2. Number of new LF cases identified during a year 3. Percentage of people undergone hydrocele surgeries among LF affected and needing surgery in a year 4. Percentage of LF persons wearing protective footwear among the needy in a year 5. Number of follow-up visits conducted by the health workers per 100 affected persons in one year 6. Percentage of reduction in incidence of acute attacks
Morbidity management through home-based care	1. Number of affected persons trained on morbidity management in a year 2. Number of family members trained on morbidity management in a year 3. Proportion of LF-affected persons practising regular self-care in the given year 4. Number of LF support groups formed in a year
Rehabilitation	1. Number of countries with identified LF rehabilitation programmes. 2. Number of affected persons rehabilitated in a year

8.2 Registers and reporting formats

The following is the list of registers and reporting formats that need to be implemented at district, primary health centre and health worker levels:

(1) patient register

(2) line listing of patients

(3) reporting formats for lymphoedema morbidity management and hydrocele cases [yearly/half yearly/quarterly/monthly]

(4) training register

(5) referral register

(6) follow-up register

Doc. No	Name of the document	Level	Purpose	How it will be used
1	Patient card	Periphery/ district	A patient card will be provided to the health workers to make a record of persons having manifestations of filariasis such as lymphoedema, hydrocele, etc.	To identify the activities/services required and to plan follow up visits
2	Line listing of patients	Periphery	To record and line list the new cases in the coverage area.	Incidence and prevalence of LF cases
3	Reporting format for lymphoedema morbidity management and hydrocele cases	State/district	Summary of the cases identified during the quarter and details of morbidity management	To know the magnitude of the problem, decision-making, plan and implementation of activities
4	Training register	District	Information about medical and para medical trained on LF, morbidity management	To enhance the skills of the health staff, medical and para medical staff to deliver services to the patients
5	Referral register and format	Periphery/ block	To refer the patients to access services and care	For early identification and treatment
6	Follow-up register	Periphery	To track the patient information, treatment adherence, self-care	To know the progress and improvements

8.3 Measuring tool for LF-related disabilities

Disability measurement tools, presently applied in LF, namely: ICF (International classification of functioning disability and health), World Health Organization Disability Assessment Schedule (WHODAS), World Health Organization Quality of Life (WHOQOL), are more generic[17]. LF affects the social life of the individual, hence 'social participation' as an additional domain was incorporated in an already existing tool 6D5L[18] to evolve the latest 7D5L version[19]. This instrument comprises seven health domains (mobility, self-care, usual activities, pain anxiety/depression, cognitive function and social participation) that encompass physical, mental and social aspects. The severity of each domain is scored assigning '0, 1, 2, 3 and 4' for 'no, hardly, somewhat, quiet and extreme bothering' respectively. The total score for seven domains ranges from 0 to 28 representing either no problem or severe problem respectively. The table for recording the findings would be as under:

7D5L for L4 (for example)						
Extent of bothering	**Domains**					
	Mobility	**Self-care**	**Normal activity**	**Pain**	**Anxiety**	**Social participation**
Extreme						
Quite						
Somewhat						
Hardly						
No						

An affected person may be suffering from either lymphoedema or hydrocele or both. Some may have ADLA with single or multiple attacks. Through an appropriate questionnaire the information in each of the seven domains, from any of the six grades of lymphoedema and hydrocele can be captured. The disability weight of a person can be captured in a table (given below) through a visual analogue scale and averaged as detailed in the article. For applying this new tool, disability was graded in ascending order as L1, L2, H1, L3, H2, L4 and ADLA (H for hydrocele and L for lymphoedema). The other tools generally used in LF are ICF together with P scale and SALSA scale), WHODAS (12 self-assessing questionnaire) and WHOQOL brief. The feasibility of field use has not been adequately tried.

