NSW Health

Leprosy

NSW Control Guideline for Public Health Units

Revision history

Version	Date	Revised by	Changes
1.0	2013	CDB	N/A
2.0	2024	CDB	Updated contact definition and inclusion of preventive therapy for contacts.

Contents

1. Summary

Public health priority

Routine.

PHU response time

Respond to reported cases within 3 working days of notification. Enter confirmed cases on NCIMS within 3 working days. The PHU and/or LHD TB Services/Chest Clinic should ensure each case and their contacts are followed up with a specialist physician.

Case management

Leprosy cases may be managed by a specialist physician. This may be in conjunction with an LHD TB Service/Chest Clinic.

Contact management

Contacts may be managed with advice from a specialist physician. Anyone who has lived in a household-like setting with a case for three months or more should be counselled and assessed for risk of disease and suitability for post exposure prophylaxis.

Leprosy services free of charge to the patient

All services related to leprosy must be provided at no charge to patients within the NSW public health system for infection prevention and control and public health containment purposes - see NSW Health Policy Directive *The Medicare Ineligible and Reciprocal Health Agreement* (PD2021_021). This includes the provision of services for leprosy related investigations, care and treatment, management of any disease or treatment-related complications, contact screening and post exposure prophylaxis [1].

2. The disease

Infectious agent

Leprosy (also called Hansen's disease) is caused by an acid-fast bacillus called *Mycobacterium leprae*.

Reservoir

Humans.

Mode of transmission

The exact mechanism of transmission is not well understood. Prolonged, close contact with someone with untreated leprosy over many months such as living in the same house is needed for the transmission to occur. Leprosy is also believed to be transmitted from person to person through exposure to droplets containing bacteria produced by coughing or sneezing.

However, the disease is not spread through casual contact with a person who has leprosy like shaking hands or hugging, sharing meals or sitting next to each other. Moreover, the patient stops transmitting the disease when they begin treatment [2].

Incubation period

The incubation period varies widely from months to 30 years, with an average of 4 years for paucibacillary leprosy (previously called tuberculoid leprosy) and 10 years for multibacillary leprosy (previously called lepromatous leprosy). *M. leprae* reproduces at a very slow rate and few cases are diagnosed in children less than five years old [3].

Infectious period

Cases with untreated leprosy are considered infectious until 72 hours after commencing treatment [4].

Clinical presentation and outcome

Leprosy mainly affects the skin, the peripheral nerves, mucosa of the upper respiratory tract, and the eyes. If untreated, it could lead to disabilities in a small proportion of patients. Damage to nerves can lead to loss of feeling and numbness in the hands and lower limbs. People with leprosy are more prone to injury in these non-feeling areas.

The usual clinical presentation is determined by the person's immune response and varies depending on the severity of illness. Paucibacillary leprosy is the mildest form while multibacillary leprosy is the more severe form.

In paucibacillary leprosy (tuberculoid leprosy) there is a lower bacillary load, skin lesions are single or few and generally asymmetrical on each side of the body. The lesions have clear edges and can be numb or have increased sensitivity. Peripheral nerve involvement tends to be severe.

In multibacillary leprosy (lepromatous leprosy), there is a high bacillary load and more severe disseminated disease. Skin lesions (nodules, papules, and macules) are usually symmetrical on both sides of the body, numerous and extensive. The skin lesions may not be numb or lighter in colour as they are in paucibacillary leprosy. The nasal mucosa may be involved, and inflammation of parts of the eyes (iritis and keratitis) can occur.

Leprosy can be cured with antibiotics.

Persons at increases risk of disease

Leprosy is not highly infectious and having close and frequent contact of many months with a person with untreated leprosy is needed for transmission to occur. Living in the same household as a person with leprosy is the main risk factor but living or spending long periods of time in countries where leprosy is common also increases the risk of being exposed to the disease.

Disease occurrence and public health significance

Leprosy is an ancient disease and has been described in the literature of former civilisations. It is considered a neglected tropical disease which still occurs in most countries of the world. More than 200,000 new cases are reported every year. As per 2022 data, 194 countries reported cases of leprosy to the World Health Organization. The countries who reported more than 10,000 cases were India, Brazil, and Indonesia. Twelve countries reported between 1000 and 10,000 cases (Democratic Republic of the Congo, Bangladesh, Ethiopia, Mozambique, Nigeria, Somalia, Nepal, Tanzania, Madagascar, Sri

Lanka, Myanmar, and the Philippines) [5]. Persons affected by leprosy may still face stigmatization and discrimination [2].

