

How to Diagnose and Treat Leprosy



THIS IS THE FIRST 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 THE PEOPLE WHO HAVE THE DISEASE

Learning Guide 1 is for all health workers who deal with people who have leprosy. It contains practical advice on how to diagnose leprosy and how to give the correct treatment. It also includes basic information on how to recognise and manage leprosy reactions.

This book is useful for community health workers, nurses, rehabilitation workers, general practitioners, etc., especially health workers working at the first level of referral.

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.

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This is the first in a series of Learning Guides about leprosy published by ILEP. It is aimed at all health workers who deal with people who have leprosy, especially those at the first referral level, such as a health centre. In that setting, people who are suspected of having leprosy need to be examined carefully, so that the diagnosis can be either confirmed or rejected. This Guide therefore contains more detail than the WHO Guide to Eliminate Leprosy as a Public Health Problem, * which is aimed primarily at the most peripheral health workers.

Many countries have National Guidelines which give the policies for diagnosis, classification and treatment of leprosy. This ILEP Guide is applicable wherever leprosy exists and should be a useful supplement to the National Guidelines.

Introduction

This booklet provides the information you need to diagnose and treat leprosy and to recognise important complications such as leprosy reactions.



The book is divided into three parts:

Part 1 tells you what leprosy is; how to examine a patient with signs of leprosy; and how to diagnose leprosy. It also tells you about the complications of leprosy and gives some examples of common conditions that could be mistaken for leprosy.

Part 2 tells you how to treat leprosy. It gives you the information you need to decide what type of leprosy the patient has and which treatment to give. It sets out the treatment and tells you how important it is for the patient to complete a full course of treatment.

Part 3 looks at leprosy reactions. These are the most serious cause of nerve damage and impairment in leprosy. This section gives you the information you need to recognise reactions, to give treatment for mild reactions, and to refer more serious reactions.

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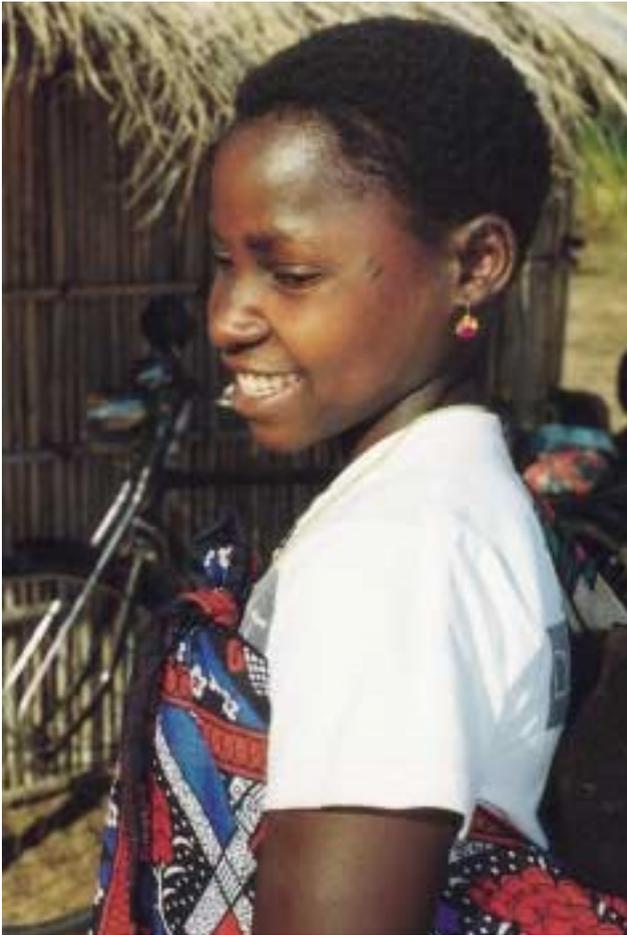
The Wellcome Trust, Tropical Medicine Resource – *Topics in International Health: Leprosy CD ROM* (27 images used – copyright for non-ILEP Members is credited above).

WHO/Tropical Diseases Research 20i.

Where there is more than one image on a page, they are numbered in order from left to right and from top to bottom using roman numerals.

Contents

1. How to diagnose leprosy	1
What is leprosy?	1
How to recognise leprosy	2
Talk to the person	3
Examine the skin	4
Test the feeling in the skin patches	6
Feel the nerves	7
Examine the hands and feet for nerve damage	9
Ask for a skin smear	11
Other conditions that look like leprosy	13
What to do after you have diagnosed leprosy	15
Examine the person more thoroughly	15
Disability grading	21
Record your findings	22
Prescribe the correct treatment	22
2. How to treat leprosy patients	23
How to decide which treatment a patient needs	24
How to prescribe the correct treatment	26
How to give the treatment	28
How to ensure that the treatment is taken regularly	28
How to care for patients during treatment	30
What to do when a patient has completed treatment	31
3. Leprosy reactions	33
What is a leprosy reaction?	33
How to recognise a leprosy reaction	34
How to manage a leprosy reaction	37



How to diagnose leprosy



As a health worker, you play an important part in recognising and treating leprosy and in preventing complications. You also play an important part in passing on accurate information about leprosy to your colleagues, to people who have leprosy and to the community in which you live and work.

