

HANSEN'S DISEASE

Also known as: Leprosy

Responsibilities:

Hospital: Report by IDSS, facsimile, mail or phone

Lab: Report by IDSS, facsimile, mail or phone. Send isolates to the State Hygienic Laboratory (SHL) for testing

Physician: Report by facsimile, mail or phone

Local Public Health Agency (LPHA): Report by facsimile, mail or phone. Follow Up Required

Iowa Department of Public Health

Disease Reporting Hotline: (800)-362-2736

Secure Fax: (515) 281-5698

1) THE DISEASE AND ITS EPIDEMIOLOGY

A. Agent

Hansen's disease (also called leprosy) is a chronic infectious disease caused by the bacterium *Mycobacterium leprae*. Even though the medical community is moving away from using diseases named after people, this is one that will retain the moniker "Hansen's" disease because of the stigma of the name leprosy.

B. Clinical Description

A chronic bacterial disease characterized primarily by the involvement of skin, which can also involve peripheral nerves, testicles, and the mucosa of the upper airway. Clinical forms of Hansen's disease represent a spectrum reflecting the degree of cellular immune response to *Mycobacterium leprae*. The following characteristics are typical of the major forms of the disease.

- **Tuberculoid:** One or a few well-demarcated, hypopigmented, and anesthetic skin lesions, frequently with active, spreading edges and a clearing center; peripheral nerve swelling or thickening also may occur.
- **Lepromatous:** A number of erythematous papules and nodules or an infiltration of the face, hands, and feet with lesions in a bilateral and symmetrical distribution that progress to thickening of the skin.
- **Borderline (dimorphous):** Skin lesions characteristic of both the tuberculoid and lepromatous forms.
- **Indeterminate:** Early lesions, usually hypopigmented macules, without developed tuberculoid or lepromatous features.

Its main targets are the skin and nerves, though other organs can be involved. If not treated, the nerves are damaged and patients may be unable to feel, which can result in injuries or burns. Such wounds may result in ulcers. The patient may suffer muscle weakness and paralysis. Serious disabilities and deformities may occur. Prompt and appropriate treatment prevents most of these complications.

C. Reservoirs

Humans are the only reservoir of proven significance for leprosy. There have been reports suggesting that leprosy in armadillos may be naturally transmitted to humans.

D. Modes of Transmission

Although the mode of transmission of Hansen's disease remains uncertain, most investigators think that *M. leprae* is usually spread from person to person in respiratory droplets after prolonged close contact. Most humans probably are not susceptible.

E. Incubation period

The incubation period probably ranges from 9 months to 20 years.

F. Period of Communicability or Infectious Period

Evidence suggests that infectiousness is lost in most instances within a day of beginning treatment with multidrug therapy.

G. Epidemiology

While worldwide prevalence of leprosy decreased to less than 1 million registered cases in 1998, incidence has changed little since 1985. The majority of cases occur in developing countries, with 92% in just 16 countries, led by India and Brazil. In the United States, cases usually occur in immigrants or refugees. Although leprosy affects people of all ages and gender, cases in children under 3 years of age are rare.

H. Bioterrorism Potential

None.

2) DISEASE REPORTING AND CASE INVESTIGATION

A. Purpose of Surveillance and Reporting

- To identify source of infection and possible modes of acquisition.
- To connect infected individual with available free treatment from CDC.
- To ensure that close contacts, primarily family, are examined for possible disease and treatment is initiated.

B. Laboratory and Healthcare Provider Reporting Requirements

Iowa Administrative Code 641-1.3(139) stipulates that the laboratory and the healthcare provider must report. The preferred method of reporting is by utilizing the Iowa Disease Surveillance System (IDSS). However, if IDSS is not available, the reporting number for IDPH Center for Acute Disease Epidemiology (CADE) is (800) 362-2736; fax number (515), 281-5698, mailing address:

IDPH, CADE
Lucas State Office Building, 5th Floor
321 E. 12th St.
Des Moines, IA 50319-0075

Postage-paid disease reporting forms are available free of charge from the IDPH clearinghouse. Call (319) 398-5133 or visit the website healthclearhouse.drugfreeinfo.org/cart.php?target=category&category_id=295 to request a supply.

Laboratory Testing Services Available

The University of Iowa State Hygienic Laboratory (SHL) performs acid-fast bacillus smear testing, which will detect *M. leprae*. Although it is not possible to grow *M. leprae* in culture, further testing of specimens may be coordinated between SHL and the CDC. For more information, call the SHL Mycobacteriology department at (319) 335-4500, or visit: www.shl.uiowa.edu/

C. Local Public Health Agency Follow-up Responsibilities

Follow up is required. Make sure household and close contacts are assessed for disease. Periodic examination of household and other close contacts is recommended at 12-month intervals for at least 5 years after last contact with an infectious case.

3) CONTROLLING FURTHER SPREAD

A. Isolation and Quarantine Requirements

Minimum Period of Isolation of Patient

No restrictions, but should be under medical care.

Minimum Period of Quarantine of Contacts

No restrictions.

B. Protection of Contacts of a Case

Handwashing is recommended for all contacts of lepromatous cases, and appropriate disposal of nasal discharges of the case should be considered during the infectious period.

D. Preventive Measures

Detection and treatment of cases is needed to prevent further spread. Antibiotics for treatment can be provided through the National Hansen's Disease Program, www.hrsa.gov/hansensdisease/

Preventive Measures/Education

- Education of the case should stress the availability and efficacy of therapy.
- Education on the importance of following the medication regime exactly.
- Education of the case's household contact(s) should include modes of transmission, preventive therapy (if appropriate), and referral to a healthcare provider for follow-up.
- It is important to convey to the case and contacts the low communicability of this disease and the availability of effective treatment and prevention regimens.

4) ADDITIONAL INFORMATION

The Council of State and Territorial Epidemiologists (CSTE) surveillance case definitions for Hansen's Disease can be found at: www.cdc.gov/osels/ph_surveillance/nndss/phs/infdis.htm#top

CSTE case definitions should not affect the investigation or reporting of a case that fulfills the criteria in this chapter. (CSTE case definitions are used by the state health department and the CDC to maintain uniform standards for national reporting.)

References

American Academy of Pediatrics. *2006 Red Book: Report of the Committee on Infectious Diseases, 27th Edition*. Illinois, American Academy of Pediatrics, 2006.

CDC website. Hansen's Disease, available at: www.cdc.gov/leprosy/

Heymann, D.L., ed. *Control of Communicable Diseases Manual, 20th Edition*. Washington, DC, American Public Health Association, 2015.

Jacobson, R., Krahenbuhl, J., Leprosy, *The Lancet*, 1999; 353: 655–60.