



ILEP

## How to Prevent Disability in Leprosy



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ILEP

## How to Prevent Disability in Leprosy



This is the fourth in a series of Learning Guides about leprosy published by ILEP. It is aimed at health workers and carers who may have to help look after the eyes, hands and feet when nerve damage is already present. ILEP Learning Guides 1 and 2 deal comprehensively with the prevention of disability through the early diagnosis and treatment of leprosy and the recognition and management of leprosy reactions. This booklet provides information, and makes suggestions, on how to help people with existing nerve damage develop a lifetime habit of looking after their eyes, hands and feet.

The ILEP Learning Guides complement the Operational Guidelines of the World Health Organization\* and may also be seen as a useful supplement to the guidelines and policies of National Programmes.

This Learning Guide will be further complemented by an ILEP Technical Guide on Community-Based Rehabilitation (due late 2006) which will promote the rehabilitation of people affected by leprosy following the principles and practice of community-based rehabilitation for disabilities in general.

This Learning Guide also reflects the statement produced by the Consensus Development Conference on Prevention of Disability held in Cebu City, Philippines 13-16 September 2006. The Executive Summary of this Consensus Statement is included as Annex 3. The definitions used in this Learning Guide reflect those described in the introduction to this Statement.

*\*SEA/GLP/2006.2 Global Strategy for Further Reducing the Leprosy Burden and Sustaining Leprosy Control Activities 2006-2010 Operational Guidelines*

## A note on definitions

In the context of the International Classification of Functioning, Disability and Health (ICF), disability is defined as “*an umbrella term for impairments, activity limitations and participation restrictions. It denotes the negative aspects of the interaction between an individual (with a health condition) and the individual’s contextual factors (environmental and personal factors)*”. While the impact of prevention of disability (POD) could therefore be assessed in terms of impairments, activity and participation, the main focus of interventions has been on preventing impairments, i.e., the physical level. The ICF defines ‘impairment’ as a “*problem in body function or structure such as a significant deviation or loss.*”

POD may therefore be defined as ‘a concept comprising all activities at individual, community and programme level aimed at preventing impairments, activity limitations and participation restrictions’. It is widely acknowledged that personal attitudes and circumstances, combined with environmental factors can either precipitate, or help prevent disability. They are often targets for intervention themselves, as in the case of poor self-esteem or negative community attitudes, or may be the subject of preventive education, as with high-risk work conditions.

Disability preventing measures specific for other chronic conditions in leprosy-endemic countries, including lymphatic filariasis, diabetes and Buruli ulcer, have generally been developed more recently. They use very similar strategies and depend in a similar way on the motivation and participation of those affected. Combining strategies and interventions for POD for people affected by a range of related conditions may decrease stigma, be more cost-effective and improve sustainability.

# Acknowledgements

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The principal authors: Hugh Cross and Margaret Mahato.

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## **Individuals:**

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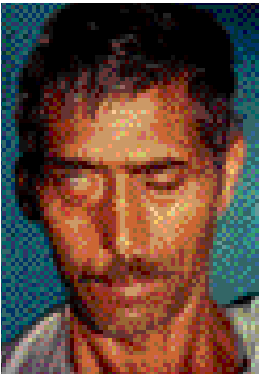
## SECTION ONE

# Introduction

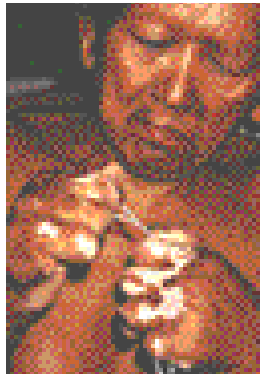
*Multi-Drug Therapy (MDT) can cure leprosy within a few months. If patients are treated early, soon after the first signs of leprosy have been noticed, most will never suffer any serious problems and can lead a full and normal life – others will never know they once had leprosy. The diagnosis and treatment of leprosy are described in ILEP Learning Guide One.*

Unfortunately, however, some people do develop complications from leprosy and suffer from various types of disability as a result. The complications of leprosy occur because of nerve damage. If this damage is noticed in time, it can usually be reversed by treatment with steroids. For a full explanation of how to examine for nerve damage and treat with steroids see ILEP Learning Guide Two.

***Figure 1 Some of the gross disabilities which can still happen if nerve damage is neglected and which this book is designed to help prevent***



*This man was unable to close his right eye (lagophthalmos). He also has loss of sensation in his cornea. He became blind after damage to his eye.*



*These people became gradually more disabled because of loss of sensation and muscle paralysis which put their hands and feet at risk of deformity, wounds and bone loss.*



This Learning Guide gives suggestions on how to look after the eyes, hands and feet when nerve damage is already present, as these body parts most commonly get damaged. The most important problem with nerve damage in leprosy is loss of sensation, or anaesthesia, which allows the person to injure themselves during normal daily activities. Leprosy may also damage the nerves controlling muscles, leading to weakness, clawing, joint stiffness and deformity.

Section 2 looks at common eye problems in leprosy and gives suggestions on how people can prevent the worsening of impairment and blindness that sometimes follows muscle weakness and loss of sensation. For further information about blindness see *Prevention of Blindness in Leprosy* edited by Paul Courtright and Susan Lewallen.

Section 3 looks at the problems people have when leprosy affects the skin on their hands and feet and gives suggestions on the prevention and treatment of wounds, cracks and other skin problems.

Section 4 looks at how people who have had leprosy can be helped to overcome the challenges of leprosy themselves. It has often been found that once a person is motivated to look after their own hands and feet, they also find the motivation and the courage to deal more effectively with other problems in their lives related to leprosy, such as the isolation from community, loss of work and poverty. Sometimes groups of people affected by leprosy can work together to tackle these problems and there are many examples of such groups which have successfully overcome immense difficulties to improve their lives. Health workers should encourage people with leprosy to manage the complications of the disease at home as far as possible, but be ready to give information and advice when necessary.

Section 5 looks at specialised services that may be available at referral centres and how to select patients who would benefit from them. It also gives suggestions on how to monitor and evaluate a POD service so that it can be managed efficiently.

In summary, the aim of the book is that health workers will be able to help people with nerve damage make a lifetime habit of avoiding injury, cracks and stiffness. These are some of the main lessons that will be taught:

- *Keep eyes which are unable to blink free from injury and sight loss.*
- *Keep insensitive hands free from wounds.*
- *Keep insensitive feet free from wounds.*
- *Keep areas of skin that do not sweat, soft and free from cracks.*
- *Where there is muscle paralysis in hands or feet, maintain joint mobility.*
- *Where important muscles are weak, exercise to strengthen them.*
- *Carry out early care for any eye complications, wounds and skin cracks.*
- *Plan changes to activities of daily life to avoid wound recurrence.*
- *Enable people to take good care of their own hands and feet.*
- *Enable people affected by leprosy to help each other solve common problems.*

## SECTION TWO

# How to Protect Eyes That Are at Risk

*Serious eye problems should be managed by someone with special training in eye care. The general health care worker must identify people with eye problems related to leprosy, in order to refer them to a nearby eye clinic. This means checking the eyes of each person briefly, when they attend the clinic.*

The commonest eye complication due to leprosy is lagophthalmos – the eye cannot close completely. In the early stages, lagophthalmos may be reversible, but later on it becomes a permanent disability. Health workers can help people with this condition to look after their eyes and prevent loss of vision.

## Causes of Eye Problems in Leprosy

### **Lagophthalmos**

The muscles which close the eye can become weak or paralysed, if the facial nerve is damaged in a leprosy reaction. The result is that the eye cannot close completely. There may be watering of the eye. Sometimes there is loss of sensation in the cornea (the clear part at the front of the eye), which leads to loss of normal blinking. In the early stages, lagophthalmos can be treated like any other case of neuritis, with steroids. When the condition is permanent, surgery to the eyelids may help to prevent corneal damage.

Regular blinking and complete closure of the eyes at night keep the cornea healthy. In lagophthalmos, the cornea is at risk of damage which makes it less and less transparent. Blindness is a common end result.

**Figure 2 Lagophthalmos**



*This man has lagophthalmos. The lower part of the cornea is not covered when he closes his eyes and has been damaged so that it is no longer completely transparent. Fortunately, the central part of the cornea is normal and he can still see: with care, his vision can be preserved. Behind the cornea is the lens, which looks white. This is due to a cataract which is common in older people and is not related to this man's leprosy. The cataract can be treated by routine surgery, as in anyone without leprosy.*

## **Inflammation**

A much less common complication of leprosy is inflammation inside the eye itself, which must be treated by someone with training in eye care. The main signs of inflammation are pain and redness of the eye.