What is leprosy?

Leprosy is an infectious disease caused by the leprosy bacillus. It is most probably spread as a droplet infection. Like many other infections, leprosy can be treated with antibiotics.

Although we do not know exactly how leprosy is passed from person to person, most people will not catch the disease even if they come into contact with it. For example, the chance of getting leprosy by talking to a person who has the disease or by eating with them, is extremely small. Leprosy can affect people of any age or sex, including infants.

Leprosy usually starts as a patch on the skin, but it can also attack the nerves and damage them. If you do not treat leprosy, this nerve damage can lead to problems in the face, hands and feet – but if you take care of people with leprosy, most permanent damage can be prevented.

If you recognise leprosy in its early stages, you can treat it easily and it will not cause the disabilities that most people think of whenever they hear the word 'leprosy'. Many of the social problems associated with leprosy could also be avoided by treating cases early.

How to recognise leprosy

The first sign of leprosy is often a patch of skin that is lighter in colour than the surrounding skin. If you see someone with a patch on their skin that may be leprosy, you must

- Talk to the person.
- Examine their skin.
- Test the feeling in the skin patches.
- Feel the nerves.
- Examine the hands and feet.
- Decide whether a skin smear is needed (if this is possible in your programme).



An early sign of leprosy



Skin patches in leprosy

Talk to the person

Find out as much as you can about the previous medical history of the patient. Allow yourself plenty of time to talk to patients. They are the people who know their body best.

- *How long has the skin patch been there? How did it start? Has it changed?* Leprosy patches usually appear slowly.
- *Do the patches itch? Is there pain?* Leprosy patches do not itch and are not usually painful.
- *Does the person have unusual sensations in their hands or feet, such as numbness, tingling or a burning feeling?* Unusual sensations in the hands or feet can be a sign of leprosy.
- *Does the person think that their hands or feet have become weaker? Do they have problems with holding or lifting things and with moving their hands and feet?* Losing strength in hands or feet can be a sign of leprosy.
- *Has the person experienced any social problems?* This may be more likely if the person already has some disability due to leprosy.

Examine the skin

You must examine the person's whole body, in as private a place as possible. Before you start, tell the person what you are going to do. Examine their skin from head to toe, and on the front of the body as well as the back. Make sure that there is enough light for you to see clearly.

Can you see any patches on the skin? Leprosy patches are usually lighter than the surrounding skin; they may be reddish in colour and can have a raised edge. Leprosy patches are found in many shapes:



Skin patches in leprosy

All these pictures show leprosy patches. They all look very different from one another. So how can you be certain that a patch you have found is leprosy?

You need to do more tests. Never say that a person has leprosy just because you have seen a patch on their skin that looks like leprosy. Before making a diagnosis of leprosy, test the feeling in

the skin patches, feel the nerves, examine the person for signs of nerve damage in the hands and feet, and think about whether you should ask for a skin smear.



Other signs of leprosy in the skin

Sometimes leprosy is seen as thickening of the skin and there are no skin patches. The skin can be shiny and dry to the touch. It may be redder than the surrounding skin.

Leprosy should be diagnosed in such cases by examining the nerves and doing a skin smear. If in doubt, refer the person to someone more experienced.

Leprosy sometimes causes nodules, or lumps on the skin. They are usually a sign of a serious infection.

A skin smear taken from a nodule will show a large number of leprosy bacilli.

Test the feeling in the skin patches

Check to see if the person can feel anything when you touch the skin patches.

Before you start, show the person what you are going to do. Ask them to close their eyes, so that they cannot see where you touch their skin.

Lightly touch the skin patch with cotton wool. If you have no cotton wool, use the tip of a pen or a similar object.

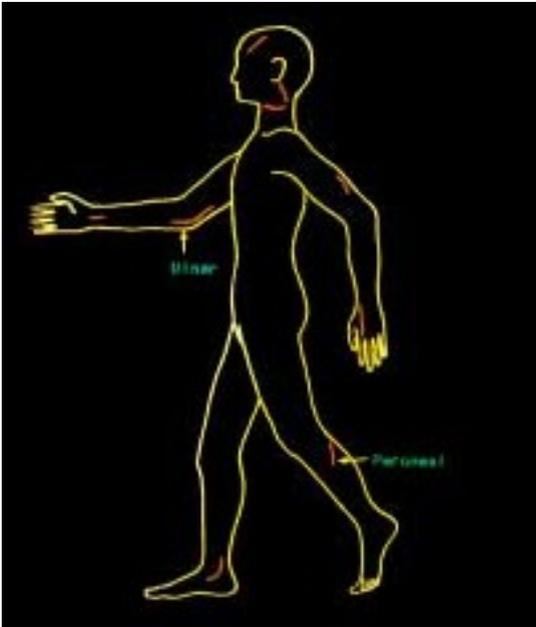
Ask the person to point to the place where you touched them.

