

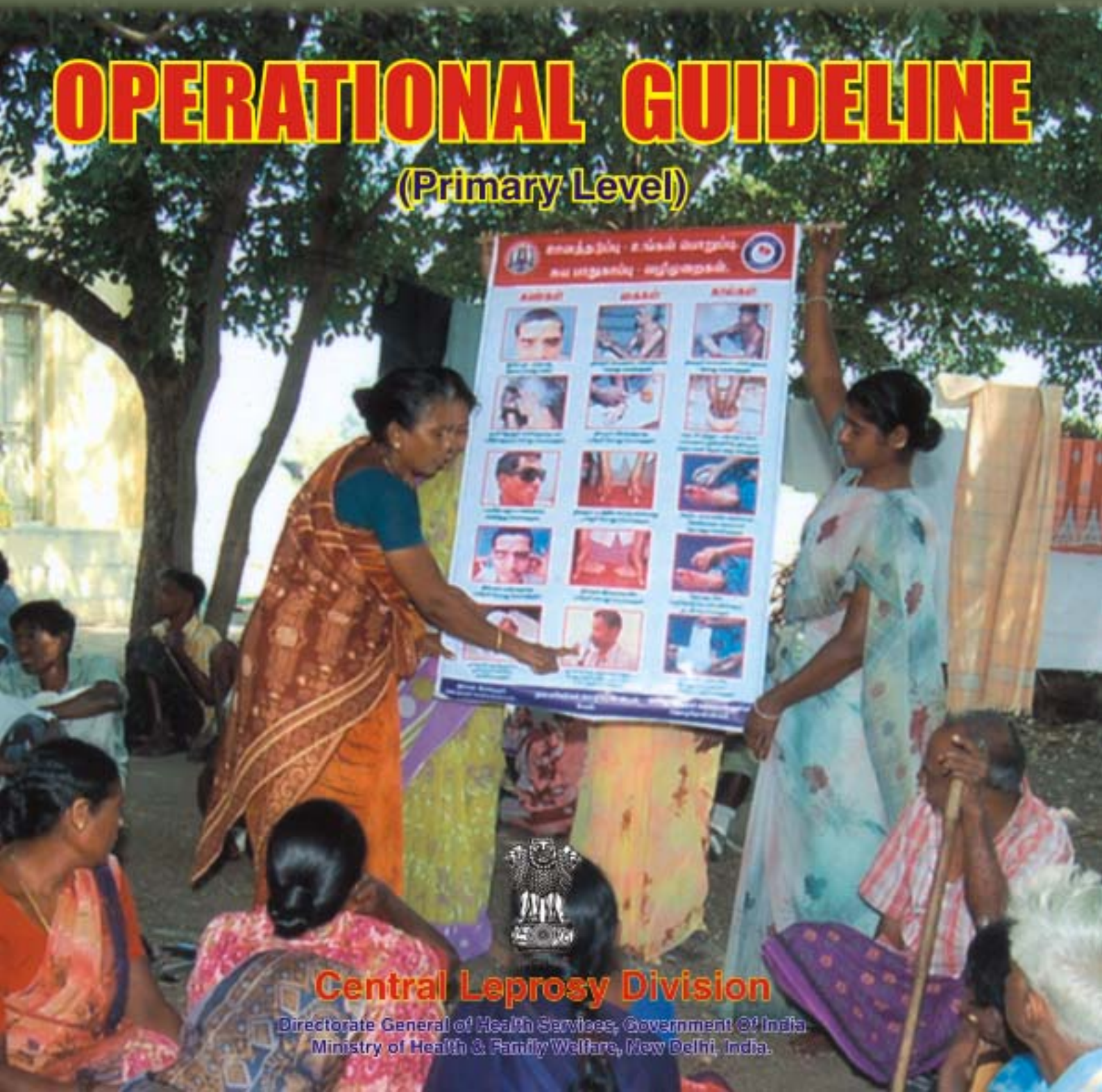


National Leprosy Eradication Program

**Disability Prevention & Medical Rehabilitation
(DPMR)**

2007

OPERATIONAL GUIDELINE (Primary Level)



Central Leprosy Division

Directorate General of Health Services, Government of India
Ministry of Health & Family Welfare, New Delhi, India.

DISABILITY PREVENTION & MEDICAL REHABILITATION

OPERATIONAL GUIDELINES PRIMARY LEVEL CARE

**(Includes All Primary Health Centres, Community Health Centres,
Sub-division Hospitals & Urban Health Centres)**

2007

**NATIONAL LEPROSY ERADICATION PROGRAMME (NLEP)
DIRECTORATE GENERAL OF HEALTH SERVICES
MINISTRY OF HEALTH & FAMILY WELFARE
GOVERNMENT OF INDIA**

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LIST OF ACRONYMS

ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
ASLO	Assistant State Leprosy Officer
AWW	Angan Wadi Worker
BCP	Blister Calendar Pack
BEE	Block Extension Educator
CHC	Community Health Centre
CLTRI	Central Leprosy Training & Research Institute
CMO	Chief Medical Officer
DLO	District Leprosy Officer
DDRO	District Disability Rehabilitation Officer
DPMR	Disability Prevention & Medical Rehabilitation
DRPD	District Rehabilitation Programme for Disabled
DRPA	Disability Rights Protection Act
DLP	Disabled Leprosy Person
DLS	District Leprosy Society
EHF Score	Eye Hand Feet disability Scoring
GOI	Government of India
GHCS	General Health Care System
ILEP	International Federation of Anti- leprosy Associations
PWD	Person With Disability
LT	Laboratory Technician
LTC	Leprosy Training Centre
MB/PB	Multi Bacillary / Pauci - Bacillary
MDT	Multi Drug Therapy
MO	Medical Officer
MOHFW	Ministry of Health & Family Welfare
MPHW	Multipurpose Health Worker
NGO	Non-Governmental Organisation
NLEP	National Leprosy Eradication Programme
NRHM	National Rural Health Mission
PHC	Primary Health Centre
PMW	Para Medical Worker
PMR	Physical Medicine and Rehabilitation
POD	Prevention of Disability
POWD	Prevention Of Worsening of Disability
PR	Prevalence Rate
PRI	Panchayati Raj Institutions
PT	Physio Therapist / Physio - Technician
RCS	Re Constructive Surgery
RLTRI	Regional Leprosy Training & Research Institute
RSU	Reconstructive Surgery Unit
SC	Scheduled Caste
SHG	Self Help Group
SLS/O	State Leprosy Society/Officer
SIHR&LC	Schieffelin Institute of Health Research and Leprosy Centre

GLOSSARY

Accompanied MDT:	Provision of more than 1 BCP of MDT at a time.	Multi-bacillary cases:	A leprosy patient with six or more skin patches.
Anaesthesia:	Loss of sensation	Nerve function impairment:	A loss of normal nerve function, demonstrated by loss of sensation in the skin or reduced muscle power in its area of distribution.
Blindness:	Refers to a condition (WHO) where a person suffers from any of the following conditions, viz., (i) total absence of sight; or (ii) visual acuity not exceeding 6/60 or 20/200 (Snellen's method) in the better eye with correcting lenses; or (iii) limitation of the field of vision subtending an angle of 20 degrees or worse.	New case:	A case of leprosy who has never been previously registered / treated with anti-leprosy chemotherapy
Case of leprosy:	A case of leprosy is a person with clinical signs of leprosy, who requires chemotherapy (MDT)	Orthoses:	A treatment device especially for hands and feet, such as splints and MCR footwear
CBR:	A Strategy within general community, for the rehabilitation, equalization of opportunities and social inclusion of all people with disabilities	Prosthesis:	Artificial limb
Clawing:	Deformity wherein there is hyperextension of the joints between the fingers and the palm (MP joint) and flexion of the joints of the fingers.	Pauci-bacillary Case:	Case having 1 to 5 skin patches, with definite loss of sensation / involvement of one trunkal nerve.
Corticosteroids:	A group of drugs known for their ability to suppress inflammatory response	Passive movement:	Movement produced by assistance / an external force.
Crack:	Discontinuity of the epidermis, usually seen in joint folds or on the sole where the skin is thick.	Person with low Vision:	Having vision less than 6/18 with glasses
Defaulter:	An individual who fails to complete treatment within the prescribed time frame	Lepra Reaction:	The sudden appearance of symptoms and signs of inflammation in the skin or nerves or eyes of a person with leprosy
Deformity:	Abnormal appearance, disfigurement	Rehabilitation:	includes all measures aimed at reducing the impact of disability for an individual, enabling him or her to achieve independence, social integration, a better quality of life and self-actualization.
Disability:	Broad term covering any impairment, activity limitation or participation restriction affecting a person.	Relapse:	The re-occurrence of the disease at any time after the completion of a full course of treatment
Foot-Drop:	Inability to move the foot up i.e., dorsiflexion, caused by the paralysis of the muscles which lift the foot.	RFT:	Release from treatment; this occurs when treatment with MDT has been successfully completed
Indicator:	Measurable aspect of a programme, which can indicate the level of performance and/or changes in performance	Self-Help Group:	"A small, economically homogeneous and affinity group of rural/urban persons, voluntarily formed to save and contribute to a common fund to be lent to its members as per the groups decision and for working together for social and economic uplift of their families and community".
Impairment:	any loss or abnormality of anatomical structure or function caused by the disease or injury. It may be visible or invisible, temporary or permanent and progressive or regressive. Primary impairment may progress to the development of secondary impairments. Example: plantar ulcer, defective vision, contractures in fingers.	Social integration:	The active participation of persons with disabilities in the mainstream of community life.
Lagophthalmos:	Inability to close the eye	Ulcer:	Discontinuity of the skin or mucous membrane
Leprosy cured person:	Any person who has completed a prescribed course of MDT (6 months for PB/12 months for MB Regimen).	Wrist drop:	Inability to move the wrist into extension.
MDT:	Multi-Drug Therapy	WHO Disability Grade 1:	Loss of sensation in palm / soles due to damage of main peripheral nerve trunk supplying that area
		WHO Disability Grade 2:	Visible disability / deformity or damage of hand & foot; or person cannot count fingers at a distance of 6 feet, lagophthalmos, iridocyclitis, and corneal opacity.