## **Four signs to look for when checking the eye in someone with leprosy**

### **Visual Acuity**

Check how well people can see by using a Snellen chart, or by asking the person to count fingers at six metres distance. If there is recent visual loss in one or both eyes, so that the person cannot count fingers at six metres (visual acuity of  $< 6/60$ ), they should be referred to an eye clinic. Cataracts are the most common cause of significant vision loss in the community and this is especially true in older people. People who have had leprosy can have their cataracts operated on in exactly the same way as those who have not had leprosy, with an intra-ocular lens implant.

## **Lagophthalmos**

Watch for normal blinking and test for eye closure. If the eye does not close fully, lagophthalmos is present. If this is of recent onset, the person should be referred for treatment with steroids – the lagophthalmos is a result of nerve damage which may be reversible.

If the lagophthalmos has been present for longer than six months, it cannot be reversed with steroids. In these cases, the person must be helped to look after the eye to prevent damage to the cornea. In more severe cases the person should be referred for surgery – a fairly simple operation on the eyelids can help to give better protection to the cornea, give the person better appearance, and may prevent blindness.

## **Red Eye**

Conjunctivitis and corneal exposure cause redness of the eye: they can be treated in a general clinic with antibiotic eye ointment and an eye pad. However, if the redness persists after a few days of treatment the person should be referred to an eye clinic. An eye that is persistently red may have exposure which needs surgical treatment or there may be inflammation inside the eye which requires special treatment beyond the scope of this book.

When the cornea does not have sensation it is at risk of damage from objects like sand, insects or eyelashes. These can cause ulcers on the cornea. If the cornea (the clear front of the eye) has a white spot on it and the eye is red, a corneal ulcer should be suspected. In such cases the person should be referred to a specialist immediately. Corneal ulceration is an emergency. If it is not treated very quickly the person may become blind.

## **A Leprosy Patch on the Face**

It is known from experience that many people who are diagnosed with leprosy who have a facial patch, will get neuritis of the facial nerve and lagophthalmos. Anyone with a facial patch should be followed up closely, so that any reaction can be treated immediately.

## **Managing Permanent Corneal Anaesthesia**

People who do not blink should develop the “think blink” habit. They should be encouraged to force themselves to blink whenever they see a common object, such as a mango tree, a cow or a motorcycle. If they exercise “think blink” for long enough, the action will become a habit.

## **Managing Permanent Lagophthalmos**

Essential self-care actions for people who can not close their eyes fully:

- Wear eye-glasses and a hat or a cap.
- Use a cloth or a fan to keep away flies.
- Cover the head with a cloth or bed sheet, or use a mosquito net, while sleeping.
- Keep the eye clean and moist. ‘Moisol’ drops are good if they can be purchased. If it is not possible to use Moisol, try and provide sterile saline solution which should be dropped in the eye often throughout the day. At night a few drops of bland oil such as castor oil should be used.
- Never rub the eye (especially with insensitive rough hands, or dirty cloths).
- The area around the eye should be kept clean, by washing with a clean cloth.
- The eye should be inspected daily. Use a mirror, or ask a friend to look for any signs of a wound, redness or eyelashes turning into the eye.
- Vision should be checked daily by looking at the same fixed object six metres away.
- Daily exercises to prevent the problem from becoming worse (see below).

**Figure 3 Exercises for people who can not close their eyes properly**



### **Mild Lagophthalmos:**

- 1 When asked to close eyes lightly the person has a slight gap between the eye lids (right eye).
- 2 Ask the person to try and close their eyes with force. If the face muscles are still strong enough, the person will be able to close the gap. They should keep the eye forced closed while counting to ten. They should do this exercise as often as possible every day.

### **Severe Lagophthalmos:**

- 3 When asked to close eyes lightly the person has a large gap between the eye lids.
- 4 Ask the person to try and close their eyes with force. Sometimes the face muscles are too weak to force the eyes closed. If the person still has a gap between the eye lids, they will need to do passive exercises to prevent the deformity from worsening and help keep the eye as healthy as possible.
- 5 When eyes can not be forced closed, the person should place their fingers at the outer corner of the eye and gently pull outwards until the eye closes. This exercise should be done to a count of ten as often as possible throughout the day.
6. All people who are unable to close their eyes, or who do not blink should wear glasses.

## SECTION THREE

# How to Prevent and Care for Wounds

*Skin cracks are caused by allowing the skin to become too dry. Leprosy often causes the skin to become very dry, through damage to the nerves which control sweating. Cracks are most commonly found in the creases of the hand, around the heels of the foot and in the toe creases.*

**Figure 4** *Skin cracks*



Skin cracks are wounds and should never be neglected. If they are not treated they may become openings for infection. If the wounds become infected, this can easily spread into the joints and bones causing loss of the infected finger or toe. Infection may track up tendons and spread to other parts of the hand or foot.

If infection tracks into the calcaneus (the heel bone), it can destroy the bone. If the calcaneus is destroyed or badly damaged, there is a strong possibility that the person may eventually lose the entire foot.

Even if cracks do not become infected they should be treated with care. If ignored they may eventually heal, but they will leave scar tissue which can cause the fingers or toes to become stiff, deformed and difficult to use.



## Cracks and Callus

### Inspection

People should be able to examine their feet and hands at least once a day. If they have difficulty bending far enough to look under the feet then a mirror should be provided (the mirror will also be useful for inspecting the eyes). They should check the skin of the feet and look for wounds and cracks, and also for red or swollen areas. This is especially important for people with a history of previous ulcers or for people with deformed feet. If they find that a particular area of the foot is hot, it may indicate that bones in the foot are infected. This can lead to massive destruction of the foot, requiring amputation.

People should also inspect their footwear daily. Footwear should be checked for stones or other hard objects that may be trapped inside or for sharp objects that may have pierced through the sole. Check under the shoe for sharp objects that may only pierce through the sole when the person is walking.

*Figure 5 Foot inspection*



*Timely inspection with a mirror revealed the first signs of an ulcer (look below). This was a warning for immediate rest to prevent breakdown.*



## **Soaking, Scraping and Oiling**

When skin is soft and elastic it is less likely to crack when under stress (due to pressure or friction). Callus will build up under any foot that suffers from stress but callus builds up much quicker if the skin is damaged. If the skin dries and cracks, callus will build up around the edges of the cracks and as it does it worsens the cracks. These are the main reasons why it is important that people with nerve damage should soak, scrape and oil their feet.

### **Soaking**

Any sort of container that will hold enough water to cover the feet will be good enough. Clean water should be poured into the container. Nothing should be added to the water. The feet should be soaked in the water until the skin is soft. This usually takes at least twenty minutes, so it is wise to suggest people soak for thirty minutes.

### **Scraping**

As the skin softens during soaking the person should scrape the dry skin off the foot. Any abrasive object can be used for this purpose. Some useful objects include rough stones, coconut husks, coral, charred corn cobs, sand paper and files (care should be taken not to advise any object that might damage the person's hands).

### **Oiling**

After soaking and scraping the foot should be removed from the water and oil should be rubbed into the skin. Mineral oils are best because vegetable oils can attract rats and insects. Vaseline is good because it seals the water in the skin.

It is best not to dry the skin before oiling, but if the person has fixed claw toes, or other deformed toes, it is wise to dry between the toes to reduce the chance of fungal infection.

**Figure 6 Finding suitable solutions for skin scraping**



*The problem of soaking and scraping was solved by using local solutions. The man scrapes off hard skin using a scorched maize cob. The woman found a stone was useful.*

Even with good self-care, some people are unable to prevent a build up of callus, so from time to time a patient may require a health worker to remove it with a scalpel. Deep cracks may also need attention from a health worker from time to time. (See below).

### **Caution**

It is a mistake to think that all callus on the hand is dangerous and should be removed. Sometimes callus is protective. Manual workers (farmers, labourers and fishermen) develop callus on parts of their hands as the body's protection against damage from rough work. This type of callus will only be dangerous if it develops into a large hard plaque. The hard dry callus that forms in and around the creases of the hand and fingers should be removed because it will cause the skin to crack. All callus under the foot should be removed.

### **Caution**

Most cracks are due to dryness of the skin, but toe cracks may need special help. Attention needs to be paid to toe cracks to decide the cause. If the skin around the cracks is white and spongy and the area feels damp to the touch, then the cracks are likely to be due to maceration (skin is too wet), fungal infection or both. Under normal circumstances water will evaporate from the skin. If it is trapped in pockets between tight deformities or under adhesive tape the skin will become macerated. When the skin is macerated or if it is infected with fungus it loses elasticity, which is why it cracks.

## Management of Toe Cracks

If laboratory services are readily available, try and arrange a microscope examination of a skin sample to eliminate the possibility of tinea pedis (fungal infection). If there is no tinea pedis or if laboratory services are not available follow the suggestions given below for treatment of cracks due to wet skin.