Test the feeling in the patches and in the skin that looks normal. If the person cannot feel anything when you touch the patches, they have leprosy.



Testing the feeling in the skin patches





All these nerves can be enlarged in leprosy, the two most commonly affected are the ulnar and the peroneal nerves

Feel the nerves

Enlarged nerves can be a sign of leprosy. Two nerves that are commonly enlarged can be felt quite easily. These are the ulnar and the peroneal nerves.

The ulnar nerve, which is at the back of the elbow, is the nerve most often enlarged in leprosy. Feeling both ulnar nerves will help you to find out if a person has the disease.

You can learn how to do this by feeling your own ulnar nerve or a colleague's – this will show you what a normal nerve feels like.



Feeling the ulnar nerve



To feel a person's ulnar nerve, hold their hand as if you were shaking hands with them. With your other hand, feel around the back of the person's elbow, from the outside of the arm to the inside.

You will feel the ulnar nerve lying between two points of bone. Touch it with the tips of your fingers. Do not press too hard, because you may hurt the person. If the nerve in one arm feels obviously larger than the nerve in the other, this means that the person has an enlarged ulnar nerve.



Feeling the peroneal nerve

To palpate the peroneal nerve in the leg, ask the person to sit in a chair and then kneel down in front of them. With your left hand, feel for the nerve on the outside of the right leg, just below the knee; the nerve comes from just behind the knee and curves around the head of the fibula. You can also feel the nerve behind the knee. Use your right hand to feel the left peroneal nerve.

An enlarged peroneal nerve will be obviously larger than the nerve in the other leg. If any of the nerves are very painful, the person will need special treatment (see Chapter 3).

If you find a nerve that is enlarged, this could mean that the person has leprosy. But you must look for other signs to confirm your diagnosis.



Examine the hands and feet for nerve damage

Nerve damage can lead to loss of feeling in the hands and feet. A person with loss of feeling can injure themselves without realising, which is why people with leprosy often get wounds and ulcers. Loss of feeling is rare in other diseases, so it can help you to confirm the diagnosis of leprosy.

Ask the person to place their hand palm upward on the table or on their knee and to keep the hand still. Before you start, show the person what you are going to do. Ask them to close their eyes.

Touch four places on the palm of the hand with a ballpoint pen.

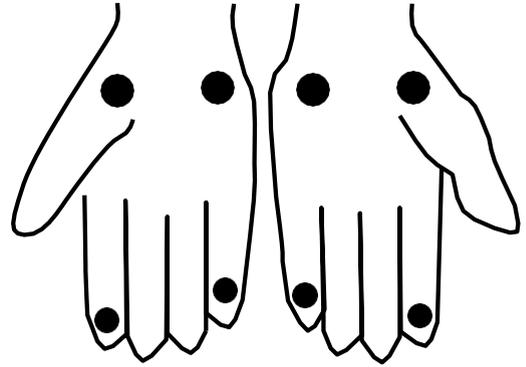
Keep the pen upright, as shown in the picture. Press gently on the skin to make a small depression – but do not press too hard.

Ask the person to point to the place you have touched.

Test both hands.

Does the person feel anything in each of the places where you have touched them?





The four places to be tested on the palm of the hand.

Support the person's foot with your hand. Touch four places on the sole of the foot with a ballpoint pen. Keep the pen upright. Press gently to make a small depression – but do not press too hard.

Ask the person to point to the place you have touched. Test both feet.

Did the person feel anything in each of the places where you touched them?

If you find that the person has lost feeling in their hand or foot, this may mean that they have leprosy.



The four places to be tested on the sole of the foot.

Ask for a skin smear

Some health programmes offer laboratory services and can carry out a test for leprosy called a skin smear. If the laboratory can do sputum smears for TB, they should be able to do this test, which is very similar. This test is useful to confirm very infectious cases when it is difficult to be sure of your diagnosis on clinical grounds alone. For example, if there is skin thickening or lumps and there are no obvious anaesthetic patches. A skin smear must only be carried out by a person who is trained to do it.

Many leprosy patients will have a negative skin smear. This means that although they have leprosy bacilli in their body, there are too few to be seen in the smear. If the laboratory technician can see leprosy bacilli, it means that the patient is heavily infected. This will affect the type of treatment you need to give.

If you are responsible for taking or examining skin smears, you should read the *ILEP Learning Guide: How to do a skin smear for leprosy*.



Think about doing a skin smear

Remember, if you see a skin condition that looks like leprosy, ALWAYS

- Test the feeling in the skin patch.
- Feel if the nerves are enlarged.
- Test the feeling in the palms of the hand and the soles of the foot.
- If possible, arrange for a skin smear.



If a person shows one or more of the following three signs, they have leprosy

- Pale or reddish patches on the skin, with definite loss of feeling.
- Involvement of the nerves, shown by enlargement and loss of feeling.
- The presence of leprosy bacilli in the skin smear.