Elimination of leprosy as a public health problem was achieved globally in 2000, and in most countries by 2010. This is defined as a prevalence of less than 1 per 10,000 population. The worldwide reduction in the number of cases has been gradual [5].

In Australia, leprosy is rare and found mainly in First Nations peoples living in northern Australia and migrants from overseas countries where leprosy is more common [6]. An average of 10 cases per year are reported in Australia, with an average of 3 of these cases being from NSW [7].

3. Routine prevention activities

Vaccination

There is no vaccine specifically to prevent leprosy; however, the tuberculosis (TB) vaccine, bacille Calmette-Guérin (BCG), may provide some protection against leprosy. In NSW, BCG is recommended for children younger than 5 years of age who are household contacts of a person with leprosy [8].

4. Surveillance objectives

- To minimise the transmission of leprosy.
- To monitor the epidemiology of leprosy in NSW to inform the development of better prevention strategies.
- To prevent disability related to leprosy by facilitating early assessment and treatment.

5. Data management

Data entry

Within 3 working days of notification enter confirmed cases on NCIMS.

NSW report specific enhanced surveillance data for leprosy to the World Health Organization on an annual basis through the Commonwealth Department of Health. There are not specific fields in NCIMS for these data - PHUs and/or LHD TB Services/Chest Clinics should record the following information for each case of leprosy in the Notes section on NCIMS:

1. Classification of the case.

Options are:

a. Single-lesion paucibacillary leprosy (SLPB). This includes:
   - Only one skin lesion [i]
   - No nerve trunk involvement [ii]

b. Paucibacillary leprosy (PB) this includes:
   - 2 to 5 skin lesions, that are asymmetrically distributed, and definite loss of sensation [i]
   - Only one nerve trunk damaged [ii]

c. Multibacillary leprosy (MB)
   - More than 5 skin lesions, distributed more symmetrically, and a loss of sensation [i]
   - Many nerve trunks damaged [ii]

2. New, or a relapsed case previously treated with multidrug therapy.
3. Grade 2 disability at first presentation. A grade 2 disability in leprosy is visible deformity or damage (including ulceration, shortening, disorganisation, stiffness, loss of part) to hands or feet and/or severe visual impairment (visual activity less than 6/60) or lagophthalmos (inability to shut the eyes completely) or iridocyclitis (inflammation of the iris and muscles and tissues involved in focusing the eye) or corneal opacity.
4. Date case commenced treatment and if this treatment was completed within 9 or 18 months.
5. Any drug resistance test performed and the results of any drug resistance identified.
6. Disability grading at treatment completion.

Notes

i. Skin lesions include macules (flat lesions), papules (raised lesions) and nodules.

ii. Resulting in loss of sensation or weakness of muscles supplied by the affected nerve.

6. Communications

Notification criteria and procedure

Leprosy is to be notified by:

- Medical practitioners and hospital CEOs on diagnosis
- Laboratories on microbiological diagnosis.

7. Case definition

Only confirmed cases should be notified as per the Australian national notifiable diseases case definition [9]

Confirmed case

A confirmed case requires either:

- laboratory definitive evidence, or
- laboratory suggestive evidence and clinical evidence.

Laboratory definitive evidence

Detection of *Mycobacterium leprae* by nucleic acid testing from the ear lobe or other relevant specimens.

Laboratory suggestive evidence

- Demonstration of characteristic acid fast bacilli in slit skin smears and biopsies prepared from the ear lobe or other relevant sites, **or**
- Histopathological report from skin or nerve biopsy compatible with leprosy examined by an anatomical pathologist or specialist microbiologist experienced in leprosy diagnosis.

Clinical evidence

- Compatible nerve conduction studies, or
- Peripheral nerve enlargement, or
- Loss of neurological function not attributable to trauma or other disease process, or
- Hypopigmented or reddish skin lesions with definite loss of sensation.

8. Laboratory testing

Specimen types

Appropriate specimens include:

- skin lesion biopsy to diagnose and classify the leprosy type, and
- slit skin smears and nasal secretions to determine infectiousness.

Please see the Public Health Laboratory Network guidance for more information [10].

9. Management of notification

Response times

Investigation

Within 3 working days of notification begin follow up investigation.