It is important to try and ensure that areas where water is being trapped should be carefully dried with a soft absorbent cloth after washing or soaking (e.g. in the creases of claw toes or in the spaces between fixed deformed toes). After drying, the cracks should be painted with Compound Tincture Benzoin (CTB). If the problem is not solved after a week it may be because there is fungal infection. This should be treated with Clotrimazole cream. Two other commercial products that can be used are Canestan and Daktarin. Only cream preparations are useful as treatment options (powder preparations are used in shoes to prevent re-infection).

**Figure 7** *Removing callus at the health post*



**Figure 8 Management of deep hand cracks at the health post**



### **Trimming**

1. There is too much skin in the cracks to be removed simply by scraping. It needs to be removed with a scalpel.

- Clean the area.
- Wash with mild soap and clean water. Do not use antiseptic solutions or detergents.
- Remove any sand, gravel, wood splinters etc.
- Rinse thoroughly with clean water.
- Soak for about 15 minutes.

2 and 3. The scalpel must be used carefully to trim away the dead skin around the crack and also from inside the crack. Cut away carefully and try to avoid causing bleeding.

4. When most of the dead skin is removed, rub over the area with a pumice stone, sandpaper or some other abrasive object. The rubbing should follow the direction of the crack and not across it to avoid making the crack bigger. Keep rinsing the area between rubbing. When the area is reduced to a base of soft skin give one final rinse to wash away any debris.

After cleaning the area either:

- Cover it with a gauze dressing that has been soaked in saline.

Or:

- Dry the wound well and paint it with Compound Tincture Benzoin (CTB). When CTB is dry, cover the wound with a thin gauze swab.

Finally, wrap the dressing in place with bandage or clean cloth and immobilise the finger to rest it. (See overleaf)

### **Splinting**

A good way to rest and protect an injured finger is to use splinting to keep it from being able to move. Splints can be made out of any smooth but stiff materials such as plastic or rubber tubing, wood,

bamboo, etc. Splints protect the wound and help to hold the fingers in the best possible position. Splints can prevent soft tissues from shortening (especially over joint areas) during the healing process. Without a splint the finger could become stiff and lose some of its function. The splint should be worn for 23 hours each day; for one hour each day the splint should be removed so that the joint can be massaged and moved about to prevent stiffness.

**Figure 9 Splinting for finger cracks**



- 1 *Cut a piece of hose pipe. It should be long enough to extend from the crease on the hand to the end of the finger. All pointed edges are cut away.*
- 2 *The crack is dressed with CTB.*
- 3 *The dressing is held with a piece of bandage or clean cloth.*

- 4 *The ends of the splint are padded with gauze, held by tape.*
- 5 *The finger is padded.*
- 6 *The splint is put on the finger.*
- 7 *The splint is taped around the finger (note how the tape is placed around the joints).*

## Blisters

The two main causes of blisters are:

- Heat – from direct contact with hot liquids or surfaces or open fire
- Friction – repeated rubbing of the skin on hard surfaces (e.g. unpadded tools, poorly fitting shoes)

### Management of Blisters

- The first line of blister management is to decide what caused the blister and to make sure that action is taken to prevent recurrence.
- Do not open or puncture the blister. Clean gently with mild soap and clean tap water without breaking the skin, then blot the area dry. (Painting the blister with a mixture of compound tincture benzoin and iodine tincture, 50:50, will help the blister to dry quickly).
- Apply a thick layer of clean gauze or cloth, as padding over the blister and the surrounding area.
- Rest the injured part. The patient can continue his daily routine provided that the part is not used.

**If the blister is broken it should be treated as an open wound.**

## Open Wounds (Ulcers)

Some wounds can be treated by health workers and patients together. Others are complicated by infection of soft tissue and / or bone and should be treated in a hospital or where specialist services are available. There are a few major principles that should be remembered when planning ulcer management. If these principles are followed, simple ulcers will heal **without any medication:**

- Rest.
- Good wound environment.
- Hygiene.
- Protection.



**Figure 10 Simple ulcer**



*This is a new wound that has recently opened. It is a simple ulcer so the person can be treated without hospital care*

## **Management of Simple Ulcers**

### **Rest**

All wounds are the result of tissue stress. Common causes of tissue stress among people who have been left without sensation of leprosy include:

- Sudden injury (e.g. sharp objects that cut or pierce through the skin like thorns or broken glass).
- Repetitive pressure, friction or shear forces (e.g. foot ulcers from walking or hand ulcers from using unprotected hand tools).
- Burns.



*Figure 11 Common causes of hand injuries*



*This woman is at risk of stabbing her hand with a sharp tool (sudden injury).*



*When a hand rubs back and forward over a hard surface there is a risk of blisters developing (Repetitive stress injury).*



*Using unprotected metal utensils can burn hands (Burn injury).*

## Rest

**Almost all wounds will heal if they are rested.**

**Almost all wounds will get worse if they are not rested.**

Regardless of the cause of injury, the first line in treatment of wounds is to remove the cause of tissue stress and then to allow the injured part time to **rest** so that damaged tissue can repair itself. So long as the person with a wound is healthy, damaged tissue **will repair itself**. Rest doesn't necessarily mean that the patient must stay in bed (although for foot ulcers this is often the best option). If the person is unable to rest it may still be possible to rest the injured body part.

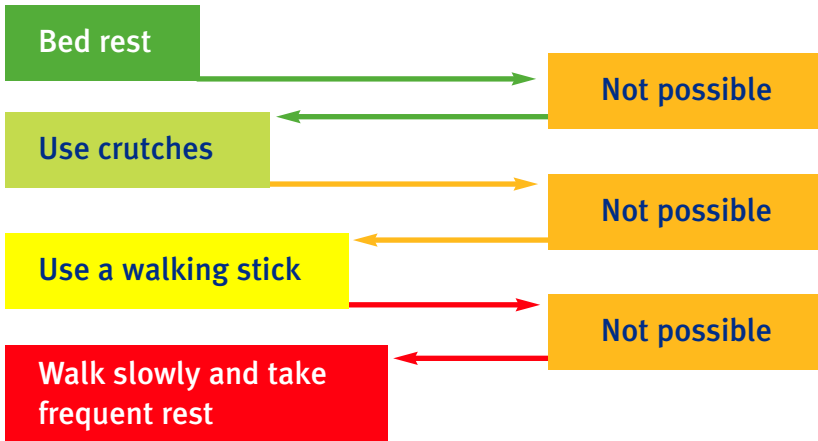
- Splinting will **rest** hand and finger wounds.
- Walking with crutches (or even with a walking stick) will **rest** foot wounds.

Whatever the circumstances, the injured part should not be required to perform normal functions whilst the tissue is still being repaired.

The best option is for the person to spend as much time as possible, lying down with his foot raised above the level of his

heart (bed rest). However, this is very rarely possible amongst people who must struggle to feed themselves and their families, so other options should be explored.

*Figure 12 Options for resting a wounded foot*



It is also very important to find out whether the person is able to change his activities so that he does not need to walk so much: for example, can he temporarily swap work with another person? Other transport options should also be considered: for example, riding a bicycle or donkey.

### **Wound Environment**

A good wound environment will be:

- Free of foreign bodies and toxic substances (dead tissue is toxic and dressing material, especially cotton wool, will be treated like a foreign body).
- Free of dangerous micro organisms (bacteria and other microbes will be found in every wound but not all will cause a problem).
- Moist but not too wet (discharge from wounds should be drained).
- Not dry (wounds heal better if they are moist, so care should be taken not to dry the wound too much; many medications commonly used on wounds, such as gentian violet, are

antiseptic, but they delay healing by causing the wound to become too dry).

- Stable temperature (wound healing is best where the temperature does not change quickly so wounds should be cleaned or soaked in water near body temperature).

## **Create a Good Wound Environment**

### **Day 1**

- Trim away callus from the wound edges.
- Cut away all dead and overhanging tissue from the wound edges (debridement).
- Clean the wound with normal saline solution.
- Cover with clean cloth or bandage but do not make the dressing too bulky. There should only be enough bandage to hold the dressing in place.

### **Day 2**

- Remove the soiled dressing.
  - Clean it carefully with saline.
  - Put dry gauze dressings over the wound (these are to soak up discharge).
  - Cover with clean cloth.
- **Antiseptics are not necessary and might delay healing**

### **Day 3 and Thereafter**

By day three there should be signs of granulation tissue. The main task from this point is to protect the granulation tissue.

- Remove the soiled dressing carefully. If it is stuck to the wound, soak it first before removing it and avoid damaging the granulation tissue.
- Clean the wound carefully with saline (do not scrub it with gauze dressings).
- Soak a gauze dressing in saline, squeeze out excess saline so that the dressing is left moist and then place it over the wound (this will help to keep the granulation moist).
- Cover with clean cloth or bandage.