Once you have made a diagnosis of leprosy, you must start treatment immediately. But be careful: other conditions can look like leprosy.



Other conditions that look like leprosy

Look at the three sets of pictures below. Compare the picture on the left with the one on the right. Both pictures show skin conditions that look very similar, but only one in each pair is leprosy.

Which one is leprosy?



1a



1b

Picture *1a* shows leprosy. When the health worker tested the patches, she found a loss of feeling. The patches in *1b* look almost the same as those in *1a*, but they are not leprosy: there was no loss of feeling and no enlarged nerves. This is a form of ringworm.



2a



2b

Pictures 2a and 2b show similar patches on the faces of children. However, 2a is pityriasis versicolor and 2b is leprosy.



3a



3b

Picture 3a looks very similar to 3b, but 3a shows secondary syphilis and 3b shows leprosy. The person in 3b had loss of feeling in the palm of one hand, an enlarged ulnar nerve and a positive skin smear.

What to do after you have diagnosed leprosy

Once you have decided that a person has leprosy, explain your findings to the patient, tell them that their condition can be cured.

Then you must

- Examine the person more thoroughly to find out how far the disease has progressed, in case additional treatment is needed.
- Write down the results of your examination.
- Prescribe the correct treatment.
- Inquire about the person's family. Household contacts should be examined for leprosy and the family should be encouraged to help the person complete treatment correctly.

Examine the person more thoroughly

You must now find out how far the disease has progressed.

Count the skin patches

This is a very important examination, because the number of skin patches on the patient determines the type of treatment you must give.

Check for nerve damage

Leprosy can damage nerves, and this can lead to serious disability. The effects of nerve damage can be seen as loss of feeling or muscle weakness in the areas of the body supplied by the affected nerves.

You have already examined the feeling in the hands and feet. You must now check to see if the person has any weakness of the muscles in the hands, feet and eyelids. These are the muscles most often affected in leprosy.

Test four muscles on each side

- One muscle controlling the eyelids.
- Two muscles in the hand.
- One muscle controlling the foot.

Write down the result of your tests. Write S (strong) if the muscle strength seems normal, W (weak) if there is some movement but the muscle strength is reduced, or P (paralysed) if the muscle has lost all strength and cannot produce any movement.

To test the strength of the eyelid muscles, ask the patient to close their eyes. If the eyelid muscles are paralysed, the patient cannot close their eyes completely. This condition is called lagophthalmos.

If the patient can close their eyes, try to open them with your fingers. If it is easy to open an eye, this means that the muscles of that eyelid are weak.



Testing the eyelid muscles



To test the movement of the little finger, ask the patient to move the finger sideways, away from the other fingers. Now try to push the little finger back. If you can push it back easily, there is muscle weakness. If the patient cannot move the little finger at all, there is paralysis.



To test the movement of the thumb, ask the patient to hold their hand flat, with the palm upwards, and point the thumb upwards. Now, support the patient's hand and try to push the thumb down to a flat position at the side of the palm. If the patient does not resist and you can move the thumb down easily, there is muscle weakness. If the patient cannot point the thumb upwards at all, there is paralysis.



To test the movement of the foot, support the patient's lower leg with your hand. Ask them to lift their foot. Now try to push it down. If you can push the foot down easily, there is muscle weakness. If the patient cannot lift the foot at all, there is paralysis.

Check the vision

To test the vision, stand 6 metres away and ask the patient to cover one eye. Hold up your hand and ask the patient to count the number of fingers you are showing. Test the other eye in the same way. If the patient cannot count the fingers then that eye is more or less blind, which could be due to a complication of leprosy. Refer the patient to someone who can manage the eye complications of leprosy.

Check for leprosy reactions

Leprosy is not usually a painful disease. But sometimes a person with leprosy will experience pain and discomfort. This happens because the body reacts against the presence of the leprosy bacilli. These reactions are the main cause of nerve damage and disability in leprosy.

Leprosy reactions can happen at any time during the illness: when you first see the patient, during treatment and even afterwards. Because it is very important to recognise reactions and to treat them properly, they are described in full in Chapter 3 of this book.

If you find signs of nerve damage the first time you examine a patient, ask the patient how long the signs have been there. If the damage has been present for less than six months, you should start anti-reaction treatment at the same time as anti-leprosy treatment.

Check for complications of leprosy

If leprosy is not recognised at an early stage, the patient may already have complications of the disease when you first see them. Some of this damage cannot be reversed completely, though you can work with the patient to prevent any problems getting worse.

