

# Marburg Virus Disease

**Marburg virus disease (MVD)** is a rare but severe viral hemorrhagic fever (VHF) caused by Marburg virus, which belongs to the filovirus-family. The reservoir host of Marburg virus is the African fruit bat, *Rousettus aegyptiacus*. Marburg virus was first recognized in 1967, when outbreaks of hemorrhagic fever occurred simultaneously in laboratories in Marburg and Frankfurt, Germany and in Belgrade, Yugoslavia (now Serbia). Since then, outbreaks and sporadic cases have been reported in Angola, Democratic Republic of the Congo, Kenya, South Africa, Uganda, Guinea, and Ghana.

Clinical diagnosis of MVD can be difficult. Many of the signs and symptoms of MVD are similar to other infectious diseases (such as malaria or typhoid fever) or viral hemorrhagic fevers that may be endemic in the area (such as Lassa fever or Ebola).

## Disease Summary

- **Transmission:**

- Person to person through direct contact (through broken skin or mucous membranes) with blood or body fluids of infected person OR person who has died of MVD
- Objects contaminated with body fluids of infected person (e.g. bedsheets, clothing, medical equipment)
- Unprotected contact with infected bat feces or aerosols
- Semen from men who have recovered from MVD

MVD is known to persist in immune-privileged sites in some people who have recovered (e.g., testicles, eyes). In women infected while pregnant, the virus persists in the placenta, amniotic fluid, and fetus; in women infected while breastfeeding, virus may persist in breast milk.

- **Incubation Period:** 2-21 days

- **Symptoms:** Symptom onset is sudden and marked by fever, chills, headache, and myalgia. As disease progresses, additional symptoms may include:

- Nausea, vomiting, chest pain, sore throat, abdominal pain, and diarrhea
- Jaundice, inflammation of pancreas, severe weight loss, delirium, shock, liver failure, massive hemorrhaging, and multi-organ dysfunction
- Maculopapular rash that is most prominent on the trunk (chest, back, stomach)

- **Case Fatality Rate:** Between 24% to 88%, based on virus strain and clinical management

## Case Definition:

- **Suspected Case:** Meets the clinical criteria **AND** the epidemiologic criteria
  - One or more symptoms of Marburg (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 MVD
    - Work in a laboratory that handles MVD specimens
    - Work in a laboratory that handles bats from endemic areas
    - Sexual exposure to semen from a confirmed acute or clinically recovered case of VHF
- **Confirmed Case**
  - 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.
2. **Isolate:** Provide a mask to the patient, initiate prompt triage and isolation.
3. **Inform:** Notify department and facility leadership and Infection Prevention and Control. 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.

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 shoe covers. Follow the **SP Level 2 PPE Donning and Doffing Checklist**.

### Environmental Infection Control

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

If MVD is ruled out, clean and disinfect the patient's care area using an EPA registered disinfectant for appropriate contact times. Management of laundry, food service utensils, and medical waste should also be performed in accordance with routine procedures.

If MVD is ruled in, all cleaning, disinfection, and transport of waste will **be escalated to facility EVS 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.

## Diagnostic Testing

**Consultation and approval from NYC DOHMH is required if specimen collection is warranted. Call NYC DOHMH Provider Access Line: 866-692-3641.**

## Treatment

There is no specific or licensed treatment or available for MVD. Treatment is limited to supportive care with rehydration; symptomatic treatment improves survival. A range of blood products, immune therapies and drug therapies are currently under development. There is no approved vaccine for MVD. Multiple trials and efforts are underway to develop an effective filovirus vaccine.

### Additional Information

- CDC: <https://www.cdc.gov/vhf/marburg/symptoms/index.html>, <https://www.cdc.gov/vhf/marburg/pdf/factsheet.pdf>
- WHO: <https://www.who.int/news-room/fact-sheets/detail/marburg-virus-disease>
- CDC: [About Marburg virus disease | Marburg \(Marburg Virus Disease\) | CDC](#)

Aug 2022