## **Late Stages**

From about the twelfth day after debridement, the wound should be healing well. There should be new skin growing over the wound and there should be much less discharge. Care should be continued to ensure that the wound does not become too dry so gauze dressings, made moist with saline should be continued. Dressings can be held in place by using either a clean cloth, bandage or tape.

## **Hygiene**

Many problems can be prevented if good hygiene is observed in the workplace and in the patients' homes. Particular attention should be paid to bathing and latrine areas because drains are a reservoir of infection. Treating the infection in the wound is pointless unless the source of infection (such as the drains) is treated as well. Routine cleaning around areas with drains, using bleach (hypochlorite), will reduce risks greatly. Manufacturers' recommendations vary, but a practical guide for the use of bleach, as a disinfectant, is to use a cup of bleach in half a bucket of water. The bleach solution should be used to sluice down the bathing / latrine area.

## **Protecting the Wound Environment**

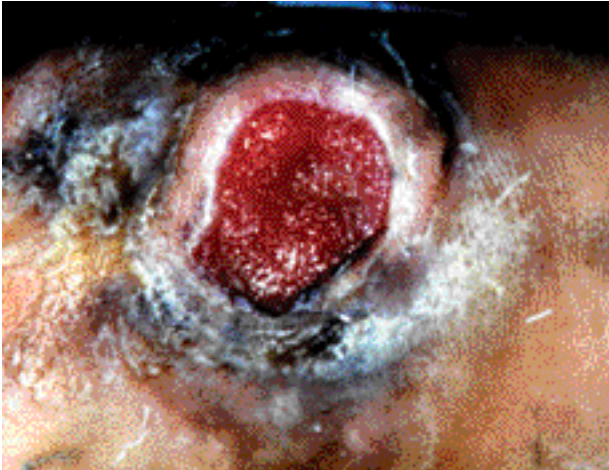
The clean, moist wound environment should be protected with a cloth or bandage cover. However, if the wound covers become soaked through with discharge from the wound, the wound is at the same risk of infection as if the wound was not covered at all (this situation is known as "strike through"). To keep the wound environment protected and to reduce the chances of infection, the wound covers should be changed if discharge from the wound can be seen to have soaked all the way through. Bulky dressings should be avoided, so it is not helpful simply to increase the amount of dressing material to try and protect the wound from strike through.

Recent foot ulcers will give a heavy discharge in the early stages of healing so plans should be made to change the dressings every day (at least). As the wound begins to heal, there will be less discharge and dressings can be left in place a little longer (two to three days before changing).

### **Granulation Tissue**

Granulation tissue should be treated with great care. Protect it by cleaning granulating wounds very gently with soaked gauze swabs. Do not use cotton wool because strands of fibre may be left in the granulation tissue. Fibres of cotton in granulation tissue can delay healing. Always soak gauze dressings well before trying to remove them. They may be stuck to the granulation tissue, so tearing them off carelessly will result in damage that will delay healing.

*Figure 13 A wound with healthy granulation tissue*



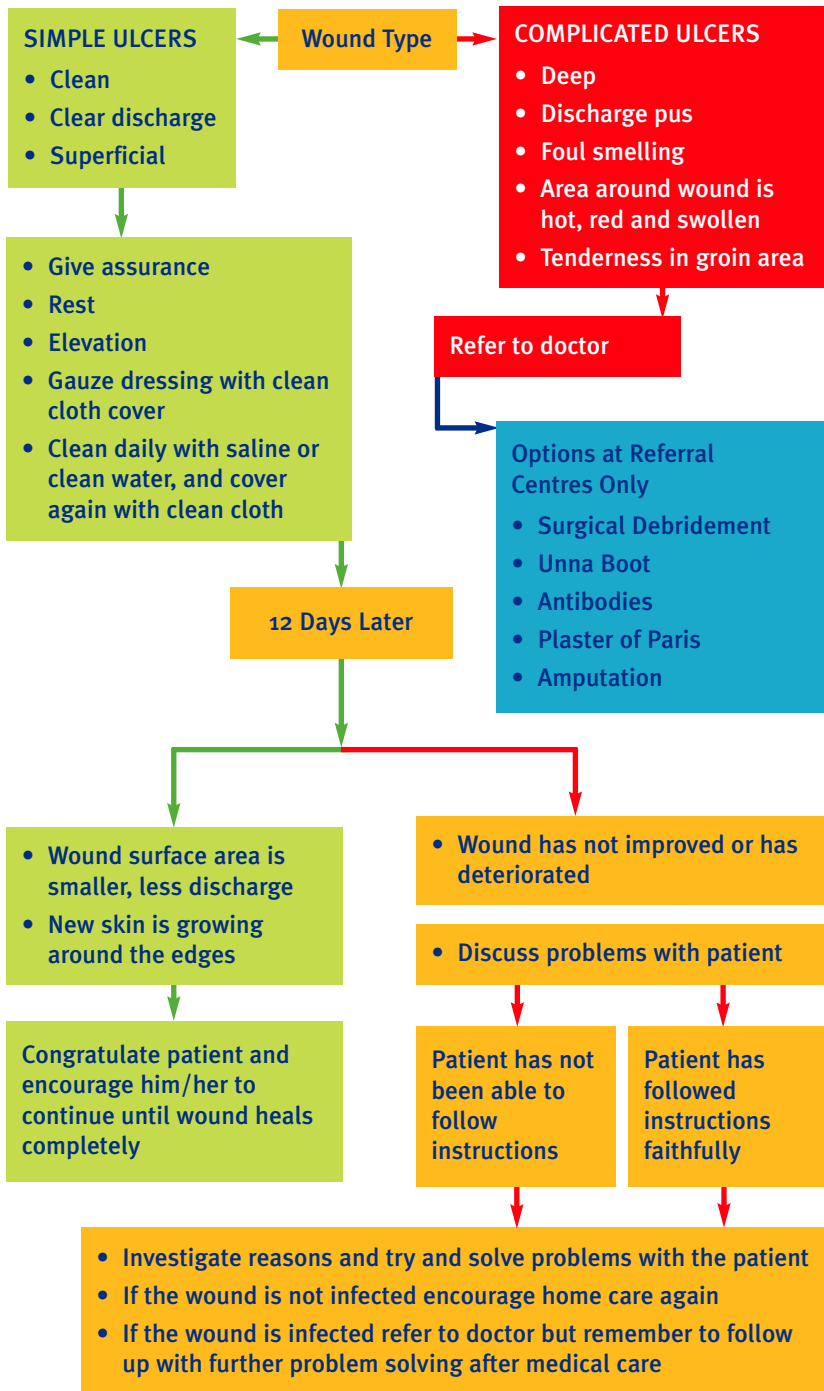
**Figure 14** *How to do a simple debridement*



***Debriding a Wound***

*After the dead tissues were cut away there was a small bleeding point on the toe. New tissue was cut, therefore the wound can be dressed with Savlon (chlorhexide gluconate) for one day, thereafter, only saline dressings should be used.*

**Figure 15 Wound Care and Monitoring**



## **Medication**

No medication is required in the management of cracks and simple ulcers. Many lotions that are commonly used are actually harmful because they delay the healing of wounds. Some medications may be used in certain situations for specific reasons, for example:

## **Skin Disinfection**

Betadine (povidone iodine) is a good skin disinfectant (before cutting tissue with a scalpel), but it should only be used on intact skin. Soap can also be used to clean the skin, including blistered skin, if it is not broken.

## **Infection**

- If an area has been made to bleed during trimming, Savlon (chlorhexidine gluconate) or Anaflex (polynoxylin) can be used once for the first dressing, to reduce the chance of infection in newly exposed tissues.
- Silver sulphadiazine is useful in the treatment of burns.
- Hydrogen peroxide is sometimes used to clean very dirty, deep wounds during surgery.



## Healing Agents

Compound tincture of benzoin (CTB) does promote healing and can be used on simple cracks.

Unna Dressings are used for leg ulcers. They are made up in the following way:

- 100g of gelatine powder, clear without flavour
- 350g of distilled water
- 100g of zinc oxide
- 400g of glycerine

Mix water and gelatine together and set aside for a few minutes

Mix glycerine and zinc oxide

Heat gelatine (do NOT boil). When gelatine is dissolved add oxide mixture.

Three or four layers of gauze bandage, (preferably elastic) are dipped into the mixture and wound around the affected area. The Unna Boot combination of medicaments and compression is helpful in hastening the healing process.