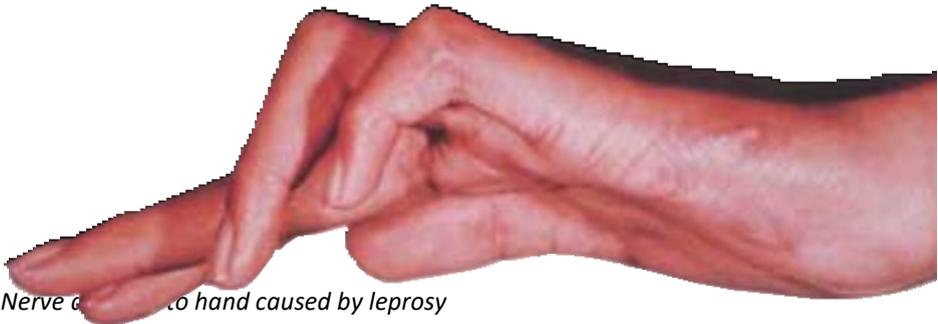
What are the complications you are most likely to see?



Damage to the eyelid muscles caused by leprosy (lagophthalmos)

Damage to the eye

Muscle weakness may mean that the patient cannot shut their eyes. If they try to close their eyelids, the white of the eye can still be seen. This is dangerous, because the eye can easily be damaged. Damage to the eye can lead to blindness. For further information read *Prevention of blindness in Leprosy (2006)*.



Nerve damage to hand caused by leprosy

Paralysis of the hand

If the nerves of the arm are damaged, the muscles of the hand lose their strength. This can lead to paralysis of the fingers.



Painless wounds on the hand in leprosy

Painless wounds

People who have lost feeling in their fingers or toes will not feel pain when they cut or burn themselves. They may get small wounds that do not hurt. If these wounds are not treated, they get bigger and become infected. This can lead to the loss of fingers or toes.



Painless ulcers on the feet in leprosy

Plantar ulcer

Loss of feeling in the sole of the foot can lead to ulcers unless the foot is protected. The prevention of ulcers and other disabilities resulting from leprosy is explained in the ILEP book *Essential Action to Minimise Disability in Leprosy*.

Changes in the face

In very advanced leprosy, the skin of the face sometimes becomes thicker; this especially affects the nose, the ear lobes and the eyebrows. Some of these complications can happen during treatment, it is important that you try to see the patient regularly and encourage them to come to you if they notice any problems developing.

Disability Grading

(also called Impairment Grading)

It is very useful to assess the disability that a person has at the start of treatment and then later during treatment. The most widely used grading system (the WHO Disability Grade) appears in the following table:

WHO Grade	0	1	2
Eyes	Normal	—	Reduced vision (unable to count fingers at 6 metres). Lagophthalmos.
Hands	Normal	Loss of feeling in the palm of the hand.	Visible damage to the hands, such as wounds, claw hand, or loss of tissue.
Feet	Normal	Loss of feeling in the sole of the foot.	Visible damage to the foot, such as wounds, loss of tissue, or foot drop.

Eyes, hands and feet (both sides) are graded separately and receive a score of 0, 1 or 2. It is useful to record all six scores, but the grade for the person as a whole is the highest score in any of the six places. Over the course of treatment, the sum of the six grades known as the Eye, Hand and Foot (EHF) score may be more useful than the maximum grade, as it is more sensitive to change.

Record your findings

Whenever you find that a person has leprosy, you should record details on the patient's record card or in your clinic record book. You should do this whenever you see the patient during their treatment. This will help you to recognise changes as soon as they occur.

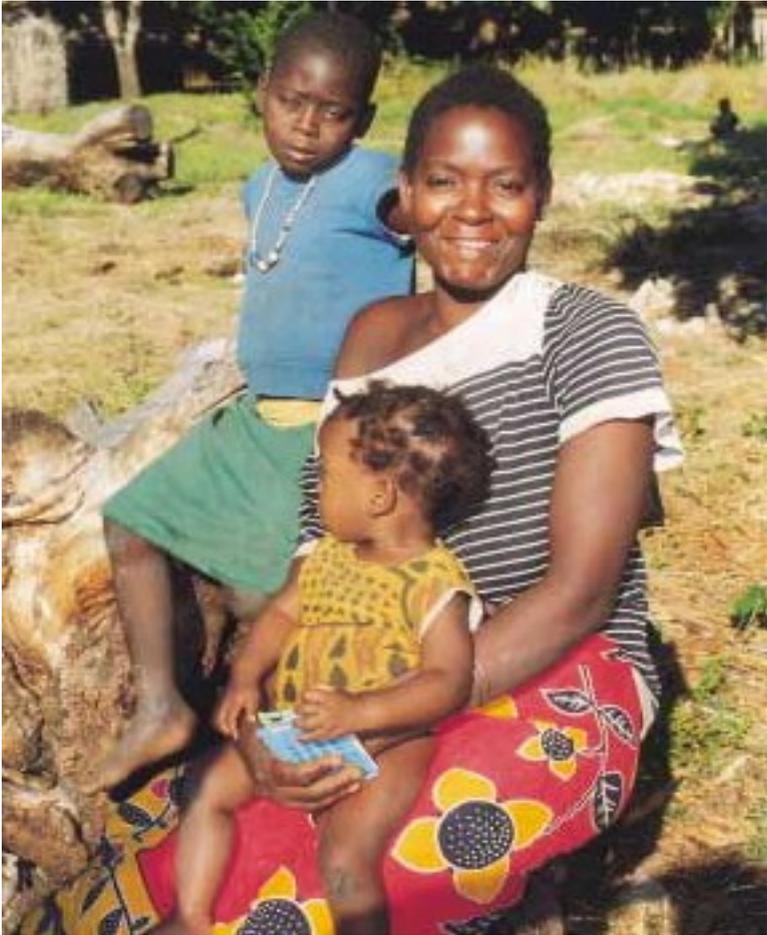


Prescribe the correct treatment

As soon as you have diagnosed a patient with leprosy, you must prescribe the correct treatment. Write the prescription in the patient record and start the treatment immediately. The next chapter explains how to do this.

