LEPROSY (Hansen Disease)

1. **Agent**: *Mycobacterium leprae*, an acid-fast, gram-positive bacillus.

2. **Identification**:

   a. **Symptoms**: Lesions of skin, often enlargement of peripheral nerves, with consequent anesthesia, muscle weakness and contractures. Major types:

   Lepromatous (LL): Many bacilli present, decreased cell-mediated immunity (CMI), diffuse skin lesions, invasions of upper respiratory tract, lymphoid system and some viscera. Erythema nodosum leprosum (ENL) and Lucio reaction may occur.

   Borderline (BL, BB, BT): Bacilli present and CMI unstable; includes features of both major types.

   Tuberculoid (TT): Few bacilli present, increased CMI, usually localized with discretely demarcated lesions, early in nerve involvement; may heal spontaneously in 1-3 years.

   Indeterminate: A benign form, relatively unstable, seldom bacteriologically positive. These cases may evolve toward lepromatous form or the tuberculoid form, or may remain unchanged indefinitely.

   Arrested leprosy: Under control with adequate medication.

   Complications: Residual paralysis and anesthesia leading to trophic ulcers; amyloid renal disease; chronic glomerulonephritis. Reversal reactions may destroy tissue abruptly.

   b. **Differential Diagnosis**: Other peripheral neuropathies, chronic dermatological lesions, tuberculosis, syphilis, yaws, lymphoma, vitiligo, psoriasis, cutaneous leishmaniasis, etc.

   c. **Diagnosis**: Characteristic tissue changes, nerve enlargement, history of immigration from endemic area, identification of acid-fast bacilli in tissue.

3. **Incubation**: Average 3-6 years; range, 7 months to 20 years.

4. **Reservoir**: Human. Wild armadillos have been found infected; transmission to humans is uncertain.

5. **Source**: Not established. Presumed to be nasal discharges, skin lesions. Found in setting with poor sanitation and in immunocompromised individuals.

6. **Transmission**: Not established. Presumed to be via nasal discharges to the skin and respiratory tract of close contacts. Close household contact, genetic factors and immune response thought to be important. Transmission is considered to be low risk.

7. **Communicability**: Mildly communicable as long as solid viable bacilli are demonstrable. A single dose of rifampin significantly reduces infectiousness after 48-72 hours.

8. **Specific Treatment**: Multidrug therapy with dapsone (DDS); rifampin or rifampicin; clofazimine (B663). Dapsone resistance develops with mono-therapy, so multidrug chemotherapy is always used. The NHDP does not recommend chemoprophylaxis with Dapsone or any other drug for contacts of patients.

9. **Immunity**: None.

REPORTING PROCEDURES

1. **Reportable**. Sections 2500 and 2582, *California Code of Regulations*.

2. **Report Forms:**

   Hansen's Disease Surveillance (DHNDP) required for all new cases.

a. **CASE**:

Submit **LEPROSY SURVEILLANCE (CDC 52.18)** immediately on all types (LL, BL, BB, TT, indeterminate and arrested leprosy) to ACDC

Refer Hansen case/suspect to federally-sponsored Hansen's Disease Clinic for initial evaluation.

Los Angeles Hansen's Disease Clinic
LAC+USC Medical Center
1100 North State Street
Clinic Tower A, 5th Floor, Unit A5B
Los Angeles, CA. 90033
Office Phone: (323)409-5240
Fax: (323)441-8152

b. **CONTACTS:**

Household Contacts as defined in Contact section in this chapter should be referred to Los Angeles Hansen's Disease Clinic (see above). The need for further follow-up will be determined by the Clinic.

3. **Epidemiologic Data**:

a. Establishment of rapport with patient takes precedence over obtaining routine epidemiologic data.

b. Aliases, occupation, current symptoms.

c. Contact with persons with leprosy.

d. Place of birth, travel/residence in endemic areas from birth to present. Dates of entry into United States and California.

e. Type of leprosy, active/inactive.

f. Pertinent Medical Records to include biopsy date, results, history of treatment.

g. Disability or deformity.

h. Current medical supervision.

i. List of family members and other close household contacts. Refer to Los Angeles Hansen's Disease Clinic (see above).

CONTROL OF CASE, CONTACTS & CARRIERS

1. Investigate within 14 days. Review record of LL, BL, and BB cases semi-annually in June and December for verification of completion of treatment. ACDC to case manage. CFS case management indicated for unreachable or noncompliant cases. Send initial contact registry only to ACDC.

2. All cases should be closed to public health two years after treatment initiation or upon verification of antibiotic treatment completion for Hansen's Disease.

CASE:

1. All LL, BL, and BB to remain under medical supervision by Los Angeles Hansen's Disease Clinic or private practitioner until treatment is completed.

2. All TT, BT, indeterminate and arrested leprosy to remain under medical supervision by Los Angeles Hansen's Disease Clinic or private practitioner until released by their physician.

CONTACTS:

Contacts are defined as persons who have been in close, continuous household contact with a new patient up to 3 years, prior to diagnosis or during any period of inadequate treatment. Persons residing with cases in areas of endemicity are particularly vulnerable. Secondary cases acquired in California are rare. Contact information is not mandatory if Case does not wish to disclose.

If solicited, Contacts should be assessed at the Los Angeles Hansen's Disease Clinic. In situations where the case chooses not to divulge a contact, please discuss with AMD as to whether any additional action is necessary.

CARRIER: Not applicable.

PREVENTION/EDUCATION

CASE & CONTACTS:

As mentioned by the CDC, Hansen's disease does not spread easily to others and 95% of the world's population is immune to infection. It commonly infects individuals with weakened immune systems and those who reside in areas with poor sanitation. Hansen's disease is caused by *Mycobacterium leprae*, which like Tuberculosis, requires a lengthy treatment to eradicate the mycobacterium from the body. If left untreated, there can be devastating damage caused to the hands, feet, eyes, and nerves. Disabilities such as blindness, muscle weakness, numbness, growths on skin, nerve mains, and disfigurements are common among cases and can be addressed in the Hansen's Disease Clinic. The priority for case management is to bring cases to treatment to both prevent and address disabilities from illness. Many cases have a delayed diagnosis and have disabilities upon initial referral.

It is recommended to solicit household contacts after rapport has been established and treatment has begun. If the case does not wish to disclose household contacts, case management should not be transferred to CFS to obtain. CFS should only get involved if the case is not reachable or refuses treatment.

When initially contacting a case, it is best not to use the name "Leprosy" and to use a calmer term such as "skin condition". Leprosy can be seen as a derogatory term and may cause discomfort in the case. Rapport can be built over time especially after initial medical consultation has been completed.

1. Clarify misconceptions and myths about Hansen's Disease.
2. Encourage patient to remain under medical care.
3. Emphasize importance of taking prescribed medications and following treatment plan.
4. Emphasize importance of watching for drug reactions and reporting to Los Angeles Hansen's Disease Clinic or treating physician.
5. Dispose of nasal and lesion discharges in a sanitary manner.
6. Explain the relationship of anesthetic areas to possible injury (nerve damage). Hansen's Disease affects nerves of various tissues such as the eyes, nasal passages, muscles, skin, etc.
7. Similar to diabetics, teach daily examination of stocking-glove (foot hand) area,
8. Teach safety measures to prevent burns, ulcers, injuries, etc.
9. Inform patient to inquire about availability and importance of rehabilitation and reconstructive surgery from treatment provider.
10. Encourage hospitalization when recommended.

DIAGNOSTIC PROCEDURES

Specimen: *Mycobacterium leprae* is not culturable. A biopsy or smear taken from active lesion can be used for examination of acid-fast bacilli.