## Medications to Avoid

There are a number of products that are widely used but which should be avoided for various reasons:

- **Gentian violet, a widely used purple dye, is a powerful antiseptic, but it dries the wound out too much, damaging the new tissue that is formed in the healing process.**
- **Salt is an antiseptic which also causes too much drying and damages new tissue.**
- **Soap is also an antiseptic, causing drying when used on an open wound.**
- **Topical antibiotics should never be used in the treatment of ulcers due to leprosy.**

## SECTION FOUR

# Self-Care: What to Teach and How to Teach it

## Who needs to develop self-care habits?

**People who have any nerve damage.**

**People who are at risk of reaction (during treatment and for at least two years after treatment).**

## Why do People Need to Develop Self-Care Habits?

Many people who have had leprosy have some permanent nerve damage. If so, they will always be at some risk of tissue damage and deformity. By learning good self-care habits, they can protect themselves from further damage. Although health workers, family and friends can sometimes help, it is up to those affected to look after themselves day by day.

In the eye, hand and foot sections of this Guide the following three needs have been repeated:

The need for:

- awareness
- inspection
- protection

In each chapter advice has been given to guide the reader in understanding how awareness, inspection and protection can be carried out for the eye, hand and foot separately. Although the practices seem easy and simple to do, it is **very difficult** for people to develop and continue self-care habits. People need much encouragement if they are to develop self-care habits.

## How to Help People Develop Self-Care Habits

The most important thing that any health worker can do to encourage self-care is to make the person feel that they are **worth** taking care of. People only care for things that they truly value. If people do not value themselves they will not care for themselves. Leprosy often makes people feel worthless.

Health workers can help people feel positive about themselves by showing respect, listening properly, asking for their opinions and discussing their plans.

## Counselling

Strategies for prevention should include counselling of the affected person and their family, neighbours and community, vocational training and advocacy work. Guidance and training in facilitation skills and counselling may need to be sought from a higher level. These strategies will be covered in greater detail in future ILEP Guides on Community-Based Rehabilitation and Promotion of Self-Care and Self-Help.

## Other Important Things to Think About

### 1. Involve Others

#### Do not

- expect the person to manage without help and encouragement

#### Do

- involve family members or friends in discussions about self-care.
- encourage disabled people to meet together to talk about solving self-care problems and to practise self-care together.

*Figure 16 Self-Care Group*



*This group of people meet every week to encourage each other to do self-care.*

## 2. Teach Problem Solving

### Do not

- simply tell the person what to do

### Do

- help the person to think about and understand the problems he/she faces
- encourage the person to solve the problems themselves (ask for their suggestions and give guidance)

### Example:

Woman has dry cracked skin on the sole of her foot.

Health worker explains:

- Nerves are damaged so skin will dry and crack.
- Body can not keep the skin moist and soft.
- Feet need to be soaked in water for about 30 minutes at least twice a day.

Health Worker asks:

- How will the woman soak her feet?
- What will she soak her feet in?
- What will she use to scrape hard skin with?
- Will other people allow her to soak her feet (will they criticise or scold her) If so what will she do to overcome such problems?

*Figure 17 A woman finds a way to soak her feet*



*A health worker helped this woman to solve her problem. She uses a plastic bowl to soak her feet. She was also encouraged to join a self-help group to give her confidence.*

### 3. Develop Discussion Skills

#### **Do not**

- simply tell the person what activities he must not do.

#### **Do**

- discuss safe ways to do essential activities.

#### **Example:**

Farmer has loss of sensation and weakness in his hands.

Health worker explains:

- Nerves are damaged so pain will not warn him of damage.
- Because nerves do not work, farmer must use awareness, inspection and protection.

Health Worker asks:

- What tasks are necessary?
- What tools will the farmer use?
- How can the farmer make the tool handles softer to hold?
- How often will the farmer be able to look at his hands whilst working?
- Can the farmer arrange to do different activities (e.g. milking another person's cows in return for that other person's help in the field)?

**Figure 18** *A farmer learns to adapt his tools and working habits*



*The farmer learned to cover the trowel with cloth to soften the handle. He also knows to watch his hands carefully to prevent sudden injury from the sharp end of the trowel.*



*The farmer covered the handle of this tool with rubber. Rubber makes the handle softer to hold and also prevents the hand from slipping back and forth.*

#### 4. Be Ready to Demonstrate

##### Do not

- expect people to understand spoken instructions

##### Do

- demonstrate how to conduct whatever inspection and protection practices are necessary.

##### Example:

Boy has a foot drop and a claw hand.

Health worker explains:

- Why the boy's hand and foot need exercises.

Health worker demonstrates:

- How to do the exercises (also explains how often and for how long the exercises need to be done).

Health worker asks:

- Where will the boy do exercises?
- When will the boy do exercises?
- What might prevent the boy from doing exercises and how will he overcome the obstacles?

#### 5. Encourage People to Help Others with Similar Problems

When people teach others they are more likely to do the things they teach.

*Figure 19 Teach people to teach others*



*This man learned how to help others and formed a Self-Care Group in his village. Such groups can benefit from friendship and encouragement, but can also become Self-Help Groups.*

## Teaching Check List

It is useful to use check lists because the health worker can focus on an individual's particular needs and be reminded of the important points to discuss. An example of a check list is given as an annex.

## What People Need to Know about Protecting Hands and Feet

### 1. Watch and Think

When people have sensation they do many things without watching their actions, because sensation warns them if actions are not safe. Without sensation people need to learn to watch their actions and think about their activities to prevent wounds.

### 2. Inspection

People with loss of sensation should examine their hands and feet several times a day but especially before sleeping. If any signs of damage – such as blisters, red or hot spots, cuts, wounds or swelling – are found, they must try to work out what activity caused the damage. They should develop a problem solving habit to avoid dangerous activities.

## Understanding Common Risks for the Hand

**Pressure** When hard surfaces are gripped too tightly pressure can cause wounds: for example, while working with a spade, plough, a hammer or while gripping cycle or motorcycle handles.

### Solution

Find ways of padding hard handles to make them soft to hold. This can be done by wrapping cloth or another soft material around them.

**Friction** Activities where the hand repeatedly slides back and forward over a hard surface causes friction which can result in a blister: for example, rowing boats, grinding corn, pounding maize.

### Solution

Pad hard surfaces to give a better grip (padding with rubber is very useful to prevent sliding).



**Figure 20 Making tools safe**



*By covering the handle of this tool with rubber, the farmer has reduced the risk of pressure because the handle is soft to hold. He has also reduced the risk from friction because the hands will not slide backwards and forwards.*

**Heat** Burns are caused during ordinary daily activities: for example, cooking, hot food or drinks, sitting by a fire, smoking, sitting near a running engine.

### **Solution**

Find ways of preventing skin contact with hot surfaces: for example, use spoons for eating, place hot cups or glasses inside another, use thick cloth or pot holders for holding hot utensils, use cigarette holders.

**Figure 21 Preventing burns**



*This woman uses pads to hold hot utensils to protect her hands from burns. She also found a safe way to blow into fire without damaging her eyes or burning her face.*

**Stab Wounds** Sharp rough materials such as splinters of wood, glass, thorns or nails can wound the hands. Sharp tools can also be a danger.

### Solution

The hands should be protected with gloves or cloth when doing activities where sharp objects may wound the hand. People should always try and be aware that their hands are in danger.

*Figure 22 Preventing sudden injury*



*This farmer knows his hands are at risk so he takes care not to hold the crop too close to the cutting tool.*

## How to Protect the Hand When it is Paralysed or Weak

### Keep the skin in good condition

Look back to Section 2 to understand how the skin should be kept in good condition through soaking, scraping and oiling.

### Prevent stiffness

*Figure 23 Massage for weak or paralysed fingers*



*After soaking, the hands should be well oiled. The oil should be put on both sides of the hands and then rubbed into the skin.*

## Exercises

**Figure 24** Straightening exercise for fingers that are starting to bend (do not allow stiff fingers to be forced straight)



- 1. After oiling the hands, a weak hand is placed with palm up on a soft flat surface (the thigh of the leg is very good).*
- 2. The edge of the other hand (the side of the hand before the small finger) is placed firmly on the wrist of the weak hand. It is then pushed slowly to the edge of the hand along the palm of the weak hand.*
- 3. When the edge of the hand reaches the fingers of the weak hand the person should count to ten slowly as the edge of the hand moves over and straightens the fingers.*

***The exercise should be repeated ten times, and should be done at least three times a day.***

**Figure 25 Exercise for thumbs**



*1. The thumb of one hand is placed in the space between the thumb and first finger of the weak hand.*

*2. The person should press gently in the space and count to ten whilst drawing the thumb away from the hand.*

***The exercise should be repeated ten times, and should be done at least three times a day.***



*3. The person should grip around the weak thumb so that the flat part of the thumb lies on the top of the hand.*

*4. The gripping hand is drawn over the joint of the paralysed thumb. This action will force it to straighten. The thumb should be held straight to a count of ten before relaxing.*

***The exercise should be repeated ten times, and should be done at least three times a day.***

**Figure 26 Active finger straightening exercises**



*1. A fist is made with the weak hand. The fist is placed in the other hand so that the knuckles of the weak hand are on the ball of the other hand.*

*2. The weak hand is slowly forced open.*

*3. The hand is held in the forced open position as the person counts to ten.*

***The exercise should be repeated ten times, and should be done at least three times a day.***



### **Passive Finger Straightening Using Splints**

Splints can be given to prevent fingers from becoming bent. If fingers are already bent, but can be straightened with gentle pressure (mobile fingers), splints can be helpful to correct the problem. Most people are not able to wear splints during the day because they must use their hands for day-to-day activities. If splints can be worn at night, whilst the person is sleeping, they will help to correct mobile, bent fingers. Splints can be made from POP or simply from a piece of bamboo or plastic pipe. Splints must always be padded to prevent pressure wounds. They should be regularly removed and the fingers examined for signs of pressure. They should only be given to people who can understand the risks. (See also Figure 9 Splinting for finger cracks).