CHAPTER TWO

How to treat leprosy patients



Millions of leprosy patients all over the world have been successfully treated.

The treatment for leprosy is simple. It is available free, and the drugs are supplied in special packs that contain the correct dose for one person for four weeks. All you have to do is to decide which course of treatment the patient needs and to make sure that they take it regularly.

How to decide which treatment a patient needs

Some patients have a mild infection. This can be cured by treating the patient for six months. This type of infection is called paucibacillary or PB leprosy.

Other patients may have a more serious infection. This can be cured by treating the patient for twelve months. This type of infection is called multibacillary or MB leprosy.

How to tell if someone has PB or MB leprosy

Count the skin patches

- If you find five patches or less, classify the patient as PB.
- If you find more than five patches, classify the patient as MB.

When a skin smear is taken

- If the skin smear is negative and the patient has five patches or less, classify the patient as PB.
- If the skin smear is positive, classify the patient as MB, whatever the number of skin patches.

If you are unsure, you should refer the patient to a leprosy specialist.

How will you classify the patients in these pictures?



a. This patient has 14 patches on the skin



b. This patient has only two patches



c. This patient has nodules all over the body. The skin smear is positive



d. This boy has indistinct skin lesions over most of his upper body; he has complications of leprosy and has never received treatment

a. MB. b. PB. c. MB. d. MB.

How to prescribe the correct treatment

Leprosy patients must be treated with a combination of drugs, known as Multi-Drug Therapy or MDT. The treatment duration varies according to whether the patient is PB or MB. New Guidelines from WHO in 2018 recommend the same three drugs for all cases, to be given for 6 months to PB cases and for 12 months to MB cases.

Treatment of leprosy

Age	Drug	Dosage (mg)	Frequency
Adult	Rifampicin	600	Once a month
	Clofazimine	300	Once a month, followed by 50 mg daily
	Dapsone	100	Daily
10-14 years	Rifampicin	450	Once a month
	Clofazimine	150	Once a month, followed by 50 mg on alternate days
	Dapsone	50	Daily
< 10 years or <40Kg	Rifampicin	10 mg/Kg	Once a month
	Clofazimine	6 mg/Kg	Once a month, followed by 1 mg/kg twice weekly
	Dapsone	2 mg/Kg	Daily
The course of treatment is given for 6 months for PB patients and 12 months for MB patients.			

The monthly dose is taken at the start of treatment (Day 1) and every 28 days. The daily dose is taken every day. Treatment must be completed within, at most, 9 months for PB, and 18 months for MB patients.

The health worker should see the patient take the monthly dose of treatment; this helps to guarantee that the treatment is taken properly and prevents drug resistance. It also gives the health worker an opportunity to check the patient for any complications of leprosy.

Treatment of drug-resistant leprosy

A small number of cases develop drug-resistant leprosy, especially in countries where the number of leprosy cases is high. When resistance to rifampicin is proven by special tests, whether alone or in association with dapsone or quinolone resistance, a full course of second-line treatment must be started.

Treatment of rifampicin resistant leprosy: use either regimen A or regimen B

	First phase 6 months (daily)	Second phase 18 months (daily)
A	Fluoroquinolones* + Minocycline 100 mg + Clofazimine 50 mg	Fluoroquinolones* OR Minocycline 100 mg + Clofazimine 50 mg
B	Fluoroquinolones* + Clarithromycin 500 mg + Clofazimine 50 mg	Fluoroquinolones* + Clofazimine 50 mg

* Ofloxacin 400 mg or levofloxacin 500 mg or moxifloxacin 400 mg

Treatment of rifampicin and ofloxacin resistant leprosy

	First phase 6 months (daily)	Second phase 18 months (daily)
	Clarithromycin 500 mg + Minocycline 100 mg + Clofazimine 50 mg	Clarithromycin 500 mg OR Minocycline 100 mg + Clofazimine 50 mg

When using second-line treatment, it is important to ensure daily observation of treatment by a health worker, in order to ensure adherence and prompt treatment of adverse reactions.

Surveillance of adverse effects during leprosy treatment

Some leprosy patients may develop adverse effects while on treatment. It is important to prevent them as much as possible, by asking if there is any known drug allergy, or chronic diseases that affect the liver or kidney.

If an adverse effect occurs, treatment depends on the severity:

Mild adverse effects include skin darkening due to clofazimine and red urine due to rifampicin - in these cases, patients should be reassured; there is no need to stop the drug.

