

Rickettsialpox

(Also known as Vesicular Rickettsiosis)



Section 1:

ABOUT THE DISEASE

A. Etiologic Agent

Rickettsialpox is caused by *Rickettsia akari*. Rickettsiae are small, coccobacillary bacteria that typically have arthropod vectors.

B. Clinical Description

After the appearance of a small eschar at the site of a mouse mite bite, rickettsialpox typically presents as a disseminated, vesicular rash that appears on the trunk, face, extremities, and mucous membranes. Lymph nodes in the area of the primary eschar (scab) typically become enlarged. Systemic illness lasts about a week and may include fever, chills, headache, sweats, muscle pain, anorexia, and photophobia. The disease is self-limited and is rarely associated with serious sequelae.

C. Vectors and Reservoirs

The mite, *Liponyssoides sanguineus*, of the common house mouse is both a reservoir for the agent and the vector that transmits *R. akari* to humans. The house mouse (*Mus musculus*) serves as the preferred host in the U.S.

D. Modes of Transmission

Rickettsialpox is transmitted to humans through the bite of an infected mouse mite.

E. Incubation Period

The incubation period for rickettsialpox is generally 9–14 days.

F. Period of Communicability or Infectious Period

Rickettsialpox is not transmitted from person to person.

G. Epidemiology

Because rickettsialpox is transmitted by the bite of an infected mouse mite, disease risk is greatest in areas infested with mice. The mite stays on the host for only 1–2 hours to feed. Large numbers of nymphs and adult mites can be found in buildings in areas near rodent nests and paths. The disease is found in large, urban areas and has been recognized in the northeastern U.S. as well as in Ohio, North Carolina, and Utah. Outside the U.S., cases have been identified in Croatia, Ukraine, Russia, Korea, and South Africa. About half of all described cases in the U.S. have occurred in New York City. Rickettsialpox is not commonly reported in the U.S., and it is likely more common than suggested by the small number of reports.

H. Bioterrorist Potential

This pathogen is not considered to be of risk for use in bioterrorism.



Section 2:

REPORTING CRITERIA AND LABORATORY TESTING

A. What to Report to the Massachusetts Department of Public Health (MDPH)

Report any suspect case of rickettsialpox based on a health care provider's medical opinion or a positive laboratory result pertaining to *R. akari*.

Note: See Section 3C for information on how to report a case.

B. Laboratory Testing Services Available

The MDPH State Laboratory Institute (SLI) does not provide diagnostic testing for rickettsialpox. However, the SLI Virus Serology Laboratory can arrange for serum samples to be forwarded to the Centers for Disease Control and Prevention (CDC) for testing.

For additional information on testing or specimen submission, contact the SLI Virus Serology Laboratory at (617) 983-6396. Please call the laboratory prior to specimen submission.



Section 3:

REPORTING RESPONSIBILITIES AND CASE INVESTIGATION

A. Purpose of Surveillance and Reporting

- ◆ To identify clusters of illness as soon as possible.
- ◆ To identify rodent sources of infection.
- ◆ To design more effective control and prevention methods.

B. Laboratory and Health Care Provider Reporting Requirements

Rickettsialpox is reportable to the local board of health (LBOH). The MDPH requests that health care providers immediately report to the LBOH in the community where the case is diagnosed, all confirmed or suspect cases of rickettsialpox, as defined by the reporting criteria in Section 2A.

Laboratories performing examinations on any specimens derived from Massachusetts residents that yield evidence of *R. akari* infection shall report such evidence of infection directly to the MDPH within 24 hours.

C. Local Board of Health (LBOH) Reporting and Follow-up Responsibilities

Reporting Requirements

MDPH regulations (*105 CMR 300.000*) stipulate that rickettsialpox is reportable to the LBOH and that each LBOH must report any confirmed case of rickettsialpox or suspect case of rickettsialpox, as defined by the reporting criteria in Section 2A. Cases should be reported to the MDPH Bureau of Communicable Disease Control, Office of Integrated

Surveillance and Informatics Services (ISIS) using a MDPH *Generic Confidential Case Report Form* (found at the end of this chapter). Refer to the *Local Board of Health Timeline* at the end of this manual's *Introduction* section for information on prioritization and timeliness requirements of reporting and case investigation.