**Figure 27 Splints for bent fingers**



*1. This hand has bent fingers but they can be made straight with gentle pressure.*

*2. Place the finger in a splint and straighten it with gentle pressure.*

*3. Fasten Velcro over the knuckles.*

*4. All the fingers can be kept in splints whilst the person sleeps.*



## How to Protect the Foot When It Is Paralysed or Weak

### Foot Drop

Some people may have foot drop. Foot drop happens when the lateral popliteal nerve is damaged. When people have foot drop they are not able to lift their foot or hold it steady, so when their leg is lifted, the foot hangs loosely. Foot drop can lead to a lot of foot damage if the foot also has a loss of sensation.

### Keep the skin in good condition

Look back to Section 2 to understand how the skin should be kept in good condition through soaking, scraping and oiling.

### Use a Foot Drop Spring

If referral services are accessible, the person should be sent to get a foot drop spring.

*Figure 28 Self-made foot drop spring*



*If there are no services available, people can make their own foot drop springs. This man made a belt that fits around the top of his leg. He fixed a piece of bicycle tube to the belt. The bicycle tube was then fitted to strong material that fitted round his shoe. The spring protected his foot from hanging loose when he walked.*



## **Exercise for Foot Drop**

It is very important that people with foot drop should do stretching exercises to prevent the foot from being pulled into a downward position by the muscles at the back of the leg.

*Figure 29 Stretching exercises for foot drop*



*This boy has learned to do stretching exercises for foot drop.*

- 1. The cloth is placed around the loose foot.*
- 2. The cloth is pulled to force the foot up.*
- 3. The foot is held in position, while the person counts slowly to ten, then the foot is allowed to relax.*
- 4. The person repeats the stretching ten times.*

*The exercise should be done three times a day.*

## Understanding common risks for the foot

**Pressure** Many people are not able to spread their weight evenly over their feet so they develop small areas of high pressure. Each time the foot makes contact with the ground, the tissue in the sole of the foot suffers because of too much pressure. The pressure is not great enough to cause harm immediately and the person does not change his pattern of walking. Eventually the tissue does break down.

### Solution

Shoes or sandals with deep, soft insoles (like rubber) will help to reduce pressure.

**Friction** Sandal straps and the upper parts of shoes can rub the skin. Rubbing causes blistering which can lead to serious wounds in feet with no sensation and dry skin.

### Solution

Keep the skin soft and elastic by soaking, scraping and oiling. Avoid using footwear made from hard materials that do not bend easily (like leather or moulded plastic).

*Figure 30 Risks of using unsuitable materials*



*Hard leather straps caused this woman's toe to blister.*

**Heat** Burns are caused when people sit too near to fires or from exhaust pipes on motorcycles.

### Solution

Find ways of preventing skin contact with hot surfaces, or being too close to a fire: for example, legs should be tucked away when sitting near fires.

**Stab Wounds** Sharp or rough materials such as thorns or nails can wound the foot.

### **Solution**

Footwear with hard under soles will help to protect the foot.

### **Footwear**

For people with feet that do not feel, correct footwear can greatly reduce the risk of foot damage and can also assist in the healing of wounds present. However, it is not true to say that any footwear is better than no footwear – in some cases, badly-fitting shoes actually cause wounds on the foot and prevent them from healing.

### **How to Help People Choose Footwear**

If people can choose their own footwear they are more likely to wear it. People should be encouraged to buy their own shoes but they need advice to avoid making the wrong choices.

Before choosing shoes, a clear explanation of the reason for protective shoes should be given. Wherever possible, people should be helped to find shoes that look similar to shoes that others are wearing. Some types of fashionable footwear are very suitable (for example, sports trainers), but others are not.

### **Common Shoe Types That Must Be Avoided:**

- Moulded plastic shoes or sandals (particularly common in India and Bangladesh).
- Shoes that have nailed under shoes.
- Fashion shoes with high heels.
- Sandals that have no restraining back strap.

Repairs to sandals and shoes can be very damaging to the foot. Stitching and particularly nailing damaged parts together can cause problems. Good footwear should be expected to last for around six months after which it should be discarded. Many people in the general population will have footwear repaired repeatedly and so the practice is commonly accepted as normal. However, people with anaesthetic feet should not be encouraged to think that their feet are normal. They do need special care.

**Figure 31** Risks of repairing old footwear



*Repairing old sandals can be dangerous. The stitching and hardened leather can cause wounds.*

### **Planning for Footwear**

Ask the person to stand on a piece of paper and then draw around the person's feet. Give the person the outlines and suggest that when choosing footwear they should check that the outline of the shoe is not smaller (thinner or shorter) than the outline of the foot. The shoe (or sandal) should have:

- A hard sole to prevent penetration by sharp objects on the ground.
- A soft inner sole (this will reduce pressure on the foot while walking).
- Plenty of height around the toes (especially if the person has claw toes).
- If the person has hand or eye impairments it is a good idea to suggest that they buy shoes with Velcro fastenings.

### **Materials**

Where it is available, micro-cellular rubber (MCR) is an excellent material for use as an insole. Ethyl Vinyl Acetate (EVA) is another commonly used material that has good force reducing properties.

A 4mm insole of either MCR or EVA can be placed in most proper fitting footwear if the manufactured insole is removed.

Plastazote is also an inexpensive, commonly used material. It is easy and quick to cut and shape. However, Plastazote should not be used as an insole material because it flattens out very quickly.

**Figure 32** *A popular and suitable style of sandals for people with anaesthetic feet*



*These sandals have the following good qualities:*

- *Hard neoprene under soles soft MCR soles.*
- *Adjustable, easy to fasten.*
- *Velcro straps over the forefoot.*
- *Adjustable, restraining back strap.*
- *The style is commonly worn in many countries and is not stigmatising.*



**Figure 33** *An excellent style of shoe for a person with hand impairments*



- *The Velcro straps are much easier to manipulate than buckles or laces.*
- *The shoe is deep enough for a good thick insole.*
- *The shoe is also wide fitting with a good toe box to hide the person's deformities.*

## SECTION FIVE

# Managing POD Activities

## Organising Priority Groups

*Grouping people into categories will help to remind workers that certain people will need closer examination and more care than others. This can help to ensure that time is shared out according to need. A simple method of colour coding will help to identify different levels of risk. A colour dot can be placed on clients' files and/or against names in a register to alert workers to the possibility of certain problems.*

### **Group 1 High Risk – Red Code**

People in this group will need the highest level of care. They should be encouraged to come to the clinic every month or at least once every three months.

People with:

- eye complications.
- present reactions or neuritis, with impairment of less than six months.
- nerve function impairment (NFI – motor sensory impairment) of less than two years.
- presenting with the first or second ulcer (no other ulcers) in the current year.
- first or second ulcer healed in the past year.
- those whose impairments are getting worse.

### **Group II Medium Risk – Blue Code**

People in this group should be seen every three to six months.

- Presenting with the third ulcer (or more) in the current year.
- Most recent ulcer was more than one year ago.
- Mobile claw fingers with loss of sensation longer than two years.
- Foot drop, duration of less than two years.
- Open cracks or fissures.

### **Group III Lower Risk – Green Code**

People in this group should be seen once every six months to one year, if any of the following is present for more than two years, with no problems.

- Deformity.
- Mobile or stiff clawing.
- Foot drop.

## **Making Use of Available Help**

### **Referral**

There are certain problems that some people will have that need hospital care. Find out which hospitals are able to treat leprosy related problems and if possible visit the hospital to meet the staff there. Find out what complications they can treat and what the fees for treatment will be. Also ask whether reconstructive surgery is available and if so, what types of correction can be done.

In some areas there are specialist referral centres or NGOs that offer protective footwear. Some such centres can also offer specially modified footwear for people with deformed feet or for people with ulcers.

Health workers should try and find out what referral services are available and what they offer so that advice can be given to people who need to be referred.