9. Role of partners

Partnership is a cornerstone of public health programmes. The LF programme works in close partnership with a wide array of national, international agencies. In order to be successful, the morbidity management programme requires the full involvement and coordination of all the following partners:

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[17] Zeldenryk L, Gordon S, Gray M et al. Disability Measurement for Lymphatic Filariasis: A review of generic tools used with morbidity management

[18] Mahapatra P (2001) *Estimating National Burden of Disease: The burden of disease in Andhra Pradesh 1990*. Institute of Health Systems, HACA Bhawan, Hyderabad, India

[19] Krishna Kumari A, Krishnamoorthy K, Harichandrakumar KT, Das LK. Disability weight for different clinical manifestations (2008). Journal of lymphoedema, 2008; 3 Supplement:12-15

Role of partners in morbidity management and prevention of disabilities in LF	
Partner	**Roles**
Global Programme to Eliminate Lymphatic Filariasis (GPELF).	• advocate with national governments and forums for implementation of the programme; • mobilize resources and political commitment; • provide technical support in capacity building and formulating polices and frameworks.
WHO	• coordinate with national government/national task force/interagency coordinating groups in planning, monitoring, assessment and for implementation of national plans and frameworks; • provide technical support in formulating polices, training to the governments in implementation of morbidity management and prevention of disability programmes; • ensure rights-based approach in implementation; • advocate for integration with other disease programmes/NTDs for implementation of morbidity management; • encourage NGOs/academic institutions for implementation of cost-effective interventions for scale up.
National governments	• develop and implement national plans in LF with focus on morbidity management and prevention of disabilities; • periodic review of implementation of LF programmes in endemic areas with focus on implementation of morbidity management and prevention of disabilities; • ensure proper fund flow in accordance with the national targets and frame work; • engage public private partnerships for scale-up of activities; • involve other government agencies in implementation of activities and in leveraging support; • sustain political commitment and advocate with other stakeholders.
NGOs	• support the national governments in improving coverage, access to services for persons affected by lymphatic filariasis; • advocate for the rights of persons affected by lymphatic filariasis • Inclusion of morbidity management and prevention of disabilities along with other diseases such as leprosy; • develop and implement cost-effective programmes in morbidity management and disability prevention; • engage persons affected and their family members in programmes; and develop referral mechanism to access medical, social and other entitlements; • identify the barriers in accessing services and work with national programmes for effective implementation; • mobilize resources for implementation of activities; • support in capacity building and in providing on the job training to staff.

Role of partners in morbidity management and prevention of disabilities in LF	
Partner	**Roles**
Persons affected by lymphatic filariasis	• access information about services available; • involve and promote in Identifying the barriers and act on ignorance, stereotypes and discrimination that exist at various levels; • work with government and NGOs in planning, designing and implementing the leprosy programmes and influence the decision-makers; • encourage the family members and their communities for early identification, treatment adherence and disability care; • sensitizing community on lymphatic filariasis; • counselling patients on MDA and disability care; • involve and provide feedback on quality of services; • collect evidences and report to the concerned authorities for issues to be addressed; • act as positive speakers or change agents to change negative attitudes, beliefs and practices among service providers and in community; • sensitize the persons affected by LF about collectivism and encourage them to be part of/enrol in self-support groups/networks; • inform, appeal and advocate for protection of human rights and Advocate for quality services.
Academic and research institutes	• conduct research on the impact and outcomes of services; on using integrated approaches; • provide evidences and data for decision-makers

10. Publications and reference materials

10.1 WHO SEARO

- The Regional Strategic Plan for Elimination of Lymphatic Filariasis, 2010–2015
  http://www.searo.who.int/entity/vector_borne_tropical_diseases/documents/SEA-CD-203/en/index.html
- Regional Strategic Plan for Integrated Neglected Tropical Diseases Control in South-East Asia Region, 2012–2016
  http://www.searo.who.int/entity/vector_borne_tropical_diseases/documents/SEA-CD-250/en/index.html
- Elimination of Lymphatic Filariasis in the South-East Asia Region, Report of the eighth meeting of the Regional Programme Review Group (RPRG), Colombo, Sri Lanka
  http://www.searo.who.int/entity/vector_borne_tropical_diseases/documents/SEA_CD_242/en/index.html