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Foreword

National Leprosy Eradication Programme is one of the most successful national health programme in India. After achieving the goal of 'leprosy elimination' at national level i.e. reaching the prevalence rate below 1 per 10,000 population, thus overcoming Leprosy as a public health problem, the next priority is Disability Prevention & Medical Rehabilitation (DPMR) of all leprosy affected persons.

Operational guidelines on DPMR related functions are simple to follow and it covers all the essential components. The purpose is comprehensive care of leprosy cases, including rehabilitation. I believe that these operational guidelines will be useful in implementing DPMR related activities at all primary care level health institutions.

Yours sincerely

Dr. P. L. Joshi

OPERATIONAL GUIDELINES ON DPMR

Primary Level Care (First Level)

Introduction:

National Leprosy Eradication Programme (NLEP) is implemented with major objectives of reducing the disease burden, preventing disabilities and to improve awareness about leprosy in the country through a vertical programme. Multi Drug Therapy is used as an important instrument to reduce the burden of active cases of leprosy. Some new cases have presented with deformities of hands, feet and eyes. Vertical services have been integrated into General health care system, following which, the Leprosy services are being provided through all Govt. hospitals, Primary Health centres and other health care facilities. Services, for Diagnosis & Multi Drug Therapy, drug procurement and Simplified Information System, have been established and are available in general health care system. Prevention of disability (POD) and the concept of comprehensive care are to be strengthened now. Deformities in leprosy cases affect the image of leprosy and impact of health program in the minds of people hence, the priority to POD. While millions, of cases of leprosy have been treated, there still remain a considerable number of cured leprosy patients with disabilities who will need physical and socio-economic rehabilitation.

The actual number of cured leprosy patients with disabilities is not known. It is estimated that around one million leprosy patients with disabilities exist in the country. There will be around 2000 cured leprosy patients with disabilities in a district. To institute care for individual leprosy patients with disabilities, it is essential to identify each patient and his/her disability status in a given area. This will also help in preparing the action plan and resource allocation. At present there is no organized system in place to identify cured leprosy patients with disabilities. Therefore, there is a need to develop a strategy at the national level.

Now, that the country has achieved the primary goal of eliminating leprosy as a public health problem, it is felt that prevention of deformities and disabilities need to be given higher emphasis during the 11th Five Year Plan period (2007-2012). The services are to be provided through the infrastructure already existing in the country.

Objectives of DPMR (Disability Prevention & Medical Rehabilitation)

- (i) To prevent disabilities and worsening of existing deformities in all needy leprosy affected persons cases, both patients on treatment and those released from treatment.
- (ii) To develop a referral system for providing POD services to all leprosy disabled persons in an integrated set up.

REFERRAL SYSTEM

Sub Centre :

Implementation

- Self care advice
- Advice to RCS cases
- Monitoring

Referral

- Reaction
- Disability

PHC :

Implementation

- Manage Reactions (if possible) or Refer
- Identify or refer patient needing RCS
- Identify patient needing foot-wear
- Advice to Reconstructive surgery cases
- Advise to self care

Referral

- Lepra Reactions difficult to manage
- Complicated ulcer
- Eye problems
- Reconstructive surgery cases
- Persons needing foot-wear
- Follow up of RCS, Lepra Reaction

District Hospital:

Implementation

- Management of complicated ulcers
- Management of Lepra Reactions

Referral

- Refer difficult ulcer cases to Reconstructive Surgery centre

District Nucleus:

Referral

- Referral for Reconstructive surgeries / follow up of RCS

Implementation

- Management of Lepra reactions
- Supply of foot-wear

Reconstructive Surgery centre

- Implementation
- Referral

Implementation

- Reconstructive surgery
- Follow up after Reconstructive surgery
- Supply of foot wear to District Nucleus

(Foot-wear)

PLAN FOR DISABILITY PREVENTION AND MEDICAL REHABILITATION

Primary Level Care (First Level)

Preamble:

Govt. of India circulated the plan for DPMR for the 11th plan period (April 2007 – March 2012) vide letter No. Z.16025/4/2006-Lep. Coordn. dated 29th June 2006.

The DPMR activities are planned to be carried out in a three-tier system i.e. the Primary level care (First level), Secondary level care (Second level) and the Tertiary level care institutions (Third level).

The Primary level care institutions are all Primary Health Centres, Community Health Centres, Sub-divisional Hospitals and Urban Leprosy Centres/dispensaries.

Operational guidelines on each component and activities are indicated in this document. This operational guideline has been prepared to facilitate proper implementation of the DPMR activities at the first level.

1. Source of Patients

Patients reporting directly or referred by Health Workers/ family members or other persons affected by leprosy

2. Service Components

2.1 How to assess the disability status of a case by a medical officer at PHC:

Physical examination

After diagnosis of a case of leprosy based on the cardinal signs, the Medical Officer or Para-medical Worker at PHC will proceed further to assess the disability status of each case. The sequence in assessing a person affected by leprosy is mentioned below.

History taking

- Duration of disease
- Duration of treatment i.e. MDT, treatment for reactions, surgery etc.
- Duration of Disability

Physical Examination

- Observation
 - Dryness of hands and feet
 - Swelling and redness on patches and joints
 - Appearance of new lesions or expansion of existing lesions
 - Absence of blink in the eyes
 - Redness and watering in the eyes
- Palpation of peripheral nerves for tenderness (Ulnar; Median; Radial;Lateral Popliteal; Posterior Tibial;)
- Sensory testing over Hands (palm), Feet (sole) and Eyes (cornea)
- Voluntary muscle testing - Abduction of little fingers, Abduction of Thumb and Extension of wrist, Dorsi-flexion of foot and Light closure of eyes

Examination of patients for Disability Assessment

The Medical Officer will now proceed to carry out examination to do Sensory Test (ST) and Voluntary Muscle Test (VMT) in the hands, feet and eyes. Clinical findings are interpreted to assess the activity of disease and whether nerve damage is reversible or not. Potential disabilities (at risk of developing disability) are noted for their regular monitoring.

Examination of eyes

Eyes are examined for acuity of vision, lid gap and redness or any other change. The findings are to be noted in the Disability Assessment Form (form II)

- Look for any redness of the eye
- Note “watering in the eye” through history and observation
- Observe for blink – Present or Absent
- Look for inability to close one or both eyes (Lagophthalmos) and check for normal strength of eye closure. Measure the gap in millimetres
- Check the Visual Acuity of each eye separately, using a Snellen’s chart or by counting fingers at 6 metres. If the person cannot read the top line of the chart, or count fingers at 6 metres, they are visually impaired and have grade II disability in that eye

How to do a Sensory Test (ST):

Impairment of sensation is a main cause of disability and deformity in leprosy. The objective of the ST is to detect early nerve damage.

How should one test for sensation:

It is very important to pick up the skill of eliciting sensory loss in skin patch

- You will need a ball point pen (with plastic body)
- Explain to the person what you are going to do and demonstrate it
- Touch the skin with the pen, ask the individual to point to the spot touched with his index finger
- Repeat this procedure a few times until the patient is familiar and comfortable with the procedure
- Now ask the patient to close his eyes and repeat the procedure (first on the normal skin then over the affected area)
- While testing lesions over inaccessible areas (back, buttocks) the patient may be asked to count on each touch

Remember:

- Do not use other “instruments” like pin, cotton wool, feather, etc.
- When testing for sensation, touch the skin lightly with the pen. Do not stroke
- The pen should be perpendicular to the surface of the skin
- Do not keep asking the patient whether he feels the touch. You may get misleading results
- Proceed from the normal skin to the patch
- Give only one stimulus at a time
- Vary the pace of testing

NERVE EXAMINATION:

Involvement of the peripheral nerves, as demonstrated by definite thickening with a loss of sensation with or without weakness of the corresponding muscles of the hands, feet or eyes

1. When palpating the nerves, you should look for two things: thickening and tenderness
2. The patient should be properly positioned. The examiner should also be positioned correctly
3. Locate the nerve correctly
4. Observe the patient's face while palpating the nerve to elicit tenderness
5. Palpate gently with the pulp, not the tip, of the finger
6. Always palpate across the course of the nerve
7. Feel along the nerve as far as possible in both directions

How to do a Voluntary Muscle Test (VMT):

A voluntary muscle test is done to test the muscle strength in certain muscles or muscle groups of the eyes, hands and feet. The strength reflects the function of the motor fibres in the nerves that supply these muscles. If the strength in the muscle (group) is less than that expected in a healthy person of that age and sex, the person is diagnosed to have motor impairment (nerve damage).

The test to detect early muscle weakness	
Facial nerve	Ask patient to close eyes lightly, as during sleep, and check for lid gap. A gap of ± 1 mm may be normal. Record the gap in millimetres on the form. To test for early weakness, ask the patient to close the eyes tightly and try to separate the eyelid with your thumb and index finger. Do not use excessive force!
Ulnar nerve	Ask the patient to abduct the little finger and apply resistance at the base of the little finger ("little finger out"). Record the strength.
Median nerve	Ask the patient to hold the hand flat in a horizontal position and abduct the thumb (point upwards at 90 degrees) ("thumb up"). Resistance is applied at the head of the 1 st Metacarpel towards the index finger. Wrist should be slightly extended.
Radial nerve	Ask the patient to extend the wrist ("wrist up"). Apply assistance on the dorsum of hand.
Lateral popliteal nerve	Ask the patient to lift the foot ("foot up"). Apply assistance on the dorsum of foot.

The muscle power of both hands and feet are categorized as :

S = Strong, W = Weak and P = Paralysed

Cases with Grade – 0 disability who are at risk of developing disability are those who have thickened nerves, positive skin smear, impairment of vision, early nerve damage, skin lesions over / near the nerve trunk, pregnancy, on hormonal therapy .

The findings of the examination are first noted in the Disability Assessment Form (form II) separately for right and left eyes, hands and feet. Thereafter each eye, each hand and each foot is given its own grade.