People with the following types of problems will need special care:

### **Emergencies:**

- Severe Reaction Type 1 or Type 2 (See Learning Guide Two)

(Start on steroid and pain killers according to guidelines and refer for further management).

- People in reaction with facial patches.
- People with painful red eyes, or recent loss of visual acuity.
- People with infected ulcers.



(The area where the ulcer is will be hot, red and swollen. The ulcer will have a foul smelling discharge).

- People with anaesthetic hands or feet that are hot, red and swollen, but without any ulcers.

### **Reconstructive Surgery**

The opportunities for reconstructive surgery depend very much on what available services can offer. Some general guidelines are given below for the types of conditions that most surgeons will expect before considering surgery, but every surgeon and every hospital will have their own specific guidelines.

People will usually be considered if:

- PB patients have completed at least three months MDT.
- MB patients have completed at least six months MDT.
- Patient has not had reaction or neuritis for at least six months.
- Patient has not taken steroid treatment for at least three months.

### **For Specific Procedures**

Most surgeons will not operate on complications that have a duration of less than six months. Patients wanting hand or foot correction also have to be certain that they can be away from work for at least one month.

Other requirements are:

- Lagophthalmos lid gap of more than 3mm.
- Claw hand    Hand must be ulcer free.  
                    Fingers must be mobile (can still be flattened with light pressure).
- Foot drop    Foot must be ulcer free.
- Claw toes    Toes must be mobile (can still be flattened with light pressure).

## Setting up Self-Care Groups

Self care groups have been mentioned earlier (see Figure 19 Teach people to teach others). Such groups can be very valuable not only because the members support and encourage each other, but also because they can reduce the time people spend at health posts. Most disabilities can be managed through self-care, but teaching takes up much time. If you can help groups to find the right people to lead them, the demands on your time will be reduced. Self care groups can be found in communities where a number of leprosy affected people live close to each other (people should not have to walk too far to meet others).

***The key to a good group is a good group leader.***

Qualities of a good leader (could be male or female):

- Understands and practices self-care.
- Intelligent (uneducated people can be very intelligent. Judge by the persons ability to understand, ask questions and solve problems).
- Good listener.
- Hard worker.
- Has ambitions.

After a good leader has been identified, teach him all that is in this Learning Guide. When he is confident that he understands all the different exercises and actions, you can begin to put together the names of others, from the same community, who might be willing to be part of a self-care group. A good number for a group is between ten and 15 people. Smaller groups can also be effective, but larger groups do not function so well. Try and arrange the first meeting where all the people can meet together at the health post or some other convenient place and explain the purpose of forming a group i.e.

- First stage
  - To support each other.
  - To learn from each other.
  - To prevent any worsening of disabilities.
- Second stage
  - All of the above.
  - To form self-help group.

After the first meeting, let the group decide where and when they will meet. Encourage the group to meet at least once a month. When they meet together they should plan to do their soaking, oiling and exercises together whilst the leader gives guidance and leads the discussion. Discussions can be on any topics the group chooses. Often people are happy when they find that the difficulties they face are also experienced by others. Sometimes they can learn from others' experiences. Ask the leader to report back to you from time to time. After a few months, if the group is functioning well, try and guide the leader to a social worker or an NGO where he can get information about forming self-help groups. In some countries (e.g. India) the government has excellent schemes and grants for helping disabled people to set up self-help groups.

### **Monitoring and Evaluating POD Services**

It is important to know how large the disability problem is, not just for each person, but for the whole area. A simple method of keeping track of disabilities amongst people is to use *Impairment Summary Forms*. (See Annex 1)

## **Annex 1: Impairment Summary Forms**

These forms can be used to summarise the information that is usually recorded in Individual Patient Records. The Impairment Summary forms help in the following ways:

- Health workers will know which people need the most help.
- They will be able to plan group sessions for selected people.
- They will know what type of supplies they need to keep in stock.
- They will have information which will allow them to set clear goals.
- They will be able to evaluate their work

There are two forms. One is used to collect information at the start of a programme. This is called the Baseline Impairment Summary Form. The second form is used at either six month or one year intervals. It is called the Review Impairment Summary Form.

### **The Baseline Impairment Summary Form**

The Baseline Impairment Summary Form can be filled in either at the time of a clinic when filling in the individual patient record, or soon afterwards when information can be copied from the individual patient record. The way in which the table is made up allows health workers to see a great deal of information at a glance, rather than having to sort through many patient records.

### **How to fill the Baseline Impairment Summary Form**

#### **Personal Details**

A number is needed to identify each entry, so a file number or an ID number is entered. Name and date of birth are also entered, as is the person's treatment status: e.g. MDT (on treatment), RFT or CAC (released from treatment or care after cure). The examination date is very important because it will guide the health worker to set a review date.

#### **Data Entry**

Against every person's name there is place to give details about their hands and feet (right and left). Wherever an impairment is found it is graded and the grade is recorded in the correct box for that body part.

## **Eye Hand Foot Scores**

An Eye Hand Foot score is calculated by taking the World Health Organization (WHO) score for each eye hand and foot and adding them together to make a total score. This means that a person could have a maximum EHF score of 12 (such a person would have WHO Grade 2 for each eye, hand and foot).

## **The Review Impairment Summary Form**

After every six months, or at the most, after one year the Review Impairment Summary Forms should be filled in.

The Review Impairment Summary Form is useful because it tells health workers, at a glance how well the POD programme has been working. It is very useful for evaluating programmes. The way in which the review form is filled in is the same as filling in the baseline form. The same people are assessed and the finding for each eye, hand and foot is recorded.

After completing the review form it is compared with the baseline form. Wherever it is found that an impairment has improved, or is completely healed, a blue circle is drawn in the box for that body part. If an impairment has become worse, a red triangle is drawn in the box. The EHF scores are also calculated again with a triangle or circle drawn around the score to show where change has happened.

In the Annex there are blank Impairment Summary Forms that can be copied and used. There are also examples of forms that have been filled in.

These forms can be adapted and utilised according to the available health worker capacity and the context in which leprosy control activities are being carried out.

## Annex 1: Impairment Summary Forms

### Key For Entries in the Impairment Summary Forms

#### General

No impairments .....Leave Blank

Not recorded .....Mark with **X**

#### Eyes

Lid Gap.....Record in millimetres

Red eye if present....Record **Y**

Visual Acuity .....Mark with ? if less than 6/60

#### Strength

Weak .....Record **W**

Paralysed .. ...Record **P**

#### Sensation

Record **number** of sensory test sites at which sensation is lost **or** where bone is lost.

#### Bone Loss

Record **number** of lost toe or finger bones and lost metatarsal or metacarpal heads

If short foot or mitten hand .....Record **S**

If more extensive bone loss .....Record **A**

#### Wounds and Cracks

Record **number** of wounds and open cracks

# Example of a Completed Baseline Impairment Summary Form

Project Area		Initial Baseline																						
		Eyes			Hands						Feet													
					Strength		Sensation		Ulnar					Crack		Bone Loss		Dist		Foot Up		Ulnar		Crack
Reg No.	Name	Year of Birth	Leq. Status	Exam. Date	EHF Score	Lid Gap	Red Eye	Visual Acuity	Small Finger Out	Thumb Up	Wrist Up	Sensation	Ulnar	Crack	Bone Loss	Dist	Foot Up	Sensation	Ulnar	Crack	Bone Loss			
720	CARROLL, BERNARD	1940	051	01/01/65	4								3						5					
722	MURPHY, MARGARET	1932	267	02/01/65	4		Y																	
723	DONOVAN, BERNARD	1930	183	03/01/65	7										2	1	3	2					5	
724	TRENNIS, ANDREW	1962	041	03/01/65	5																		2	
725	SMITH, JOHN	1965	297	03/01/65	2																			
726	MURPHY, BERNARD	1982	107	03/01/65	4																			
727	LAURIE, SARA	1998	265	03/01/65	4																			
728	FISHER, ROBERT	1979	061	03/01/65	4																			
729	SCOTT, SARA	1975	051	03/01/65	2	5	Y																	
730	BOWEN, ROBERT	1977	065	03/01/65	1																			
731	BOWEN, ROBERT	1960	109	03/01/65	4																			
732	MURPHY, SARA	1970	067	03/01/65	2																			
733	SMITH, GARY	1974	061	03/01/65	4		Y																	
734	SMITH, GARY	1980	101	03/01/65	4																			
735	SMITH, SARA	1982	103	03/01/65	4																			
736	BOWEN, ROBERT	1979	107	03/01/65	4																			
737	SMITH, JOHN	1969	061	03/01/65	5																			
738	SMITH, JOHN	1972	065	03/01/65	5																			
739	MURPHY, SARA	1965	067	03/01/65	2																			
<b>Total People</b>					<b>19</b>																			
					<b>Total Impairments</b>	<b>17</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>6</b>	<b>4</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>6</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	

### General

- No impairments ..... Leave Blank
- Not recorded ..... Mark with X

### Eyes

- Lid Gap ..... Record in millimetres
- Red eye if present ..... Record Y
- Visual Acuity ..... Mark with ↓ if less than 6/60

### Strength

- Weak ..... Record W
- Paralyzed ..... Record P

### Sensation

- Record number of sensory test sites at which sensation is lost or where bone is lost.