Moderate adverse effects include anaemia due to dapsone, which is quite common; if not severe, the anaemia can be treated with iron and folic acid tablets; if more severe, dapsone should be stopped.

Severe adverse effects include the dapsone hypersensitivity syndrome which usually starts in the 2nd or 3rd month of treatment with dapsone; there are signs of skin inflammation all over the body: dapsone should be stopped immediately. Severe adverse effects caused by the other drugs are very rare. In general, patients with any severe reaction, including jaundice, should be referred to a nearby hospital.

In order to encourage surveillance of drug adverse reactions, the following form may be used:

Adverse Reaction	Severity*	Treatment of adverse reaction	Response to the treatment

*1= Mild; 2=Moderate; 3= Severe and 4= Life threatening or death.

How to give the treatment

Show each patient how to take the tablets. Explain that it is very important for them to finish the course of treatment, and that they must take the tablets every day and collect a new monthly supply every four weeks. Allow the patient time to ask questions about the treatment.

How to ensure that the treatment is taken regularly

Treat your patients with respect. Take time to explain the illness and its treatment to your patients; listen to their concerns and answer their questions. Make sure they understand how to take their treatment and when they need to come back to the clinic.

Every time the patient comes to collect their treatment, record this on their treatment card or in the clinic register.

Check these records regularly, to make sure that all your patients are receiving their treatment. If someone is not collecting their treatment regularly, do all you can to contact them. People in the community may be able to help with this.



Regular treatment = cure. Patients who do not take the treatment regularly may not get better, or they may get better for a time and then get worse again. So they will still have leprosy and they may develop more serious complications.

If a patient is not taking their treatment correctly, try to find out why. Is there anything you can do about it? Try to find a solution together with the patient.

Make sure you have a good supply of medicine ready for your patients to collect.

Some places have monthly clinics for leprosy patients, however, it is often more convenient for patients if they can come for their treatment at any time just like patients with other illnesses.

Some people may find it difficult to come to the clinic every month. You may have to give these patients more than one blister pack at a time. In this case, make sure the patient understands how to take the treatment. If possible, ask someone else to help the patient take the treatment regularly – this could be a family member or a reliable neighbour.



Encouraging patients to complete their treatment

If a patient does miss some months of treatment, they can still continue with the course – so long as they have not missed more than three months of treatment for a PB course, or six months for an MB course. Patients who miss more months than this, and still have signs of leprosy, will have to start the whole course of treatment again from the beginning.

What to do when a patient has completed treatment

When the patient has taken six months of treatment for PB leprosy or 12 months for MB leprosy, you must write in the register that the patient has completed the treatment.

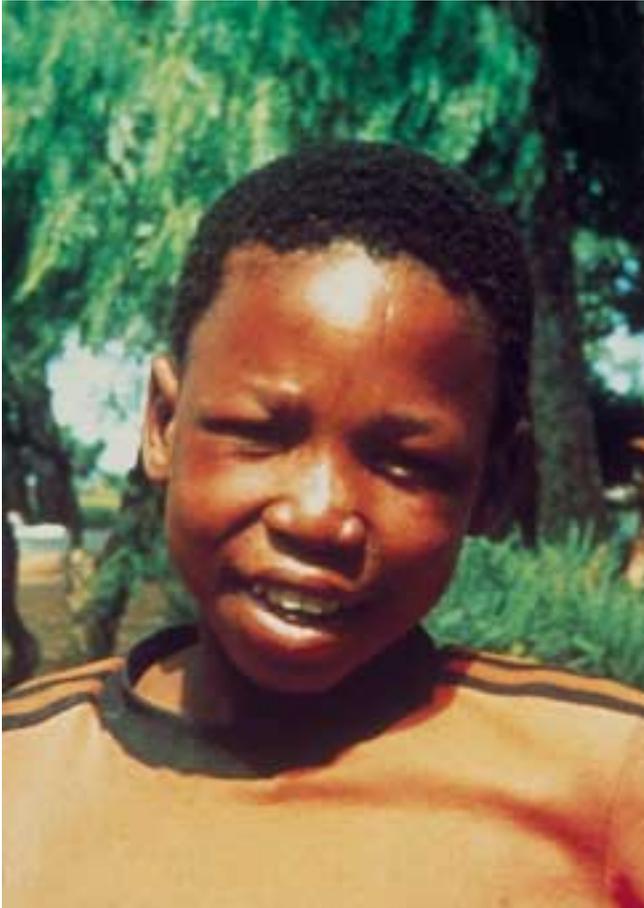
Patients who have finished their treatment are cured: the leprosy bacilli have been killed. However, some signs of leprosy may remain.

For example, skin patches caused by the leprosy will not disappear immediately. For some people, light-coloured patches remain on the skin permanently. You must explain this to patients who have patches of this kind, or they may not understand why their treatment has been ended.