Examination of parts	WHO Disability Grades	Sensory Testing (ST)	Voluntary Muscle Testing (VMT)	
Hands	0	Sensation present	Muscle power normal (S)	
	1	Sensation absent	Muscle power normal (S)	
	2	Sensation absent	Muscle power weak or paralysed (W/P)	
Feet	0	Sensation present	Muscle power normal (S)	
	1	Sensation absent	Muscle power normal (S)	
	2	Sensation absent	Muscle power weak or paralysed (W/P)	
Eye		Vision	Lid Gap	Blinking
	0	Normal	No lid gap	Present
	2	Cannot count fingers at 6 meters	Gap present / red eye/corneal ulcer or opacity	Absent

The highest grade given in any of the part is used as the Disability Grade for that patient. EHF score i.e. sum of all the individual disability grades for two eyes, two hands and two feet -0-12, should be recorded at each examination.

The disability grade and EHF score of the patient on the date of assessment should be indicated in the Disability Assessment Form and signed by the Medical Officer. The findings will then be recorded in the patient treatment register and the patient card.

2.2 How to suspect cases of leprosy reaction, relapse, insensitive hands & feet by the Health Workers and refer to the Primary level Health Centres for diagnosis:

Peripheral health workers are to be trained to identify leprosy reactions, relapses and Grade – I disability. Clinical features to identify each are as under:

- Leprosy reaction is the sudden appearance of symptoms and signs of inflammation in the skin lesions or nerves or eyes of a person with leprosy. There is redness, swelling and sometimes tenderness of the skin lesions. New skin lesions or symptoms suggestive of new nerve damage, such as numbness, or muscle weakness in the hands or feet may appear. Crop of subcutaneous nodules may appear
- Relapse is defined as the re-occurrence of the disease at any time after the completion of a full course of treatment. Relapse is also indicated by the gradual appearance of new skin lesions. Signs of inflammation or neuritis are usually not there
- Insensitive hands & feet can be identified by sensory testing in that area. Insensitive palms and soles are prone to develop ulcers due to external injury

Such cases should be referred along with referral slips (form VI) to Medical Officer PHC for treatment.

2.3 How to diagnose cases of reaction by Medical officer distinguishing mild from severe reactions:

Leprosy reactions are diagnosed by clinical examination. Sudden appearance of symptoms & signs of inflammation in the existing lesions of skin, nerves and eyes or appearance of painful- tender subcutaneous nodules in crops are suggestive of reaction.

Apart from this, new skin lesions may appear. There may also be swelling, pain and tenderness of nerves often accompanied by loss of function; sometimes loss of nerve function occurs without other signs of inflammation, making it much less obvious – so called ‘silent neuritis’ or ‘quiet nerve paralyses’.

Some times patients may have swelling of hands and feet and pain in small joints.

Monitoring nerve function on a regular interval (two weeks for persons on Steroid therapy and monthly for cases at risk of developing disability and three monthly for other cases), enables new nerve damage to be detected in time and treated.

Recent (that is within the last 6 months) loss of function in one or more peripheral nerves is the main reason for steroids to be prescribed in leprosy

The following signs indicate that a reaction is severe and that the patient must be put on steroids

- Red, painful, single or multiple nodules in the skin with or without ulceration
- Pain or tenderness in one or more nerves, with or without loss of nerve function
- Silent neuritis or quiet nerve paralysis
- A red, swollen skin patch on the face, or overlying another major nerve trunk
- A skin lesion that becomes ulcerated, or that is accompanied by a high fever
- Marked oedema of the hands, feet or face
- Pain and or redness of the eyes, with or without loss of visual acuity
- Painful swelling of the small joints with fever
- Enlargement of Lymph glands / testis with mild pain or tenderness

Reactions, which show none of these signs of severity but which are limited to mildly inflamed skin lesions may be treated symptomatically with Aspirin/Paracetamol.

Difference between type I and type II Reactions:

Type I (Reversal Reaction)	Type II (ENL)
1. Delayed hypersensitivity	1. Antigen antibody reaction
2. Occurs in both PB & MB type of cases usually in borderline, which is unstable types i.e. BT.BB.BL.	2. Seen in MB cases only (BL & LL type)
3. Skin lesions suddenly become reddish, swollen, warm, painful, tender. New lesions may appear.	3. Red, painful, tender, sub-cutaneous nodules (ENL) may appear commonly on face, arms, legs. They appear in groups/crops usually symmetrical and subside within few days even without treatment. Nodules are better felt than seen and these are recurrent (episodic)
4. Nerves - close to skin lesion may be enlarged, tender and painful (neuritis) with loss of nerve function (loss of sensation and muscle weakness) and may occur rapidly.	4. Nerves may be affected but not as acute, common or severe as in Type I
5. Other organs- Not affected	5. Other organs like eye, testis, kidney may be affected
6. General symptoms - Not common	6. Fever, joints pain, Red eyes with watering is usually associated

How to make sure that people with Lepra Reaction / Neuritis are treated as early as possible:

1. Make sure that cases & their family members have learned suspecting reaction
2. Service providers are capable of managing reactions & neuritis
3. Prednisolone is available to treat reactions
4. Proper counselling is done to assure adherence to treatment regimen
5. Cases with poor compliance are reminded / retrieved in time
6. Proper referral of cases in time and its follow up is done

2.4 How MO in PHC will manage reaction? both, mild and severe:

Mild cases of lepra reaction are treated symptomatically without giving steroids. Severe cases are given steroid for 2 weeks, If the patient responds well, treatment to be continued, If not patient to be referred to secondary referral unit.

Treatment of Lepra reactions – It includes bed rest, rest to affected nerves by splint, analgesics, and Prednisolone. Each case of reaction should be assessed for his/her fitness to be put on Prednisolone ruling out hypertension, diabetes, infections, peptic or gastric ulcers, pregnancy and other contraindications. Doses & duration of Prednisolone treatment is as under-

Prednisolone regimen
40 mg O.D. for 1 st & 2 nd weeks 30 mg O.D. for 3 rd & 4 th weeks
20 mg O.D. for 5 th & 6 th weeks 15 mg O.D. for 7 th & 8 th weeks
10 mg O.D. for 9 th & 10 th weeks 5 mg O.D. for 11 th & 12 th weeks
For neuritis , treatment with Prednisolone should be prolonged to four weeks from 20 mg onwards

Prednisolone tablets issued must be entered in 'Prednisolone Card' (Form IV) each time for monitoring purpose. Tapering of Prednisolone should be done according to its response. Patient should be instructed on salt restriction. No intake of drug on empty stomach and reporting adverse effects / symptoms immediately.

Adding Clofazimine for Type II reaction may be extremely useful for reducing or withdrawing corticosteroids in patients who have become dependent on them, though it is less potent than steroids and often takes 4-6 weeks to develop its full effect in such cases. Total duration of Clofazimine therapy should not exceed 12 months.

If a patient develops lepra reaction during the treatment, do not stop MDT (rather complete the course of MDT)

Lepra reactions which occur after completion of treatment should also be managed as mentioned earlier. MDT should not be restarted for such cases.

Response to treatment should be monitored by assessment of nerve functions and adverse effects of steroid therapy if any. Commonest side effect of Prednisolone is retention of salt / water leading to swelling or oedema, hypertension, secondary cataract and cushingoid syndrome, hence salt restriction in diet during Prednisolone intake. Gastric irritation leading to gastric ulcer, malena and ultimately perforation should be kept in mind. Secondary infections, fungal infections, osteoporosis, or any other complication of Prednisolone therapy should be managed without delay. Rarely adrenal crisis due to sudden stoppage of high dosage may be life threatening. Patient may need counselling for tapering & stoppage of Prednisolone when Lepra Reactions are controlled, other wise temptation to continue due to euphoria may lead to more complications.

How to suspect Relapse and how to differentiate it from Lepra Reaction:

Relapse is defined as the re-occurrence of the disease at any time after the completion of a full course of treatment. Relapse is indicated by the appearance of new skin lesions and, in the case of an MB relapse, by evidence on a skin smear of an increase in BI of 2 or more units. It is difficult to be certain that a relapse has occurred, as new lesions may appear in leprosy reactions also

MDT is very effective treatment for leprosy. If a full course of treatment has been taken properly, relapse is generally rare. The use of a combination of drugs has prevented the development of drug resistance in leprosy, so relapse cases can be treated effectively with the same drug regimen – 12 months MB MDT.

The most useful distinguishing feature is the time that has passed since the person was treated: if it is less than 3 years a reaction is most likely, while if it is more than 3 years, a relapse becomes more likely. A reaction may be treated with steroids, while a relapse will not be greatly affected by a course of steroids, so using steroids as a ‘therapeutic trial’ can clarify the diagnosis.

Following criteria may help in distinguishing a relapse from a reaction:

Criteria	Relapse	Reaction
Time since completion of treatment	More than 3 years	Less than 3 years
Progression of signs and symptoms	Slow	Fast
Site of skin lesions	In new places	Over old patches
Pain, tenderness or swelling	No	Yes – skin & nerves
Damage	Occurs slowly	Sudden onset
General condition	Not affected	Affected due to inflammation
Suspected relapses should be referred to District hospital (secondary level) for further investigation & management		

2.5 How to identify and manage disability grade I:

After assessing the disabilities and its grades, Medical officer PHC should take care to contain and reverse the effects of disabilities. Cases with anaesthesia of palm/sole are to be assessed properly, if the duration of disability grade I i.e. anaesthesia along the course of trunk nerve is recent (< 6 months), a course of Prednisolone is to be started to treat neuritis. If the duration is more and anaesthesia is irreversible, Prednisolone will not help but the condition is to be prevented to progress into grade II because anaesthetic sole/palm is prone to injuries resulting into ulcer, wound, secondary infection leading to mutilation & absorption of parts. To prevent this deterioration, cases must be educated and counselled to adopt “self care practices”. People need to be informed clearly about the actions they can take at home that are appropriate for their particular situation

What simple approaches can be developed to promote ‘Self care’:

All the disabled cases, whether Gr. I, or Gr. II, need to learn and adopt self care practices so that their disabilities remain controlled. This is a big challenge. Various strategies are to be tried & tested to operationalise self care.