Case Investigation

1. It is the responsibility of the LBOH to complete a MDPH *Generic Confidential Case Report Form* (found at the end of this chapter) by interviewing the case and others who may be able to provide information. Much of the information can be obtained from the health care provider or from the medical record.
2. Use the following guidelines to assist in completing the form:
 - a. Accurately record the demographic information.
 - b. Accurately record clinical information, including “rickettsialpox” as the disease being investigated, date of symptom onset, symptoms, whether hospitalized, and hospital and clinician contact information.
 - c. Include all available diagnostic laboratory test information that is available.
 - d. Record information relevant to prevention and control. Use the incubation period range for rickettsialpox (9–14 days). Specifically, focus on the period beginning a minimum of 9 days prior to the case's onset date back to no more than 14 days before onset for the following exposures:
 - i. Travel history: Determine the date(s) and geographic area(s).
 - ii. Animal contact: Ask the case about potential direct or indirect occupational or recreational exposures to rodents. This information can then be documented in the “Comments” section.
 - e. Include any additional comments regarding the case.
 - f. If you have made several attempts to obtain case information but have been unsuccessful (e.g., the case or health care provider does not return your calls or respond to a letter, or the case refuses to divulge information or is too ill to be interviewed), please fill out the form with as much information as you have gathered. Please note on the form the reason(s) why it could not be filled out completely.
3. After completing the form, attach laboratory report(s) and fax or mail (in an envelope marked “Confidential”) to ISIS. The confidential fax number is (617) 983-6813. Call ISIS at (617) 983-6801 to confirm receipt of your fax. The mailing address is:

MDPH, Office of Integrated Surveillance and Informatics Services (ISIS)
305 South Street, 5th Floor
Jamaica Plain, MA 02130
Fax: (617) 983-6813

4. Institution of disease control measures is an integral part of case investigation. It is the responsibility of the LBOH to understand, and if necessary, institute the control guidelines listed in Section 4.



Section 4:

CONTROLLING FURTHER SPREAD

A. Isolation and Quarantine Requirements (*150 CMR 300.200*)

Minimum Period of Isolation of Patient

None.

B. Protection of Contacts of a Case

None.

C. Managing Special Situations

Reported Incidence Is Higher Than Usual/Outbreak Suspected

If the number of reported cases of rickettsialpox in your city/town is higher than usual or if you suspect an outbreak, investigate to determine the source of infection and the mode of transmission. Consult with the epidemiologist on-call at the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850. The Division can help determine a course of action to prevent further cases and can perform surveillance for cases across town lines, which would otherwise be difficult to identify at the local level.

D. Preventive Measures

The best way to prevent rickettsialpox is to eliminate or minimize human contact with house mice. Use an EPA-approved rodenticide with bait under plywood or plastic shelter along baseboards, use traps, and properly dispose of rodents. Live trapping of rodents is not recommended.

Clean all food preparation areas. Store all food (both human and pet) in rodent-proof containers.



ADDITIONAL INFORMATION

There is no formal CDC surveillance case definition for rickettsialpox. For reporting to the MDPH, always use the criteria outlined in Section 2A.



REFERENCES

- American Academy of Pediatrics. [Rickettsialpox.] In: Pickering L.K., ed. *Red Book: 2003 Report of the Committee on Infectious Diseases, 26th Edition*. Elk Grove Village, IL, American Academy of Pediatrics; 2003: 531–532.
- Heymann, D., ed. *Control of Communicable Diseases Manual, 18th Edition*. Washington, DC, American Public Health Association, 2004.
- Krusell, A., Comer, J., Sexton, D. Rickettsialpox in North Carolina: A Case Report. *Emerg Infect Dis*. July, 2002 (cited May 1, 2002).
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- PAHO. *Zoonoses and Communicable Diseases Common to Man and Animals: Volume II. Chlamydioses, Rickettsioses and Viroses, 3rd Edition*. Washington, D.C. PAHO, 2003, Scientific and Technical Publication #580.



FORMS & WORKSHEETS

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LBOH Action Steps

This form does not need to be submitted to the MDPH with the case report form. It is for LBOH use and is meant as a quick-reference guide to rickettsialpox case investigation activities.

LBOH staff should follow these steps when rickettsialpox is suspected or confirmed in the community. For more detailed information, including disease epidemiology, reporting, case investigation, and follow-up, refer to the preceding chapter.

- Notify the MDPH Division of Epidemiology and Immunization, at (617) 983-6800 or (888) 658-2850, to report any confirmed or suspect case(s) of rickettsialpox.
- Assist MDPH with obtaining clinical specimens needed for laboratory confirmation, if necessary.
- Complete a MDPH *Generic Confidential Case Report Form* (attach laboratory results). Be sure to obtain an accurate travel history and inquire about any potential exposure to rodents.
- Send the completed case report form (with laboratory results) to the MDPH Bureau of Communicable Disease Control, Office of Integrated Surveillance and Informatics Services (ISIS).