10.2 WHO HQ

- Progress report 2000–2009 and strategic plan 2010–2020 of the global programme to eliminate lymphatic filariasis: halfway towards eliminating lymphatic filariasis. http://whqlibdoc.who.int/publications/2010/9789241500722_eng.pdf
- Managing morbidity and preventing disability in the Global Programme to Eliminate Lymphatic Filariasis; WHO position statement http://whqlibdoc.who.int/hq/2011/WHO_HTM_NTD_2011.8_eng.pdf
- A human rights-based approach to neglected tropical diseases http://www.who.int/hhr/activities/NTD%20information%20sheet%20-%20English.pdf
- Training Module on Community Home-based prevention of disability due to LF – Learner's Guide http://apps.who.int/iris/bitstream/10665/67873/1/WHO_CDS_CPE_CEE_2003.35_Part1.pdf
- Training Module on Community Home-based prevention of disability due to LF – Tutor's Guide http://apps.who.int/iris/bitstream/10665/67873/2/WHO_CDS_CPE_CEE_2003.35_Part2.pdf
- Global Programme for the Elimination of Lymphatic filariasis - "surgical approaches to the urogenital Manifestations of Lymphatic filariasis" http://whqlibdoc.who.int/hq/2002/WHO_CDS_CPE_CEE_2002.33.pdf
- Lymphoedema Staff Manual Treatment and Prevention of Problems Associated with Lymphatic Filariasis; Part 1. Learner's Guide http://whqlibdoc.who.int/hq/2001/WHO_CDS_CPE_CEE_2001.26b.pdf

10.3 LF-related web sites

www.who.int/topics/filariasis/en
www.searo.who.int/en/section10
www.pacelf.org
www.who.int/tdrold/diseases/lymphfil/diseaseinfo
Global Alliance to Eliminate LF – www.filariasis.org
GlaxoSmithKline – www.gsk.com/community/filariasis
http://www.rti.org/page.cfm/Neglected_Tropical_Diseases
http://www.lympho.org/resources.php
http://www.filariajournal.com
http://www.plosntds.org
http://www.lymphedemapeople.com

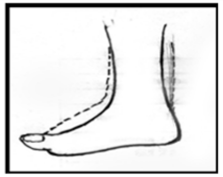
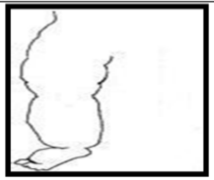
Annex 1

Information collection formats related to morbidity management

Patient Card

Name	Registration number with date, month & year			Gender		Age	
Name							
Father's/husband's name							
District	Block			Village			
Marital status	Occupation			Caste			
M / UM /W /							
Case History							
1. How long have you been living with the disease?				Years		Months	
2. Affected body part:	RF	RH	LF	LH		Hydrocele	Genitalia
3. Did anyone in your family suffered from filariasis?						Yes	No
If Yes	Age		Sex		For how long?	……………….Years	
4. How many times you had acute attacks in the past six months?							
5. When did you have your last attack?			………..months back			Date……………….	
6. Did you have medicine during MDA round?						Yes	No
If yes	How many times?						
7. Please tick kind of footwear do you use							
Rubber clipper	Leather shoe	Plastic shoe	Others	None			

Patient Card cont…

8. Please tick the current grade of swelling			
			
Grade I	**Grade II**	**Grade III**	**Grade IV**
Reversible swelling	Irreversible swelling	Irreversible swelling and shallow folds	Swelling with deep fold& other changes

Biological Assessment			Date-1	Date-2	Date-3	Date-4	Date-5
Fungal infection:	Yes	No					
Entry point:	Yes	No					
Ulcer complication:	Yes	No					
If yes, then:			Date*-1	Date-2	Date-3	Date-4	Date-5
Site:							
Size:							
Duration:							
***Note:-** Put dates here, In the cells - Put YES or NO as applicable*							
Assessment of foot swelling condition							
Sl.No.	Measurements		Date-1	Date-2	Date-3	Date-4	Date-5
Site 1	Length of foot						
Site 2	Circumference at 1–5 months						
Site 3	Circumference. Nevicular to SP						
Site 4	Across the heal						
Site 5	1\3 from lower leg						
Site 6	Maximum swelling						
Note: Take assessment after 3, 6, 9 and 12 months from first date							

***Grading up to seven can be included depending on the need. Some programmes classify the cases in three grades merging grade IV into III**