These self care activities can be grouped into three

1. **to report** impending ulcers & signs of nerve damage and adverse response to treatment without delay
2. **to protect** anaesthetic part from external injuries which may be acute or chronic, mechanical or thermal.
3. **to exercise** the affected parts to prevent contracture, heal the ulcer and preserve the vision

The role of health worker is to support the development of 'self care practices', whether home based or through self care groups. The community (including family) has a supportive role. The development and implementation of self care in leprosy can be integrated into self care approaches for other disabilities in other health programs also to promote sustainability and stigma reduction

General Health Care staff has to be trained in self-care procedures and counselling techniques so that they can train the disabled, supervise them and promote self care.

Self care practices:

Self care is a major component of the 'Prevention of Disability' in which the affected person takes control of measures to prevent secondary impairments. The role of health workers is to support the adoption of self care by the affected persons themselves. The community has a supportive role.

The self care measures are:

Care of hands & feet

Anaesthetic hand/feet	<ol style="list-style-type: none"> 1. Inspect the hands / feet daily for hot, tender spots and for injuries. Report the changes 2. Soak the hands/feet for about half an hour in water 3. Scraping hard skin using any stone without sharp edges 4. Apply oil when hands/feet are wet 5. Protect hands against heat, pressure & friction, using protective aids 6. Walk slowly with short steps. Avoid walking long distances 7. Use suitable foot-wear for feet with insensitive soles
Blister or ulcer without discharge	All of the above & Clean with soap & water. Dress with clean cloth & rest the part
Hands/Feet with infected ulcer	All of the above & Antibiotic. Report to Medical Officer
Paralysis	Oil massage and movements to keep the joints mobile Active / passive exercise for weak muscles

Care of eyes

Lagophthalmos	<p>Check eyes daily for redness & change in vision</p> <p>Wear protective spectacles</p> <p>Keep the eye(s) covered with a pad while sleeping</p> <p>Active and assisted closure of eye</p> <p>Cleaning with cold water</p>
Red eye, corneal ulcer	Report to Medical Officer

These activities can be done by the person at home to prevent worsening of disability. Environmental barriers to self care need to be identified and addressed.

How can people be encouraged to practice self-care at home?

The health worker may be the main source of advice, provision of self care kit / material and counselling will enable a case to adopt self care procedure. Apart from health workers others can be recruited to help:

- Community / family members can help and encourage the person to do what is needed on a regular basis
- Other people affected by leprosy can be exemplified for how they have been able to look after themselves at home

Self-care groups have been started in some communities. A number of people with self-care need meet together regularly to discuss the practicalities of self care. These groups are often surprisingly supportive and can be very motivating for members.

Special efforts / counselling will be needed for those cases which are unable to adhere to 'self-care' practices

Counselling: It makes people (counselee) to realize what they can do and achieve by their own efforts. Counselling is the means by which one person helps another through purposeful conversation. It is a process of enabling the client/patient to express her/his feelings and create a physical and psychological environment in which the client feels confident enough to take his own decision. Counselling is a method of identifying practical solutions to life or work-related problems. Therefore it is also said that **counselling is a process of therapeutic communication.**

Supervision & Monitoring of self care

1. Verify that - the person has understood what to do, how and why?
 - the person is acting on instructions given?
 - the expected results are achieved
2. Verify the person's practices by visits, check walking, cooking utensils, tools and foot-wear
3. Learn from person's experience and communicate their ideas to others
4. Identify requirements and arrange for the supply of aids & appliances
5. Give positive and practical suggestions. Aids & Appliances must be inconspicuous & acceptable
6. Praise the person's efforts on disability prevention. Encourage him/her to continue

2.6 How to manage simple ulcer & pre-ulcerative conditions:

Health worker has to demonstrate the following procedures so that person's learn and adopt practices to take care of ulcers and other deformities themselves.

Skin cracks:

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 autonomic 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.

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 needs to 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 abrade / damage the person's hands or feet).

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.

Removing callus:

It is a mistake to think that 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 calluses under the foot should be removed.

Splinting:

A good way to rest and protect an injured part is to use a splint. 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.

Trimming:

- 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
- Dead tissues should be removed with a scalpel ONLY by a trained person. The scalpel must be used carefully to trim away the dead skin around the crack and also from inside the crack. Cut away carefully hard skin without much bleeding
- 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 rubbings. When the area is reduced to a base of soft skin give one final rinse to wash away any debris
- After cleaning the area, cover it with a gauze dressing or clean cloth

Blisters:

The 2 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 remove the cause to prevent recurrence.

- Do not open or puncture the blister. Clean gently with mild soap and clean tap water without breaking the skin, and then blot the area dry
- 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):

All the ulcers / wounds are categorised as grade II disability which need to be referred to district hospital (secondary level) after providing first aid or primary therapy. These cases will be referred back to manage at primary level.

Management of these ulcers is as follow –

All wounds are the result of tissue stress. Common causes of tissue stress 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
- Secondary infection through macerated skin of web space with candidiasis can lead to deep abscess
- Rarely rat bite can also lead to ulcer

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

Rest:

Almost all wounds will heal if they are rested.

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

- 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.

It is also very important to find out whether the person is able to change his activities so that he doesn't 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.

Topical antibiotics need not be used in the treatment of ulcers in leprosy cases.

Treating the ulcer is a great opportunity to reduce fear & stigma through demonstrating ulcer care without any discrimination. Family members are also encouraged to learn and practice the dressing of ulcer and nursing care of patient.

2.7 Disability grade II and other situations where patients needs to be referred to secondary level:

All the newly detected cases with grade II disability should be referred routinely to district hospital & district nucleus (secondary level) for management. Persons with other complications which can not be managed at primary level, whether new or old may also be referred to district hospital giving a referral slip (form VII) to the persons. These cases may be –

- a) Difficult to diagnose persons that requires smear testing / expert opinion
- b) Neuritis & Reaction persons not responding to routine therapy, Recurrent EN
- c) Persons having eye problems e.g. red eye, Cataract, Lagophthalmos
- d) Complications of advanced disease
- e) Adverse effects of MDT
- f) Complicated ulcers
- g) Persons requiring RCS services or other surgical treatment

a) Difficult to diagnose cases that requires smear testing / expert opinion

Some cases of leprosy do not manifest by visual skin patches or nodules but some changes in the skin for example redness and swelling may be noticed if examined carefully. Such cases (with infiltration) are always multi-bacillary with positive skin smear and they are cases of consequences. In such cases skin smear examination will help to confirm the diagnosis.

Some cases of leprosy manifest with thickening / enlargement of peripheral nerves with sensory impairment along the course of affected nerves. Careful sensory testing in the area supplied by the thickened nerve will help in establishing the diagnosis.

Some cases may present with deformity such as planter ulcer, claw hand, foot drop or lagophthalmos with no confirmatory nerve thickening and no definite sensory loss, in such cases investigations like skin smears, histopathology (biopsy from the skin or nerve) will help.

Hypo-pigmented lesions on the face (? indeterminate leprosy) especially in children with no definite loss of sensation may be kept under observation if no cardinal signs are elicited.

b) Neuritis & Reaction cases not responding to routine Prednisolone therapy within 2 weeks should be referred to district hospital. Similarly, cases with recurrent ENL are also to be referred for further investigations & treatment. Those cases with reactions where Prednisolone seems to be contraindicated or risky are always referred without delay.

c) Patients having eye problems and complications of advanced disease

Eye problems:

Leprosy can lead to blindness because of damage to the cornea or due to damage to the internal structures of the eye. Refer to district hospital any patient who has *decreased vision, or has a red or painful eye.*

Lack of muscle strength to close the eye i.e. Lagophthalmos, means the cornea is constantly at risk of exposure. Damage from this exposure leads to ulceration of the cornea. These ulcers heal, but healed ulcers interfere with vision, leading eventually to blindness.

Lagophthalmos:

The muscles which close the eye can become weak or paralyzed, 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 of 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.

Mild Lagophthalmos:

When asked to close eyes lightly the person has a slight gap (< 6 mm) between the eye lids. In such cases 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 upto 10. They should do this exercise as often as possible every day.

Severe Lagophthalmos:

When asked to close eyes lightly the person has a large gap (> 6 mm) between the eye lids or signs of exposure i.e. Keratitis is present. In such cases, 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. When eyes cannot be forced to close, 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 10, as often as possible through out the day. All people who are unable to close their eyes, or who do not blink should wear glasses. While sleeping these patients should be advised to cover their eyes with a clean cloth to protect from external injury. All persons with severe lagophthalmos are to be referred for surgical treatment.

Cataract:

Leprosy patients with cataract (visual acuity < 6/60) should be referred for cataract extraction with IOL so that with improved vision they are able to protect their anaesthetic hands/feet also.

Visual acuity:

Check, how well the patient can see by using a Snellen chart or by asking the person to count fingers at six meters distance. If there is recent visual loss in one or both eyes, so that the person cannot count fingers at six meters (visual acuity of < 6/60), these cases 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 upon, in exactly the same way as those who have not had leprosy, with an intra-ocular lens implant.

Red eye:

A 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.

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. An eye that is persistently red may need surgical treatment or there may be inflammation inside the eye which requires special treatment

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 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 immediately. Corneal ulceration is an emergency. If it is not treated very quickly, the person may become blind.

Managing permanent corneal anaesthesia:

People, who do not blink because of corneal anaesthesia, 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 periods, then it becomes a habit.

Activities, which can be done by the person at home:

- Inspection of the eye in a mirror every day to look for redness
- Learning to blink frequently to keep the eyes moist and exercise the lids
- Wearing a hat or sunglasses to prevent dust from getting into the eyes
- Using a sheet or mosquito net to cover eyes at night
- Frequent washing of eyes with clean water
- Checking for vision change

Ophthalmic assistant posted at PHC may be trained in ‘Prevention of blindness in leprosy’

d) Other Complications of advanced disease:

Facial and other deformities: The sunken nose, loss of eyebrows and the so-called “lion like face”, which used to be characteristic of an untreated MB leprosy, are cosmetic problems leading to severe stigma and discrimination. Incidentally, these are now rare. Plastic surgery is needed to correct these lesions.