Loss of feeling, muscle weakness and other nerve damage may also remain. You must make sure that your patient knows how to prevent more damage occurring. You can find information on how to prevent problems such as ulcers or muscle wasting in ILEP Learning Guide 4: How to prevent disability in leprosy.

The problem that happens most often after treatment is new nerve damage caused by a reaction. If this happens, you do not need to restart the leprosy treatment, but you must treat the reaction. When you see the patient at the end of their treatment explain that they should come back immediately if any of their previous symptoms come back again.

A very small number of patients will get new skin patches some years after treatment is completed because their leprosy has returned. If you see patients with new signs of leprosy, refer them to a leprosy specialist.



Leprosy reactions

Leprosy reactions can occur at any time in any leprosy patient.

They can happen

- Before diagnosis.
- At the time of diagnosis.
- During treatment.
- After treatment has finished.

Reactions are the main cause of nerve damage and disability in leprosy, so it is important that you are able to recognise them. Early treatment or referral can prevent complications caused by reactions.

What is a leprosy reaction?

Sometimes the body responds to leprosy infection by becoming inflamed; this is called a 'reaction'. The inflammation can affect the skin patches, the nerves, the eyes and, in a few cases, the internal organs.

Inflammation of a skin patch can be uncomfortable, but it is not usually very serious (unless it is near the eye).

Inflammation of a nerve is very serious - once the nerve is damaged, there is a high risk of disability. Inflammation of nerves can be very painful and the patient will come to you for help. However, sometimes inflammation can destroy a nerve without the person feeling anything. This again is very serious as the longer the inflammation of a nerve lasts, the more damage it does. It is important to treat reactions quickly.

Generalised inflammation affects the whole body and the patient can become seriously ill very quickly.



This man has severely impaired hands due to nerve damage caused by leprosy

How to recognise a leprosy reaction

Every time you see a leprosy patient, check the skin, nerves and eyes for signs of a reaction. Not all leprosy reactions look the same. Sometimes there is only skin inflammation and the nerves are not affected. More often, though, reactions affect the nerves but the skin patches do not change. In a few cases, the eyes are also affected by the reaction.

Skin

In reacting skin patches, the symptoms of inflammation include pain, swelling, redness and heat.

Ask the patient if they have any pain or swelling in the skin patches.

Examine the patches for signs of inflammation.

Look at these two pictures

They show typical skin patches on someone with early leprosy.



Skin patches in early leprosy

Look at the next two pictures

These pictures show the skin patches of someone with a reaction.

What changes can you see in the skin patches? The second two pictures show that the patches have become swollen and reddish in colour. These patches may feel warm and painful.



Skin patches in leprosy reaction

Nerves

To find out if there is new nerve damage, compare the results of this test with the last examination.

Here are the signs of new nerve damage

- There are places on the hands or feet where the patient could feel before but cannot feel now.
- Any muscle has lost strength compared with the previous examination.
- Any nerve has become more painful or tender to the touch.

Nerve damage must be treated quickly to stop further damage.

Always record the details of these examinations on the patient's record form.



Signs of inflammation in the eye

Eyes

- Ask if there is any pain or recent loss of vision.
- Look for signs of inflammation: redness or an irregularly-shaped pupil.
- Look for new or worsening lagophthalmos.

Always record the details of these examinations on the patient's record card.

How to manage a leprosy reaction

First you must decide if the reaction is mild or severe.

Mild reactions

These occur in the skin only: there may be mild fever and slight swelling of the limbs. They can be treated with aspirin (the usual adult dosage is 600 mg up to six times per day) or paracetamol (1 gm up to four times per day). A mild reaction on the face should be treated as severe.

Severe reactions

Severe reactions involve the nerves or eyes, or the whole body.

Signs of severe reactions are

- Pain or tenderness in the nerves.
- New loss of feeling.
- New muscle weakness.
- Reaction in a skin patch on the face.
- Signs of inflammation in the eye.
- Severe swelling of the limbs or face.

If the patient has a severe reaction, you must refer them immediately to a centre where they can receive steroid treatment. If you are unsure if the reaction is mild or severe, you should refer the patient.

If you are responsible for prescribing steroid treatment, you should read the *ILEP Learning Guide 2: How to recognise and manage leprosy reactions*. It shows the precautions you must take when you start someone on steroids, which can have serious side effects if used without careful monitoring.

The effective management of reactions will prevent disabilities.

In case you do not have a copy of this second book, or you are waiting to refer the patient to a specialist, you may start treatment with steroids.

Use the following regimen. The total duration of this course is twenty weeks.

Weeks of course	Daily dose of prednisolone
1–2	40 mg (for 2 weeks)
3–4	30 mg (for 2 weeks)
5–12	20 mg (for 8 weeks)
12–16	10 mg (for 4 weeks)
16–20	5 mg (for 4 weeks)

The basic steroid regimen for treating severe reactions.

ILEP Learning Guides on Leprosy

How to diagnose and treat leprosy

How to recognise and manage leprosy reactions

How to do a skin smear examination for leprosy

How to prevent disability in leprosy