Response procedure

The response to a notification will normally be carried out in collaboration with a specialist physician and if necessary, the local TB service/chest clinic staff. Regardless of who does the follow-up, PHU staff should ensure that action has been taken to:

- Confirm the onset date and symptoms of the illness.
- Confirm results of relevant pathology tests, or recommend these tests be done.
- Find out if the case or relevant carer has been told what the diagnosis is before beginning the interview.
- Seek the doctor's permission to contact the case or relevant carer.
- Review case and contact management.
- Ensure infection control professionals are notified where appropriate.

10. Case management

Investigation and treatment

Leprosy is treated with multidrug therapy, using two or three antibiotics at the same time. The recommended antibiotics are dapsone with rifampicin, and clofazimine is added for some types of the disease. This strategy helps prevent the development of antibiotic resistance by the bacteria, which may

otherwise occur due to length of the treatment [11]. The patient should be monitored clinically for development of nerve function impairment and/or leprosy reactions which require immediate specialist review and therapy.

Treatment usually lasts between six months to two years. Medication should be administered under the supervision of a specialist physician. TB service/chest clinic staff may be able to assist if necessary.

Leprosy can be cured if treatment is completed as prescribed, however antibiotic treatment does not reverse nerve damage or physical deformities that may have happened before the diagnosis [11].

Specialist advice from an ID physician with some experience with managing leprosy should be sought for detailed treatment regimens.

All services related to leprosy must be provided at no charge to patients within the NSW public health system for infection control and public health containment purposes – see NSW Health Policy Directive *The Medicare Ineligible and Reciprocal Health Agreement* (PD2021_021). This includes the provision of services for leprosy related investigations, care and treatment, management of any disease or treatment-related complications, contact screening and prophylaxis [1].

Education

The case or relevant carer should be informed about the nature of the infection and the mode of transmission. Emphasis should be placed on foot care and prevention of injury.

Misconceptions about leprosy are common and it is important to inform the patient and relatives that leprosy is curable, and the risk of transmission to contacts is low.

Exposure investigation

None routinely.

Isolation and restriction

If hospitalisation is indicated for medical or other reasons, including management of immunological reactions, a patient with leprosy should generally be managed in a single room with contact and droplet precautions until the completion of 72 hours of leprosy specific treatment. Consultation with a specialist physician and/or infection prevention and control service is recommended to determine if further isolation is required. The risk of transmission in this context is very low.

It is recommended that once diagnosed, a person with leprosy should not attend work or school until they have had 72 hours of treatment.

Environmental evaluation

None.

11. Contact management

Identification of contacts

Anyone who has lived in a household-like setting with the case for three months or more while the case was infectious is defined as a contact [6,12]. Household contacts with less exposure time should receive information. They may be anxious and request examination to exclude the disease, a single review is appropriate in this case.

Consent of the index case to disclose their diagnosis must be obtained as their confidentiality may be breached if this does not happen [12]

Contacts should be referred to a specialist medical practitioner for counselling and to be examined for

signs of leprosy. Post exposure prophylaxis should be considered in the absence of leprosy and other contraindications such as active TB disease.

NSW Health Policy Directive *The Medicare Ineligible and Reciprocal Health Agreement* (PD2021_021) mandates the provision of leprosy screening, treatment and post-exposure prophylaxis free of charge for infection control and public health containment purposes [1].

Given the extremely low risk to other contacts, follow up is not recommended for health care workers and other non-household contacts.

Post exposure prophylaxis

Single dose rifapentine or rifampicin (SDR) may be considered for contacts of leprosy patients aged 2 years and above, after excluding leprosy and active TB disease, and in the absence of other contraindications (Table 1) [12, 13]. Contact LHD TB Services/Chest Clinic for rifapentine availability.

SDR should be given to contacts only after the index case has been on effective treatment for at least four weeks to avoid the possibility of re-infection [12].

BCG vaccination is recommended for children less than 5 years of age who are household contacts of a person with leprosy [8], in addition to other appropriate measures, including SDR, clinical assessment, and follow-up.

Table 1: Dosages for single dose therapy for leprosy prevention

Age (body weight)	Rifapentine	Rifampicin
15 years and above	600 mg	600 mg
10-14 years	450 mg	450 mg
Children 6-9 years (weight ≥ 20 kg)	Use Rifampicin liquid	300 mg
Children 6-9 years (weight < 20 kg)	Use Rifampicin liquid	150 mg
Children 2-5 years	Use Rifampicin liquid	10-15 mg/kg

Education

Advise contacts, or their relevant carer, of the mode of transmission and the low risk of infection. Close household contacts should be advised to report any new skin lesions promptly and to tell their doctor that they have had contact with a known case of leprosy.

Isolation and restriction

None.

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