Internal medical conditions: Chronic untreated leprosy (no longer seen commonly) and chronic ENL reactions (still a serious complication in a small proportion of patients) may lead to internal medical complications. Such patients need referral services.

Psycho-social problems: Psycho-social problems are related to widely-held beliefs and prejudices concerning leprosy and its underlying causes, not just to the problem of disability. People with leprosy often develop self-stigma, low self-esteem and depression, as a result of rejection and hostility of family and community members. Such negative attitudes are found also among staff in the health services, including doctors. These need to be dispelled. People with psychosocial problems may need to be referred for counselling or other help.

e) Adverse effects of MDT

MDT is remarkably safe and serious adverse effects are very rare. However the management of common adverse effects is as follow -

Minor problems	Drug	Management
Red urine	Rifampicin	Reassurance
Brown discoloration of skin	Clofazimine	Counselling
Gastro-intestinal upset	All three drugs	Give drugs with food
Anaemia	Dapsone	Give iron & folic acid

Serious problems	Drug	Management
Itchy skin rash	Dapsone	Stop Dapsone, refer
Allergy, urticaria	Dapsone or Rifampicin	Stop the drug causing allergy, treat the reaction or refer
Jaundice	Rifampicin	Stop Rifampicin, refer
Shock, purpura, renal failure	Rifampicin	Stop Rifampicin, refer

Other drugs are available for use if one or more of the standard drugs are to be stopped.

Occasionally cases with exfoliative dermatitis or Stevens - Johnson syndrome may be detected. These cases must be referred for management. These drug reactions are serious & life threatening, therefore such cases should be hospitalized for the maintenance of vital functions, electrolytes & fluids and close observation.

f) Complicated ulcers

If an ulcer is found to be broken down tissue only in the dermis and epidermis, it is termed a “simple ulcer”. If the breakdown of tissue goes deeper than the dermis and other body parts such as tendons, tendon sheaths, bones and joints are affected, the wound is termed a “complicated ulcer”. Complicated ulcers usually develop as a result of untreated simple ulcers and are almost always the result of infection. When pressure is put on an infected ulcer, the infection spreads rapidly. The soft tissues and muscle contractions act like a pump that shifts the infecting micro organisms to unaffected parts deeper in the hand or foot. The spread of infection, continuous mechanical stress and the inflammatory response continue to break down body tissue and the ulcer increases in size. Complicated ulcers will often be found to have sinuses. Chronic ulcer can lead to osteoporosis

When the tissue around bones (periosteum) becomes infected the condition can lead to inflammation of bones i.e. osteomyelitis. Osteomyelitis is very difficult to treat and can cause chronic, non-healing lesions in bones. Without enough nutrients and oxygen the infected bone dies. Small pieces of dead bone break away. These loose pieces of dead bone, called sequestra, will cause irritation in the wound which will not heal until the sequestra are removed or fall out. If the normal process of granulation is continuously interrupted by the irritation of sequestra the wound responds by producing hyper granulation tissue. Hyper granulation will be seen as mass of bright red tissue that bulges out of an ulcer. Wherever hyper granulation is seen, it indicates that there is something irritating the wound and should be taken as a sign that further investigation is necessary.

g) Cases requiring RCS services or other surgical treatment

How to identify and refer cases for Reconstructive surgery:

Reconstructive surgery aims to restore function and form as far as possible and to prevent further disability. It also plays an important role in the prevention of disability and rehabilitation process. Some patients can benefit from reconstructive surgery but not all patients are suitable. It is important that field workers are aware of the criteria for referring patients for reconstructive surgery so that suitable patients are referred at the right time and that, those not suitable are not referred.

The conditions which require surgical intervention are –

1. **Claw hand** - due to paralysis of ulnar, median or both nerves
2. **Foot drop** - due to paralysis of lateral popliteal nerve
3. **Claw Toes** - due to the paralysis of posterior tibial nerve
4. **Lagophthalmos** - due to paralysis of branch of facial nerve. This is a sight threatening condition because of the risk of recurrent conjunctivitis and corneal damage. Patients, irrespective of age, who have a lagophthalmos with lid gap (> 6mm) particularly when there is loss of corneal sensation, should be referred for surgery. Patients with lagophthalmos but not fitting the criteria for reconstructive surgery can be considered for simple procedures such as tarsorrhaphy, which can be performed even on an outpatient basis
5. **Wrist drop** - due to paralysis of radial nerve. It is rare and can be corrected by RCS
6. **Recurrent wounds of hands and feet** - Patients who have recurrent wounds of the hand or foot should be referred for surgical advice. Such patients may have sequestra (pieces of dead bone) which require removal. Such procedures can be undertaken in district hospitals and an X-ray of the affected part can help in locating sequestra. Sometimes in severe cases of recurrent wounds, amputation is the only solution – this should only be considered as a last resort
7. **Chronic nerve pain and nerve abscesses** - Patients who have chronic pain and swelling in peripheral nerves which does not respond to analgesics and a course of steroids, should be referred for consideration of nerve decompression
8. **Facial deformities requiring plastic surgery (mainly in back log cases)**
 - **Madarosis** : The loss of lateral parts of eye brows is due to lepromatous infiltration destroying the hair follicles. Free graft from scalp or a temporal artery island flap usually gives satisfactory result
 - **Sagging face / Mega lobule** : This is due to rapid disappearance of the lepromatous infiltrate following treatment with chemotherapy and destruction of elastic and collagen fibres in the dermis. The defect produces an appearance of premature ageing. Pre auricular or naso-labial face-lift is indicated in selected cases
 - **Nasal deformity** : These are due to the invasion and destruction of the nasal tissues by M. Leprae. Depressed nose is mainly due to the destruction of the nasal septum. The septal perforation is caused by non-specific infection destroying the cartilage. Nasal deformities are the most prominent stigma of leprosy
 - **Gynaecomastia or enlargement of male breast** : This causes a lot of embarrassment to the patient. In lepromatous leprosy, destruction of seminiferous tubules of the testis by lepromatous granuloma results in hormonal imbalance producing gynaecomastia. It may follow testicular atrophy resulting from the orchitis of type II reaction. It may or may not be associated with pain. It is well known in male patients with cirrhosis of liver, interstitial tumours of testis, diseases of pituitary or hypothalamus, adrenal tumours and following stilbestrol therapy for carcinoma of the prostate. Isoniazid, ethionamide, and digitalis may cause gynaecomastia
 - **Cataract**: in one or both eyes with visual acuity <6/60

All such cases where surgery will reduce the disability, should be mobilized, motivated and referred to district hospital

Identification and listing of persons with disabilities due to leprosy in the past (backlog cases) and referral to the District Nucleus at district head quarter for management (assessment & RCS) of such cases in the tertiary units.

Disability register (Form I) should be maintained by collecting information from case-cards, old & current master registers, field workers and RCS centres. Available deformed cases are to be mobilized & screened primarily to know their fitness for surgery. Help may be taken from ANM, AWW or volunteers to trace the cases, examine and record them.

2.8 Guidelines for referral of leprosy patients for surgical treatment

The old cured/RFT patients needing surgery should be identified by the first level centres and referred to the district nucleus teams for further action

The Criteria for selecting a case for surgery are

1. Patients with paralytic deformities with no rigidity of joints such as claw hand, foot drop and lagophthalmos, who are willing to undergo surgery
2. Patients with stiff **hands / Feet** who want deformity correction, should also be referred to the surgeon who will decide on whether the deformity is correctable by surgery or not and then proceed accordingly
3. The minimum duration of the paralysis should be 6 months
4. The patient should have completed MDT, at least for 6 months
5. The patient should not be in Type I or Type II reactions
6. The patient should not be undergoing steroid therapy and should have completed steroid therapy at least six months prior to being taken up for surgery
7. There should be no ulcer or blister on the limb to be operated
8. If the patient with neuritis has following conditions may require surgery & should be referred
 - If the nerve is painful and tender
 - If the nerve has an abscess or a draining sinus
 - In spite of steroids, there is deterioration of nerve function
9. Such a patient may/ May not show signs of reaction (Type I or Type II) and may or may not be on MDT/ Steroids If a patient has infected wounds or long standing ulcers, he or she should be referred to the surgeon for opinion on its management

2.9 How to provide follow-up treatment to all patients referred back by the secondary and tertiary level units:

The cases coming back from referral centres may need -

- A post-operative exercises
- B monitoring nerve functioning to check reoccurrence of reactions /neuritis
- C prevention of re-occurrence of ulcers by adopting self-care procedure
- D Care for Orthoses / Protheses

A Instructions given by surgeon/physiotherapist at the time of discharge should be followed. In general, the common exercises are as follows:

- **Active Exercises** - The patient uses his/her weak muscles to do the exercise. This will prevent contracture and strengthen the weak muscles
- **Passive Exercises** - The patient is helped to move the paralysed part. This will prevent contracture but cannot strengthen the weak muscles

Exercise therapy is helpful in:

Type of paralysis	Active Exercises	Passive Exercises
Claw hands	<ul style="list-style-type: none"> • Stabilize the MCP (Meta Carpo-Phalangeal) joint between the hand & the fingers at • Keep the wrist straight • Extend the fingers keeping the same position. • Repeatedly bend and straighten the fingers of the weak hand. 	<ul style="list-style-type: none"> • Straighten the clawed fingers repeatedly using his other hand.
Thumb muscles	<ul style="list-style-type: none"> • Use other hand to hold the weak thumb steady at the (MCP) joint between hand and thumb. • Straighten the weak thumb at the distal joint (IP) and hold it straight for a few seconds. 	<ul style="list-style-type: none"> • Straighten the paralysed thumb using his other hand and pull it away from the first finger towards the palm.
Foot drop	<ul style="list-style-type: none"> • Practice lifting the foot upwards and holding it for a few seconds. 	<ul style="list-style-type: none"> • Sit with the leg straight. • Pull the foot up using a towel.
Lagophthalmos	<ul style="list-style-type: none"> • Close the eyes as strongly as possible. 	<ul style="list-style-type: none"> • Repeat this movement several times. With the index finger on the skin at the corner of the eye, gently pull outwards, so that the eye closes. Do this procedure as often as possible.

