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Maine Health Alert Network (HAN) System

PUBLIC HEALTH ALERT

To: All HAN Recipients
From: Dr. Isaac Benowitz, State Epidemiologist
Subject: **Marburg Virus Disease Outbreaks in Equatorial Guinea and Tanzania**
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Maine CDC encourages healthcare providers and facilities to review this information from U.S. CDC on the Marburg virus disease outbreaks in Equatorial Guinea and Tanzania and the federal response to it.

Further information is provided here for Maine facilities and providers. Any patients with confirmed or suspected Marburg virus disease must be reported immediately to Maine CDC by phone at 800-821-5821.

All healthcare facilities should prepare to identify and assess patients with signs/symptoms concerning for Marburg virus disease. Information and hospital readiness assessment tools are available from U.S. CDC at https://www.cdc.gov/vhf/marburg/index.html. Maine CDC can provide guidance regarding how to test for Marburg, malaria, and influenza, and how to transfer a patient to another facility, if appropriate.

Marburg Virus Disease Outbreaks in Equatorial Guinea and Tanzania

Summary
The U.S. Centers for Disease Control and Prevention (U.S. CDC) is issuing this Health Alert Network (HAN) Health Advisory to inform clinicians and public health departments in the United States about two confirmed outbreaks of Marburg virus disease (MVD)—one in Equatorial Guinea and one in Tanzania. Currently, there is no evidence to suggest that these two outbreaks are related; most experts agree that these represent two independent animal-to-human spillover events. To date, **no confirmed cases of MVD related to these outbreaks have been reported in the United States or other countries outside Equatorial Guinea and Tanzania**. This Health Advisory provides information about these outbreaks to increase awareness of the risk of imported cases in the United States. It also summarizes U.S. CDC's recommendations for case identification, testing, and clinical laboratory biosafety considerations in the United States.

Background

Marburg virus disease is a rare but highly fatal viral hemorrhagic fever caused by two zoonotic viruses, Marburg virus and Ravn virus, that are closely related to ebolaviruses within family *Filoviridae*. In February and March 2023, two distinct outbreaks of Marburg virus were reported in Equatorial Guinea and Tanzania. These outbreaks mark the first time that Marburg virus has been identified in either Equatorial Guinea or Tanzania, though the virus has been identified previously in neighboring countries and the reservoir, the Egyptian fruit bat, is known to be present in both countries. Available information suggests that these outbreaks may have originated separately in each country. To date, there is no evidence that these two outbreaks are epidemiologically linked. Viral genetic sequencing from Tanzania is in process; these results, along with sequence data available from Equatorial Guinea, will further inform whether the outbreaks emerged separately through distinct animal-to-human spillover events.

A person with MVD is not contagious until symptoms appear. Symptoms may include fever, headache, muscle and joint pain, fatigue, loss of appetite, gastrointestinal symptoms, or unexplained bleeding. Marburg virus is spread through **contact** (through broken skin or mucous membranes) with the blood or other body fluids (including urine, saliva, sweat, feces, vomit, breast milk, amniotic fluid, or semen) of a person who is sick with or has died from MVD, with the body fluids of infected animals, or with needles or other fomites that are contaminated with the virus. Marburg virus is **not** spread through airborne transmission.

There is currently no Food and Drug Administration (FDA)-approved vaccine or treatment for MVD. In the absence of early diagnosis and appropriate supportive care, MVD has a high mortality rate of 23%–90%. With early intensive supportive care and fluid replacement, mortality rates may be lower.

MVD Outbreak in Equatorial Guinea

On February 7, 2023, the Ministry of Health and Social Welfare of Equatorial Guinea reported a cluster of deaths suspected to be caused by a viral hemorrhagic fever. The deaths occurred in early January among people in two villages in the district of Nsok-Nsomo, in the eastern province of Kié-Ntem, Río Muni Region.

On February 12, 2023, clinical samples were collected from known contacts of the decedents and sent to the Institute Pasteur in Dakar, Senegal, where one sample was confirmed positive for Marburg virus by real-time polymerase chain reaction (RT-PCR). This index (first confirmed) patient presented with fever, vomiting, bloody diarrhea, and convulsions and died the same day. This patient appears to be epidemiologically linked to four deceased community members from one of the affected villages in Nsok-Nsomo district.

On March 13, 2023, two additional samples collected from people in Kié-Ntem province tested positive for Marburg virus by RT-PCR performed at a U.S. CDC-supported field laboratory at the Regional Hospital of Ebibeyin. As of April 5, 2023, 14 laboratory-confirmed MVD cases have been identified from five districts across four provinces in Equatorial Guinea. Ten of these cases were fatal. There are no known epidemiologic links between patients in one province, Centre Sur. This, taken together with the wide geographic spread of the outbreak within the country, suggests that there may be undetected community spread of the virus in the country. All suspect cases in nearby surrounding countries have been confirmed negative to date.