### Bone Loss

- Record number of lost toe or finger bones and lost metacarpal or metatarsal heads.
- If short foot or mitten hand ..... Record S
- If more extensive bone loss ..... Record A

### Wounds and Cracks

Record number of wounds and open cracks

## Example of a Completed Review Impairment Summary Form

Project Area	Reg. No.	Exam. Date	Review Scores																																																								
			Eyes						Strength						Hands						Feet																																						
			Lid Drop		Red Eye		Visual Acuity		Small Finger Out	Thumb Up	Wrist Up		Station		Ulnar	Crack	Bone Loss	Skin	Dist	Foot Up	Sensation	Ulnar	Crack	Bone Loss																																			
			R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L																											
	721	03/10/04																																																									
	722	07/01/04																																																									
	723	03/12/06																																																									
	724	02/24/06																																																									
	725	02/24/06																																																									
	726	01/12/05																																																									
	727	05/02/06																																																									
	728	05/02/06																																																									
	729	05/02/06																																																									
	730	05/02/06																																																									
	731	05/02/06																																																									
	732	04/21/06																																																									
	733	05/02/06																																																									
	734	05/02/06																																																									
	735	05/02/06																																																									
	736	05/02/06																																																									
	738	05/02/06																																																									
	739	05/02/06																																																									
	740	05/02/06																																																									
<b>Total Impairments</b>			17	2	2	1	1	3	6	4	3				6													1	1	1					2	2	1	1	6	5	2	1			2														
<b>Total Improved Impairments</b>			4	1	2	1	1	1	1	1	1	1	1	1	1	1													1	2	1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
<b>Total Impairments Worsened</b>																																																											

**Key to Recording Change**

Encircle Scores that have changed since previous assessment.

Use Red △ if worse.

Use Blue □ if improved.



Project Area	Initial Baseline														Total People	Total Impairments																									
	Reg No.	Name	Year of Birth	Lep. Status	Exam. Date	Eyes						Hands						Feet																							
						Lid Gap	Red Eye	Visual Acuity	Strength			Sensation	Ulcer	Crack			Bone Loss	Stiff	Digit	Foot Up	Sensation	Ulcer	Crack	Bone Loss																	
									Small Finger Out	Thumb Up	Wrist Up																														
EHF Score																																									



## Annex 2: Discussion and Demonstration Check List

NAME : \_\_\_\_\_ AGE: \_\_\_\_\_ SEX: \_\_\_\_\_ REG.NO : \_\_\_\_\_  
 Occupation : \_\_\_\_\_ Patient / Relative

*Tick each box as you go through the list*

	Health Worker		Client	
	Explained	Shown	Explained	Shown
<i>Signs and symptoms of leprosy</i>				
<i>Treatment</i>				
<i>Importance of regular treatment</i>				
<i>Neuritis – signs / symptoms / complications</i>				
<i>Reaction – signs / symptoms / complications</i>				
<i>Eye complications – signs / symptoms / dangers</i>				
<i>Discuss difference between anesthetic and normal eyes</i>				
<i>Think blink</i>				
<i>Protecting eyes from wind, sun and foreign objects</i>				
<i>Cover eyes at night</i>				
<i>Danger of rubbing eyes</i>				
<i>Twice daily inspection for redness or injury</i>				
<i>Keeping eyes clean</i>				
<i>Frequent vision check (6 strides from a familiar object e.g. a tree)</i>				
<i>Importance of any irritation, redness or change in vision</i>				
<i>Eye lid exercises</i>				
<i>Hands</i>				
<i>Discuss difference between anesthetic and normal hands</i>				
<i>Danger from hot objects</i>				
<i>Danger from pressure build up</i>				
<i>Danger from sharp objects</i>				
<i>Inspection (Signs of Injury, hard skin)</i>				
<i>Soaking, scraping hard skin, oiling</i>				
<i>Hand exercises</i>				
<i>Clean, cover and rest wounds</i>				
<i>Find out cause of wound and plan avoidance in future</i>				
<i>Check wounds for signs of swelling redness and pus (signs for referral)</i>				
<i>Feet</i>				
<i>Discuss difference between anesthetic and normal hands</i>				
<i>Avoid long walks without rest or long periods of standing</i>				
<i>Wearing suitable footwear</i>				
<i>Avoid cross leg sitting and squatting for long periods</i>				
<i>Danger of fire and other hot objects</i>				
<i>Inspection (Signs of Injury, hard skin, cracks)</i>				
<i>Soaking, scraping hard skin, oiling</i>				
<i>Foot drop exercises</i>				
<i>Clean, cover and rest wounds</i>				
<i>Find out cause of wound and plan avoidance in future</i>				
<i>Check wounds for signs of swelling redness and pus (signs for referral)</i>				
<b>Initials</b>				
<b>Date</b>				

## **Annex 3: Consensus Statement on Prevention of Disability, Cebu City, Philippines**

### **13th – 16th September 2006: Executive Summary**

The Consensus Development Conference brought together 100 individuals from 30 countries with an interest in the prevention of disability (POD) in chronic disabling disorders, in particular leprosy, lymphatic filariasis, Buruli ulcer and diabetes. Participants included people affected by leprosy, WHO and ILEP staff, national programme managers, experts and practitioners.

Five questions were discussed, with the following conclusions:

#### **How can we make sure that people with reactions and neuritis are treated as early as possible?**

Reasonably effective treatment for reactions and neuritis exists and the current priority is to expand coverage so that all patients have access to this treatment. Patients themselves should be made aware of the problem through structured health education at diagnosis and on treatment completion, to promote self-reporting. During regular follow-up, asking key questions can help to identify patients with symptoms suggestive of reactions or neuritis. Those at higher risk should have monthly nerve function assessments. An effective referral system should be available for patients who have complaints indicative of neuritis or have demonstrable new nerve function impairment.

#### **What simple approaches can be developed to promote home-based self-care?**

Self-care is a key strategy in the prevention of disabilities and is a vital component of leprosy control, but the extent of its coverage is, in general, very limited. Full participation by those affected is essential in any self-care programme. Development of facilitation and counselling skills within existing local structures is necessary to achieve adequate coverage and sustainability of self-care in the prevention of disability.

**What are the pre-requisites for an effective footwear program?**

The routine use of appropriate footwear is one of the most important POD interventions in leprosy, as loss of sensation in the sole of the foot and plantar ulceration are so common. Anyone with Grade 1 disability should be helped to obtain such footwear, whether this is by purchasing appropriate shoes in the market or through an organized programme.

**For effective POD, what are the essential recording and reporting requirements?**

A simple recording and reporting system is vital for the management of prevention of disability. Data collection should be dictated by its use for both clinical and managerial purposes. Measuring and recording Grade 1 disability is necessary for defining the need for protective footwear. Visual acuity and the absence of wounds/ulcers are key indicators for evaluating the efficacy of POD activities.

**What are the priorities for research in POD?**

Research to address issues of coverage and access should now be the priority, firstly in the area of self-care and footwear provision, and secondly in the area of treatment for reactions and neuritis. Research aimed at improving the efficacy of specific POD interventions is still needed, but it should be seen as a lower priority.



## **ILEP Learning Guides on Leprosy**

**How to Diagnose and Treat Leprosy**

**How to Recognise and Manage Leprosy Reactions**

**How to do a Skin Smear for Leprosy**

## **ILEP Technical Guides on Leprosy**

**Guidelines for the Social and Economic Rehabilitation  
of People affected by Leprosy (1999)**

**Training in Leprosy (2003)**

**Facilitating the Integration Process (2003)**

**The Interpretation of Epidemiological Indicators in  
Leprosy**

**Community-Based Rehabilitation (due late 2006)**

THIS IS THE FOURTH IN A SERIES OF LEARNING GUIDES ABOUT LEPROSY PUBLISHED BY ILEP. THE GUIDES GIVE GENERAL HEALTH WORKERS ALL THE INFORMATION THEY NEED TO CARRY OUT THE ESSENTIAL TASKS OF CONTROLLING LEPROSY AND CARING FOR PEOPLE WHO HAVE OR HAVE HAD THE DISEASE.

Learning Guide 4 is for all health workers and carers who may have to help people with nerve damage develop a lifetime habit of looking after their eyes, hands and feet.

The ILEP Learning Guides are short, clearly written and well illustrated. We hope that you find them easy to use. They will be useful as study aids, as supplements to training programmes and as reference books in the clinic.