1. Restoring the normal tone of muscles and preserving the physiological properties of paralysed muscles
2. Preventing muscle atrophy and the over stretching of paralysed muscle
3. Preventing contractures and keeping joints mobile by improving the range of movements
4. Maintaining and improving blood circulation
5. Making the skin soft and supple

Exercise therapy is essential in both pre as well as post-operative care of deformity patients. RCS requires the patient to use a different active muscle in place of the paralysed muscles. The operated part is still vulnerable, and patient needs post operative muscle training and instructions in the use of anaesthetic extremities. They should be instructed to avoid injury to the part after its motor function has improved.

B Cases of lepra reactions referred back after treatment is initiated are to be managed at primary level following the instructions given by specialists. Periodic nerve function assessment and signs of reactions are to be checked and recorded. Remaining treatment is to be continued as per follow up instructions given. Patient can be referred again to secondary referral centre for review or new problem, if any.

C Cases of ulcers and other complications treated at referral centre need to be followed up to prevent the recurrence. Such cases are counselled at each visit. Follow up instructions are carried out. Peripheral health worker supervises the self care practices to prevent recurrence of ulcer. Support by providing foot-wear may be needed.

2.10 How to provide material support to the persons affected with disabilities due to leprosy with appliances like – MCR foot-wear, crutches, etc.:

All disabled cases should be assessed for requirement of materials to prevent disability and they should be provided appropriate materials/aids without delay, at primary level.

Protective foot-wear

Loss of feeling on the sole of the foot and ulceration are very common in people affected by leprosy, so the use of appropriate foot-wear is very important to prevent ulcer. The best solution is for people to wear locally available and socially acceptable protective foot-wear, whenever they are on their feet and walking. It is of no help to use foot-wear only for special occasions.

Most people do not require specially made foot-wear – the shoes found in the market can be just as effective. Sports shoes or running shoes are often very appropriate. Alternatively, sandals or shoes with a firm under-sole and a soft in-sole may be used. They should fit comfortably, there should not be any nails or sharp margins in foot-wear. Velcro straps are easier to use than other types of fastenings and heel straps are needed for sandals.

Splints and other materials

Provision of splints, crutches, grip-aid, etc is also required in some cases and these can be arranged at secondary level / district hospital. Splints used in patients with leprosy are

- a) Static splints
- b) Dynamic splints

A static splint does not permit either active or passive movement of the joint, e.g. a plaster of Paris splint. A dynamic splint is defined as any splint which incorporates qualities of elasticity, or principles of recoil and permits active and or / passive movements in the joint. Dynamic splints need constant observation and supervision to ensure correct fitting, and require technical skill for their manufacture.

In severe lepra reactions, immobilization of the affected limb with a well – padded splint is helpful to relieve pain and stimulate healing, while unsplinted limbs are prone to develop contractures and deformities. Splints are very helpful in the mechanical correction of the claw hand, a deformity very commonly seen in patients with leprosy. Splints enable tendons of non-paralysed muscles to act effectively and thereby prevent and correct deformities. In patients with a mobile claw hand, the proximal interphalangeal joints (PIP joints) can be extended and the fingers can be straightened by flexing the hyperextended metacarpophalangeal joints (MP Joints) with assistance. Mobile claw hands are suitable for splinting, exercises and tendon transfer surgery, while tendon transfer surgery is not indicated in fixed claw hands.

2.11 How to propagate awareness about leprosy through patient education at the start and end of leprosy treatment by Health Worker, Pharmacist and Medical officer:

The general messages for someone newly diagnosed with leprosy, to be given by paramedical workers are –

- Leprosy is a disease like any other disease and it can be treated by MDT
- that leprosy is caused by a germ and is curable
- that consultations and treatment are free-of-charge
- that leprosy is no longer infectious once treatment has started
- close contacts should be advised for self examination and report voluntarily for examination at the next visit
- they should lead a normal life and perform routine activities

Key messages to be given by Pharmacist are –

- the treatment is for either 6 or 12 month
- common side-effects include red urine and darkening skin
- tablets must be taken every day at home
- a new blister-pack is needed every 28-days

Key messages to be given and explained by Medical Officer are –

- Skin patches take time to disappear
- Lepa reactions can occur, and can be treated:
 - o patches can suddenly become red and swollen again
 - o there may be pain or numbness in the limbs
 - o there may be weakness of hand or feet
 - o there may be eye problems: loss of vision, pain or redness
- New disability can occur but it can be treated
- Existing disability may or may not improve with treatment
- When problems occur, treatment may be available locally, or they may need to be referred to another clinic for specialist care
- They will need to learn various skills to help prevent and manage disability

The key messages for someone who is completing treatment successfully

Most patients in this situation will have no further problems. However, after being congratulated for completing treatment, they need to be made aware of possible complications:

- Recurrence of the disease (relapse) is rare, but if they suspect the disease has returned, they should come for further examination. If leprosy comes back, it can be treated again

- Leprosy reactions can occur, even after treatment has been successfully completed. If any unusual symptoms occur such as weakness, numbness or pain in the limbs, or loss of vision or other eye problems, the person should come back for examination and treatment
- If some disability is already present, make sure the person knows what they need to do at home to manage the problem
- Community including family members can help and encourage the person to do what is needed on a regular basis
- Other people affected by leprosy can show how they have been able to look after themselves at home

Rehabilitation:

Rehabilitation includes all measures aimed at reducing the impact of disability for an individual, enabling him or her to achieve independence, social integration, a better quality of life and self – actualization.

Those patients who lost self esteem, lost the job or earning, have activity limitation and participatory restriction, need to be rehabilitated. In all such, needs are to be assessed in detail, services related to medical rehabilitation are to be provided and patient may be referred for other services (e.g. vocational training, micro credit loan, self help groups) to respective departments / institutions, developing links with social welfare department and to liaise frequently. Networking among existing services should be actively promoted.

Community Based Rehabilitation (CBR) - It is a strategy within general community development for the rehabilitation, equalization of opportunities and social inclusion of all people with disabilities.

All the disabled persons facing discrimination due to stigma prevalent in community and having inhibitions / prohibition or participation restrictions should be counselled properly and referred to appropriate rehabilitation centres. Action programs may be designed and executed to reduce /remove discrimination through demonstrating empathetic behaviour with no discrimination.

3. Training Requirements

3.1 DPMR related tasks of various categories of GHC staff at primary level:

ANM / MPW / NMA (primary level)

1. Prepare a preliminary list of all disabled leprosy cases whether under treatment (UT), released from treatment (RFT) or otherwise in their area
2. Refer all these cases to MO PHC for disability assessment and provision of services
3. Educate and counsel disabled cases so that they follow the instructions / treatment given, and to promote self care practices
4. Retrieve the defaulters
5. Suspect complications in leprosy cases e.g. lepra reactions, signs of nerve damage, new ulcers or eye problem and refer them to MO, PHC without delay
6. Update the records every month

NMS / PT / MPS / BEE

1. Supervise DPMR activities being carried out by ANM / MPW / NMA and provide on job training to them
2. Preliminary examination of cases (referred by ANM) for disability assessment and treatment required, in consultation with MO PHC
3. Maintain the DPMR related records at PHC level and generate required reports
4. Organize POD camp / special clinics to manage disabilities, train the disabled cases in self care and train the GHC staff in POD procedures
5. Assist MO PHC in referring the cases to district hospitals and follow them once they return back with discharge slip

Pharmacist

1. Prepare indent for MDT or Prednisolone based on the case load and procure the drugs from Block PHC, store it in cool, dry place, away from sunlight, protect it from rodents/insects
2. Counsel the patients on reddish coloration of urine after taking MDT, ensure every patient swallows supervised doses of MDT in front of him/her. Elicit proper history of drug reactions if any
3. Supply required BCPs of MDT / Prednisolone to the health worker as per their needs during sector meeting
4. Maintain LF 3 (MDT drug stock register) & LF 2 (PHC treatment register) records
5. Entry of new cases requiring MDT in the treatment register with the help of the supervisor
6. Assist health supervisor to prepare reports
7. Update the MDT stock at Sector PHC/Block PHC based on the caseload and expiry of drugs

MO PHC

1. Examine clinically all leprosy cases and grade their disabilities
2. Refer all the new cases with disability grade II, to the district level
3. Identify cases at risk of developing new disability
4. Monitor risk cases by performing nerve function assessment once in a month (high risk cases), quarterly (moderate risk cases) or once in six months (low risk cases) and record the status
5. Identify and treat mild lepra reaction, neuritis and uncomplicated ulcers
6. Educate / counsel each disabled case and cases at risk for better compliance
7. Refer cases of severe lepra reaction, neuritis, complicated ulcer, eye complications and those who need surgery, to district hospital
8. Maintain relevant records and reports with assistance from NMS / PT
9. Plan and conduct POD camps / special clinics to provide POD services to disabled cases and train GHC staff in POD procedures
10. Provide post operative care / follow up of cases returned back from referral centres
11. Supervise & monitor DPMR related activities and discuss it during monthly meeting

3.2 Training will be needed for the Health Workers, Health Supervisors, Pharmacist and Medical Officers.

Training components will be on:

Patient counselling, self care procedures, use of symptom guide to suspect and refer patients to PHCs, identification of past deformed patients for maintaining list at PHC, use of referral slip.