MTH-Metatarsal head SP: Steroid process

Annex 2

Line-listing of filarial patients

(Same format can be used at different units- at village, sub centre, PHC and district levels)

S.N	Name of the patient	Name of the head of the family and address	Village	Population	Panchayat	Age	Sex	Leg	Disease affected part				Time of starting disfigurement	Period of stay in the district	Date of survey
									Hand	Scrotum	Breast	others			
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															

Annex 3

Format for quarterly, half-yearly and annual reports

(Monitoring report by the care provider)

State: ____________________

Population: ______________

Total No. of districts:__________________

No. of Lymphatic Filariasis cases: _________________

Population covered during the period	No of cases line listed	No of cases practising morbidity care	Body part affected									No. of cases with acute attacks	No with reduction of acute attacks	No. of footwear provided	No of cases reported with reduced swelling	No. of hydrocele cases line listed	No. of hydrocele cases operated
			Hand		Foot		Scrotum (Hydrocele)		Breast		Other genitalia Penis/ Vulva						
			R*	L	R	L	S	B	R	L							

**R – right, L- Left, S- Single, B – Both*

- **This format can be used for district and state level also.**
- **Linking reports with Epi-Info for data storage and analysis:** The reporting system will be linked with Epi-info for data entry, management, analysis, and reporting.
- **Measuring tools for impact:** This portion is mentioned in the morbidity management strategy final document.

Annex 4

Quarterly format reflecting for the capacity building activities

(Sub-PHC, PHC,& district-level units)

No	Particulars	Lymphoedema	Hydrocele	Remarks
1	No. of cases line-listed			
2	Percentage of affected persons counselled			
3	Percentage of affected persons trained in self-care			
4	Percentage families educated about their roles			
5	Percentage of affected persons trained on entry lesions and acute attacks			
6	Percentage of affected persons trained on care of entry lesions and acute attacks			
7	Number of care providers identified			
8	Percentage of care providers trained to guide on self-care			
9	Percentage care providers trained about entry lesions, acute attacks, their management and timely referral			
10	Percentage of care provider trained on data management			
11	Number of health institution equipped to cater referral service for entry lesions, acute attacks and other complications			
12	No. of doctors skilled to perform hydrocelectomy in the district			
13	No. of institutions in the district equipped for hydrocelectomy			

Annex 5

Referral register

S.N	Name and address of the suspect/referral	Age (in yrs)	Sex (M/F)	Type of Lymphoedema	Referred by	Date of examination	Result	outcome	Remarks
1									
2									
3									

**referred by Community, health worker, NGO, affected person, private practitioners*

Follow-up register of patients

Name of the patient ....
Village.......................
Street......................
LF sufferer's Name ....

Date of the follow up visit	**Number of visit**	**Leg**		**Arm**		**Breast**		**Acute attack**		**Hydrocele**		**Wounds**		**Need to refer to PHC/District hospital**		**Purpose of referral**
		Right	Left	Right	Left	Right	Left	Present	Not present	Present	Not present	Present	Not present	Yes	No	

Lymphatic filariasis is one of the most ancient and debilitating neglected tropical diseases. Endemic in nine countries in South-East Asia, the disease is set to be eliminated by 2020. Apart from interrupting transmission, morbidity management is the second pillar of the elimination strategy. Disability and suffering caused by lymphatic filariasis cannot be overstated, and there are limited guidelines and evidence in this regard. Therefore, this document fills a gap in guiding practitioners, patients, community, policy-makers and other stakeholders in dealing with morbidity management and disability prevention of lymphatic filariasis. The early detection of symptoms, diagnosis and methods to prevent further damage are provided with algorithms. Practising simple methods of regular home-based self-care are key to improving quality of life by lessening suffering due to morbidity.

The content of this guideline goes beyond the technicalities of medical needs with additional insights into community empowerment, possible access to welfare and economic opportunities and similar issues. The benefit of the guideline would not only go beyond health, but also significantly impact the human aspect of lymphatic filariasis patients.

World Health Organization
Regional Office for South-East Asia
World Health House
Indraprastha Estate,
Mahatma Gandhi Marg,
New Delhi-110002, India
Website: www.searo.who.int

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