

Lassa Fever

Lassa fever is a viral hemorrhagic fever (VHF) caused by the Lassa virus. It was first discovered in 1969 in Lassa, Nigeria and is now endemic to West Africa and mainly found in Sierra Leone, Liberia, Guinea, and Nigeria. Neighboring countries Mali, Cote d'Ivoire, Ghana, Togo, Benin, and Burkina Faso also report periodic cases. Cases occur year round, with a peak in March during the transition from dry to wet season. The reservoir of the virus is the "multimammate rat". Once infected, the rodent is able to excrete virus in urine for an extended time period. There are an estimated 100,000 -300,000 cases in West Africa each year, with rare cases reported in travelers to the US from endemic regions.

Disease Summary

- **Transmission:** Contact with the urine or droppings of an infected rat; catching and preparing infected rats as food or eating contaminated food; inhaling tiny particles in the air contaminated with infected rat urine or droppings; contact with blood or body fluids from an infected individual sick through mucous membranes, like eyes, nose, or mouth (rare). Transmission can occur after recovery as virus is shed in urine for 3-9 weeks and in semen for up to 3 months. Serum viral RNA can be detected for up to 3 weeks after recovery.
- **Incubation Period:** 1-3 weeks. Individuals are not thought to be contagious prior to symptom onset.
- **Symptoms:** For the majority of infections (approximately 80%), symptoms can be asymptomatic or mild. Mild symptoms include fever, myalgia, malaise, and headache. In 20% of infected individuals, disease may progress to pharyngitis, cough, nausea, vomiting, diarrhea, retrosternal chest pain, back pain, and abdominal pain. In severe cases, pulmonary edema, bleeding from mouth, nose, vagina, or GI tract, and hypotension can occur. Sensorineural deafness occurs in up to one third of patients. Among hospitalized patients, case fatality rates are from 15-30%. An important diagnostic feature is the appearance of patches of white or yellowish exudate and occasionally small vesicles or shallow ulcers on the tonsils and pharynx.

Case Definition

- Suspected Case
 - Clinical and Epidemiological Criteria:
 - One or more symptoms of Lassa fever (listed above) AND one or more of the following exposures within the 3 weeks before onset of symptoms:
 - Residence in or history of travel to endemic regions
 - Contact with blood or other body fluids of a patient with Lassa fever
 - Work in a laboratory that handles Lassa fever specimens
 - Work in a laboratory that handles bats, rodents, or primates from endemic areas
- Confirmed Case
 - A case that is laboratory confirmed.

Key Screening Steps

1. **Identify:** Assess the patient for signs and symptoms, travel history, and epidemiological criteria. For assistance, contact facility Infection Prevention and Control or on-call hospital epidemiologist.
2. **Isolate:** Provide a mask to the patient, initiate prompt triage and isolation, and follow infection prevention guidance.
3. **Inform:** Notify department and facility leadership, infection prevention and control, and local on-call hospital epidemiologist. Call NYC DOHMH Provider Access Line to ascertain risk: 866-692-3641. If determined to be a Person Under Investigation per NYC DOHMH, call Central Office Special Pathogens Program/Emergency Management: 646-864-5442.

Infection Prevention

Hand Hygiene

Perform hand hygiene before and after all patient contact, contact with potentially infectious material, and before putting on and upon removal of PPE, including gloves. Use soap and water for at least 20 seconds or use alcohol-based hand rubs. If hands are visibly soiled, use soap and water.

Patient Placement

Place patient in a single patient **Airborne Infection Isolation Room (AIIR)**. If an AIIR is not available, isolate patient in a private examination room. Keep door closed, minimize entry and exit, and avoid entry without appropriate PPE until transfer to Bellevue Hospital.

Limit transport and movement of the patient outside of the room. When outside of the AIIR, patients should wear a facemask to contain secretions.

Keep a log of all persons who care for or enter the rooms or care area of these patients.

Transmission-based Precautions and PPE

Adhere to **Standard + Airborne + Contact Precautions**. Use a respirator, 2 pairs of extended cuff gloves, coverall or gown, apron, face shield, hood, knee high boot covers and/or ankle high shoe covers. Follow the **SP Level 2 PPE Donning and Doffing Checklist**.

Ensure a trained observer is present and donned in SP Level 1 PPE when assistance is needed.

Environmental Infection Control

Lassa virus is classified as a **Category A infectious substance**: capable of causing permanent disability or life-threatening/fatal disease in healthy humans if exposure occurs. Keep all waste, supplies, or medical equipment in the patient room until Lassa fever is ruled out.

If Lassa fever is ruled out, clean and disinfect the patient's care area in accordance with routine procedures. Management of laundry, food service utensils, and medical waste should also be performed in accordance with routine procedures.

If Lassa fever is ruled in, all cleaning, disinfection, and transport of waste will **be escalated to and managed by vendors with expertise in handling Category A waste**. Once the patient vacates a room, all unprotected individuals, including HCP, should not be allowed in that room until sufficient time has elapsed for enough air changes to remove potentially infectious particles and the room has been cleaned and disinfected by designated vendor.

Further information regarding waste and transport can be found here: <https://www.cdc.gov/vhf/ebola/clinicians/cleaning/hospitals.html>

Diagnostic Testing

Consultation and approval from NYC DOHMH is required if specimen collection is warranted. Further information regarding specimen collection can be found here: <https://www.cdc.gov/nceid/dhcpp/vspb/specimens.html>.

Note: Other infections can mimic Lassa fever, including other viral hemorrhagic fevers, malaria, typhoid, influenza, and leptospirosis.

Treatment

Ribavirin, an antiviral drug, has been shown to be most effective when given early in the course of the illness. Patients should also receive supportive care. No licensed vaccines are available for Lassa fever.

Additional Information

- CDC Lassa Fever Website: <https://www.cdc.gov/vhf/lassa/index.html>
- WHO Lassa Fever: <https://www.who.int/news-room/fact-sheets/detail/lassa-fever>
- CDC VHF Case Definition: <https://ndc.services.cdc.gov/case-definitions/viral-hemorrhagic-fever-2022/>
- United Kingdom Guidance on Lassa Fever: <https://www.gov.uk/guidance/lassa-fever-origins-reservoirs-transmission-and-guidelines>