3.3 Organising trainings

In general (for trainers)

1. After training need assessment, plan for preparations, conducting and follow up of training courses should be prepared
2. Prepare 'learning objectives' according to job / task given to trainee / different category of staff and then design the curriculum
3. Concentrate on 'how to achieve learning objectives' through active learning process
4. Select appropriate teaching method for each session e.g. case demonstration, role play, group exercises, case study etc. Select the content and teaching aids required
5. Try to remove barriers / factors distracting learning
6. Evaluate the training course, assess the participant's reaction & learning, at the end of course and later on evaluate the performance on the job and effect of training, after few months

Outline of curriculum for different category of staff at primary level

S.No.	Topics	Category of trainee		
		ANM/MPW	Supervisory level staff	Medical officers
1	Basics & concepts			
1.1	Terminologies used	*	**	***
1.2	Nerves affected in leprosy	*	**	***
1.3	Causes of developing disability	*	**	***
1.4	Prevention, disability, levels, methods	*	**	***
2	Disability Assessment (clinically)			
2.1	History taking	*	**	***
2.2	Sensory testing	*	***	***
2.3	V. Muscle Testing	*	***	***
2.4	Vision test	*	***	***
2.5	Interpretation / analysis (grades, reversibility, risk- case, etc)	*	**	***
3	Lepra Reactions			
3.1	Suspect & refer	*	**	***
3.2	Confirm			***
3.3	Treat			***
3.4	Follow up	*	**	***
4	Treatment of disabilities (POWD) - ulcer, paralysis, poor vision, other complications			
4.1	Care in PHC/hospital		**	***
4.2	Self care by DLP, its strategies	*	**	***
4.3	Counselling	*	**	***
4.4	Protective aids & appliances		**	***
5	Surgical treatment for disabilities			
5.1	Indications for surgery		**	***
5.2	Criteria for referral		**	***
5.3	Pre & post operative care		***	***
5.4	Various surgical techniques		*	*

* Minimum essentials, ** manageable, *** all essential aspects.

4. Logistics & Supplies

All Primary care level institutions should have :

- 4.1 Prednisolone, MCR foot-wear and Dressing materials
- 4.2 Treatment protocol (symptoms and signs guide) Learning materials and Flash cards
- 4.3 Referral slips

Drugs :

Reactions in Leprosy are medical emergencies immediate treatment is essential to prevent disability. Steroids are the drug of choice in managing Leprosy – reactions, usage in the form of Prednisolone is desirable. The estimated requirement is 2 % of new cases detected in the preceding year in health facility. For example - if new cases detected during the period of one year from April 2005 to March 2006 was 50, then the chances of cases developing reaction is 1 per year. Total number of 5 mg tablets of Prednisolone, required to treat an episode is 336 as per the recommended 12 weeks schedule.

Loose Clofazimine should be made available as 100mg capsules apart from its routine availability in MDT Blister Calendar Packs. It has good anti-inflammatory properties when given in 300 to 400 mg per day in divided doses. Clofazimine is useful especially in weaning a patient from steroid therapy. It can be combined with steroids in patients who require prolonged doses of steroids to control repeated reactions. It should be started as thrice daily for one/two months, twice daily for another one month and tapered off.

Other supportive drugs like antacids, H₂ receptor blockers, de-worming tablets, calcium supplements, soluble insulin for diabetic patients, antibiotics etc may be required, their needs to be anticipated and kept ready.

MCR Foot-wear:

Special MCR foot-wear is not recommended routinely for all patients. Any suitable foot-wear with pre-requisites such as soft inner sole, hard outer sole (to prevent piercing of thorns/nails), that fits snugly and also has an adjustable straps preferably with a back-strap. The foot-wear should be stuck or stitched by thread but not by nails. Also it should be comfortable, locally available, socially acceptable.

However, if there is a provision available for MCR then it should be indented as per the no of cases with grade 1 & grade 2 disabilities of foot.

Dressing material:

Instruments required may be: trimming & cutting scissors, scalpel, forceps.

Dressing material required: Gauze pieces, bandage rolls

Betadine solution, soap and Savlon – Chlorohexide gluconate (to use after debridement)

Learning Material

- Learning Material for MO
- Learning Material for health workers (Folders/flash cards for MPS)
- Flash card / symptom – signs guide

Referral slips:

Adequate number of referral slips should be kept ready with the health worker to refer cases to PHC and with PHC to refer to secondary level (Form P VI).

Stock of drugs and other material will be maintained in the general stock register maintained at PHC, no separate stock register for leprosy need to be maintained.

5. Records & Reports

Records to be maintained at Primary level are as under:

- Disability Register Form - P I
 - Assessment of Disability and Nerve Function Form - P II
 - Record of Lepra Reaction/ Neuritis (LRN) cases Form - P III
 - Prednisolone Card Form - P IV
 - Referral Register Form - P V
 - Referral Slip for health workers to refer to PHC Form - P VI
 - Referral Slip for MO PHC Form - P VII
 - Profile of disabled leprosy cases at PHC. Form - P VIII
- The Monthly Progress Report (MLF-04) submitted by PHC to District MLF 04 (PAGE 2)

Disability Register

PHC / primary care unit _____ District _____ State _____

S.No	Name of the patient	Age/Sex	Postal address	Date of Registration	Type of leprosy	Treatment (MDT) status (No. of BCP taken)	Disability Grade
1	2	3	4	5	6	7	8
Column No.							

S.No	Name of the patient	Age/Sex	Postal address	Date of Registration	Type of leprosy	Treatment (MDT) status (No. of BCP taken)	Disability Grade	Column No.																	
								Hands			Feet			Eye		Services provided with date		Change / progress noticed		Referred to with date					
9	Anaesthesia palm							10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
								Claw hand	Ulcer	Absorption of finger	Any other disability	Anaesthesia sole	Foot drop	Ulcer - Foot	Absorption of toes	Other disabilities (Foot)	Lagophthalmos	Low Vision	Red Eye	Date	Services	Date	Changes		
Column No.																									

How to fill up the Form P I

- Column 1 : Serial no. to disabled cases is to be given
- Column 2 : Complete name with surname along with son / daughter / wife of should be written
- Column 3 : If patient is unable to tell the age, age should be assessed
- Column 4 : Complete postal address with landmark / PIN to be given
- Column 5 : Date of registration for MDT is to be written
- Column 6 : PB or MB is to be written
- Column 7 : Total number of BCP, MDT should be written
- Column 9 to 21 : Tick mark on disability detected, more than 1 disability may be there.
- Column 22-23 : Services such as self care training, ulcer care, surgery, issuing MCR shoes, refer to secondary level etc. may be entered along with respective dates.
- Column 24-25 : Changes like ulcer healed, ulcer recurred, contractual developed, vision deteriorated new nerve damaged noticed etc.

Disability Assessment form for primary level
Assessment of Disability & Nerve Function

Name Village Dt. of Regn

S/o, W/o, D/o Sub Centre Dt. of RFT

Gender/Age MDT No. Referred by

Occupation MB/PB Date of assessment

RIGHT												LEFT					
						←————— Date —————→											
						Vision (0,1,2)											
						Light Closure lid gap in mm.											
						Blink Present / Absent											
						Little Finger Out											
						Thumb Up											
						Wrist Extension											
						Foot Up											
						Disability Grade Hands											
						Disability Grade Feet											
						Disability Grade Eyes											
On date																	
Max. (WHO) Disability Grade																	
EHF score																	
Signature of Assessor																	

Muscle power:

S = Strong

W = Weak

P = Paralysed

Score of vision: counting fingers at 6 meters














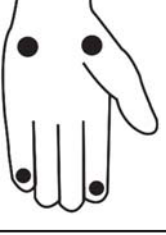






0 = Normal

1 = Blurred vision

2 = Unable to count fingers

This form should be filled-in at the time of registration and repeated after 3 months (once in 2 weeks in case of neuritis/reaction)

SENSORY ASSESSMENT

DATE / ASSESSOR	Palm		Sole		Comments
	RIGHT	LEFT	RIGHT	LEFT	
					
					
					
					
					

Key : (Put these mark/icon on the site where lesion is seen)

✓ Sensation Present within 3 cms	S Contracture	○ Scar/Callus
X Anaesthesia	⊗ Wound	⊕ Shortening Level
^ Clawing	▬ Crack	

Record of Lepra Reaction/ Neuritis (LRN) cases

PHC/ district _____

Col.No.1	Col.No.2	Col. No.3	Col. No.4	Col.No.5		Col.No.6				
S. No.	Name of the patient	Date of registration	MDT No. / registration No.	Type of leprosy		Lepra Reaction				
				MB	PB	Type	I	II	Y	Neuritis

Col.No.7	Col. No.8	Col.No.9	Col.No.10
Treatment given		New disability developed After start of Prednisolone	
Prednisolone doses issued with dates		Yes	No
Other drugs		Remarks	

How to fill up the Form P III

- Column 1 : Serial no. of reaction cases is to be given
 Column 2 : Complete name with surname along with son / daughter / wife of should be written
 Column 3 : Date of registration of MDT is to be written
 Column 7 : Doses of Prednisolone in milligram with date of issue to be filled
 Column 8 : Enter Clofazimine, Analgesics, Mebandazole, or any other drug given.
 Column 9 : In case of yes, write the nature and site(LT /RT) of disability developed

Prednisolone Card

(This card should be kept with the patient)

INSTRUCTIONS

- Take Prednisolone tablets as single dose daily with milk / food but never on empty stomach
- Restrict salt intake till on Prednisolone
- Inform soon if you notice black stool (malena), pain upper abdomen or vomiting
- Inform immediately if discharge in planter ulcer, any focus of infection, persisting cough, mild fever or any deterioration
- Don't stop Prednisolone before completion of regimen, even if there is improvement or deterioration.
- Report for review / check up and next dosage, every fortnight

NATIONAL LEPROSY ERADICATION PROGRAMME

PREDNISOLONE – CARD

Name of the patient

Reg. No./ MDT No.

Type MB / PB

Date / Due Date of RFT

Indication for Prednisolone therapy:

.....

Date of starting Prednisolone

Signature of MO / Supervisor

PREDNISOLONE RECORD

Dosage	Date of issue	Next due date	Signature
40mg x 2 wk.			
30mg x 2 wk.			
20mg x 2 wk.			
Do (if required)			
15mg x 2 wk.			
Do (if required)			
10mg x 2 wk.			
Do (if required)			
5mg x 2 wk.			
Do (if required)			

Other drugs issued

.....

Progress / Remarks

.....

Signature of MO

Name

Place

Referral Slip

(To be used by peripheral health worker)

PHC _____ District _____ State _____

Name of the person to be referred:
SL No in referral register
Age and Sex :
Address :
.....
.....
Clinical finding :
.....
.....
Reason / indication for referring :
.....
.....
Referred to:.....
Referred by :
(Designation & place)
Signature & date :

Referral Slip

(To be used by MO PHC)

PHC _____ District _____ State _____

Name of the person to be referred:
Age and Sex :
Address :
.....
.....
Clinical finding :
Reason / indication for referring :
.....
Referred to:
Copy marked to District Nucleus on:
Signature & date :
Action taken at referral centres :
Instructions for follow up:
.....
.....
Referred back by
(Dr. _____ Designation & place _____)

Profile of disabled leprosy cases of PHC

PHC _____ District _____ State _____ Date of Report _____

S.No.	Total no. of leprosy cases on record			No. of leprosy cases assessed for disability			No. of cases with disability		
	PB	MB	TOTAL	PB	MB	TOTAL	Gr. I	Gr. II	Total
1							8	9	10

		No. of cases disability wise												Action (management) taken / to be taken	
		Hands						Feet							Eye
		Column No.													
11	Anaesthesia palm	12	13	14	15	16	17	18	19	20	21	22	23	24	
	Claw hand		Ulcer	Absorption of finger	Any other disability	Anaesthesia sole	Foot drop	Ulcer - Foot	Absorption of toes	Other disabilities (Foot)	Lagophthalmos	Low Vision	Red Eye		

NLEP- Monthly Progress Report

(From PHC/CHC/Block PHC to District)

PHC/Block PHC/CHC _____ Month _____

S. No.	DPMR activity	During the month	Cumulative total From April till date
1	No. of Reaction cases recorded		
2	No. of Reaction cases managed at PHC - at district hospital -		
3	No of suspected relapse cases referred by PHC		
4	No. of Relapse cases, confirmed at district hospital		
5	No. of patients provided with foot-wear		
6	No. of patients provided with self care kit		
7	No. of patients referred for RCS to tertiary units		
8	No of patients-RCS done		

6. Supervision & Monitoring

Medical Officer will supervise and monitor activities of the Health Worker, Supervisors and Pharmacist.

The District Nucleus under the DLO/ MO I/c. will supervise and monitor DPMR activities in the primary care level.

Supervision:

Two main levels of supervision can be distinguished

- Supervision of activities at sub-centre / Addl. PHC by Block level MPS / Medical officer
- Supervision of activities at CHC/PHC by the district authorities / District Nucleus

Supervision is extension of training, intensified immediately after training, to ensure that health workers have fully acquired the skills taught and to provide any guidance needed.

It is systematic process for increasing the efficiency of health workers by

1. Developing their knowledge
2. Perfecting their skills
3. Improving their attitudes towards their work &
4. Increasing their motivational levels

It is carried out in direct contact with the health worker and it is aided by programme monitoring. All health workers need help to solve problems and overcome difficulties. They also need feedback on their performance and encouragement in their work. The supervisor's personality is important. Good supervisors have a pleasant and friendly manner, and are quick to establish rapport with health workers of all categories. They are ready to listen with an open mind to any problems and to seek solutions that will take into account the suggestions of the health worker concerned.

- Supervisory visits must be planned carefully
- The health units visited should be notified in advance
- Remember! It is not a faultfinding mission, rather a problem solving exercise!

Problem-solving: If a health worker is unable to perform a task adequately because of lack of knowledge, then the supervisor should demonstrate that particular activity and ask the health worker to repeat it in the presence of the supervisor, such a coaching on the spot would solve the problem permanently. If solution is not available readily then it should be discussed with the seniors. Conclusion should be written in the health facility register to take necessary measures.

Supervisory visits to Primary health units by the Block:

Frequency: Hospitals and health centres with a large number of outpatients should be visited once a month, and those health facilities with fewer patients may be visited once in 2-3 months. The visit should be on regular basis and based on the performance.

Items to Check: A checklist has to be formulated considering the following issues.

1. Review of disability status, initial & its follow-up
2. Observation of health workers doing their work, for example palpating the nerve, method of doing VMT, vision testing, Active / Passive exercises, dressing the ulcer and counselling
3. Discussion with the health workers: the supervisor should talk to each category of staff separately, identify their problems, establish its cause and try to solve them with the cooperation of each worker, particularly about referral of cases & follow up of cases returned from referral centres
4. Control of supplies: the supervisor should check the availability of essentials such as drugs, dressing materials, foot wears etc.
5. Discussion with the patients: The supervisor should also talk with individual patient, cross check about their knowledge of the disabilities and its management

Supervisory visits to health units by the district:

Frequency of visit to: Hospitals and health centres will depend on case load and problems identified.

Items to Check: A checklist has to be formulated considering the following issues.

1. Review of disability initial/follow-up records
2. Observation of health workers doing their work, for example palpating the nerve, method of doing VMT, Active / Passive exercises, dressing the ulcer and counselling
3. Discussion with the health workers, the supervisor should talk to each category of staff separately, identify their problems, establish its cause and try to solve them with the cooperation of each worker particularly about referral of cases & follow up of cases returned from referral centres
4. Control of supplies: the supervisor should check the availability of essentials drugs such as steroids, loose Clofazimine, dressing materials, foot-wears etc.
5. Discussion with the patients: The supervisor should also talk with individual patients, crosscheck them about their knowledge of the disabilities and its management
6. Reports: look for accuracy, completeness and timely submission
7. Discuss in detail about new disability produced in any case

Monitoring:

It is to ascertain whether activities are being accomplished as planned; it is a daily management activity, to identify problems early so that they can be solved without any delay. It indicates where we stand and how far we are from the goal, so that we can make a plan of action to rectify. We make interventions as per the plans made, monitoring helps assessing the impact of these interventions. It provides objective indicators to assess if they were effective, or ineffective, and help identify the problems and plan corrective actions.

The main objective of monitoring is to identify and resolve operational problems as soon as they emerge. Realistic solutions to operational problems will call for identification of causes and corrective action.

During the implementation phase of DPMR initiative, important activities like coverage of training, provision of logistics, information management system, communication, advocacy and laboratory services, nursing and theatre services should be monitored.

Different aspects of each activity need to be monitored. Quality of work performance, quantity of certain outputs or outcomes, and the timeliness with which an activity is accomplished.

Key performance indicators	Aspects to monitor
POD Services provided	
Training	<ol style="list-style-type: none"> 1. No. of different category of staff trained 2. Quality of training (duration, % of time devoted to practical, trainee: trainers ratio)
Logistics	<ol style="list-style-type: none"> 1. Stocks of steroids, loose Clofazimine 2. Consumables 3. Forms and registers etc
Communication	<ol style="list-style-type: none"> 1. No. of posters on hand care, feet care & eye care 2. No. of participatory methods of ulcer care conducted in a month with patients & families
Advocacy	<ol style="list-style-type: none"> 1. No. of coordination meeting conducted with like minded agencies
Supervision	<ol style="list-style-type: none"> 1. Frequency of supervisory visits at health units 2. Whether visits are made on schedule 3. Whether visits resulted in corrective action to solve the identified problems.
Operational indicator	<ol style="list-style-type: none"> 1. No. of cases with disability – grade I and grade II 2. No. of cases developing new disability 3. No. of reaction cases put on Prednisolone 4. No. of cases undergone surgery 5. Multi drug treatment completion rates

Method of monitoring:

- a. Record and report review
- b. Direct observation
- c. Discussion with health worker
- d. Discussion with patients

Evaluation:

Programme evaluation assesses the extent to which, planned targets and objectives have been achieved at a given point of time. It is a periodic assessment of progress towards programme's operational targets and epidemiological objectives. It is managerial activity, carried out less frequently than monitoring. It includes more than checking activities and measurement of indicators (such as % of patients cured). Targets and objectives have to be measured through properly defined epidemiological/operational indicators. An indicator can be a number, proportion, ration or rate. Indicator may be different for district and for national level. A program's performance cannot be assessed by a single indicator hence several indicator are required to conclude. The prerequisites for a good indicator should be measurable, valid, reliable and readily interpretable. The reports we generate are based on the records we maintain; hence information we report should be reasonably accurate and complete to derive at a majority of the indicators. However some indicators are not derived readily as information is not readily available; hence it needs to be collected through a special exercise or a survey.

A well planned 'Client's perspective study' helps in evaluating quality of services.

7. Coordination and Linkages

- 1.1 Primary care institutions will maintain direct linkage with the District Hospital unit (secondary level) for referral of all types of cases
- 1.2 A copy of the referral slip should be marked to the district nucleus unit, which will be the linkage point amongst primary, secondary and tertiary level centres
- 1.3 Secondary level and tertiary level units will refer back cases after diagnosis and initiation of treatment to the primary care level units with proper instructions for maintenance of treatment and follow-up

A good Coordination will make the best use of limited human and financial resources; facilitate integration and deliver the DPMP activities through GHCS in a cost-effective manner. To perform various activities of DPMP satisfactorily it is mandatory to closely coordinate with the various divisions and departments of the health services possible for the PHC units and hospital services such as essential drugs programme, public health laboratory, training department, health education programme, public relations department, health statistics department, nursing and theatre services department.

Coordination with district nucleus is crucial in procurement of drugs, consumables, aids & appliances consolidate information and generate reports.

Linkages should also be established and strengthened, wherever possible, with local and external NGO's who provide community level health care services. There should be linkages with concerned department of Ministry of Social Welfare, empowerment and social justice, and like minded NGO working for the up-liftment of socio-economic weaker section affected by leprosy. Socio-economic rehabilitation through the formation of SHG initiated by the local government should be properly harnessed / likely beneficiaries should be motivated to utilize to their advantage. Various welfare schemes like low cost housing, pension schemes, specially those meant for disabled such as disability rights issue should thoroughly utilized.