MVD Outbreak in Tanzania

On March 21, 2023, the Ministry of Health of Tanzania announced an MVD outbreak. The announcement followed the identification of Marburg virus by RT-PCR in clinical samples collected from patients in several villages in the northwest Kagera region. As of April 5, 2023, 8 laboratory-confirmed MVD cases have been reported. Five of these infections were fatal. Based on currently available information, all these individuals with MVD are from Kagera Region in Tanzania and appear to be epidemiologically linked.

U.S. CDC is sending mobile phone text messages (SMS) to travelers who had been in Equatorial Guinea or Tanzania and are arriving in the United States. The text messages to the travelers explain what symptoms they should watch for and to contact their local health department or their doctor if they develop symptoms within 21 days. In addition, U.S. CDC has reached out to a number of nongovernmental organizations (NGOs) working in the affected areas and has provided guidance to NGOs on education and health assessment of staff predeparture during deployment and post-arrival.

There are no direct commercial flights from Equatorial Guinea or Tanzania to the United States and the number of travelers arriving in the United States from either country is low. Currently, no enhanced domestic travel measures are recommended, as the overall risk in the United States is considered low at this time.

Recommendations for Clinicians

Currently, the risk of MVD in the United States is low; however, clinicians should be aware of the potential for imported cases. It is important to systematically assess patients for the possibility of viral hemorrhagic fevers (including MVD or Ebola disease) through a triage and evaluation process, including a detailed travel history. Early identification of MVD or other viral hemorrhagic fevers is important for providing appropriate and prompt patient care and preventing the spread of infection. Recent presence in Equatorial Guinea or Tanzania should not be a reason to defer routine laboratory testing or other measures necessary for standard patient care.

MVD should be included as a differential diagnosis for an ill person with history of a concerning exposure while in a MVD affected area (e.g., contact with a symptomatic person with suspected or confirmed MVD or an unknown illness; attending/participating in a funeral; visiting or working in a healthcare facility; having contact with bats or non-human primates; working or spending time in a mine/cave) within 21 days before symptom onset and who have clinical symptoms such as fever, headache, muscle and joint pain, fatigue, loss of appetite, gastrointestinal symptoms, or unexplained bleeding. Alternative diagnoses such as malaria, COVID-19, influenza, or common causes of gastrointestinal and febrile illnesses in a patient with recent international travel should be considered, evaluated, and managed appropriately. Additionally, patients with a Marburg virus infection may present with concurrent infections (e.g., co-infection with malaria) and the possibility of a concurrent infection should be considered if a patient has a clinical and epidemiologic history compatible with MVD.

If a patient is determined to meet criteria for Marburg virus testing, the patient is considered a suspect case of MVD and should be managed under isolation precautions until receiving a negative Marburg virus test result on a sample collected > 72 hours after symptom onset. Routine laboratory testing to monitor the patient's clinical status and diagnostic testing for other potential causes of the patient's illness should be pursued while Marburg virus testing is underway. Marburg virus diagnostic testing should not be delayed while awaiting results of other diagnostic testing.

Clinicians with concerns about a patient with suspected MVD should contact Maine CDC at 800-821-5821 to receive further instructions for patient assessment. If a diagnosis of MVD is considered, Maine CDC will work with U.S. CDC and the clinical team to coordinate care and testing for the patient and ensure appropriate precautions are taken to help prevent potential spread.

Testing for Marburg virus and other causes of viral hemorrhagic fevers is available at U.S. CDC (Atlanta, Georgia) and within the Laboratory Response Network (LRN). To date, 32 geographically diverse LRN laboratories and 8 Regional Emerging Special Pathogen Treatment Centers can test using the Biofire FilmArray NGDS Warrior Panel, with several more LRN laboratories working toward building testing capability. The Warrior Panel can detect marburgviruses (Marburg and Ravn viruses) and ebolaviruses (Ebola, Sudan, Tai Forest, Bundibugyo, and Reston viruses) in addition to other high-consequence pathogens.

Clinicians caring for patients with planned travel to an MVD outbreak affected area can counsel their patients on ways to prevent exposure during their travel. This includes avoiding contact with blood and body fluids (or materials possibly contaminated with blood and body fluids) of people who are sick; funeral or burial practices that involve touching the body of someone who died from suspected or confirmed MVD; or contact with fruit bats and nonhuman primates and areas known to be inhabited by fruit bats (such as mines or caves).

Infection Prevention and Control Measures
In hospitals, U.S. CDC recommends a combination of infection prevention and control measures to prevent transmission of MVD. These infection prevention and control measures include personal protective equipment (PPE), patient placement, and patient care considerations. If MVD is suspected, patients should be isolated in a private room with a private bathroom or covered bedside toilet. Healthcare personnel should follow the same infection prevention and control measures as recommended for Ebola disease, including using recommended personal protective equipment (PPE) and limiting the number of personnel who enter the room for clinical evaluation and management.

Healthcare personnel can be exposed through contact with a patient's body fluids, contaminated medical supplies and equipment, or contaminated environmental surfaces. Splashes to unprotected mucous membranes (e.g., the eyes, nose, or mouth) are particularly hazardous. Procedures that can increase environmental contamination with infectious material, involve handling of potentially contaminated needles or other sharps, or create aerosols should be minimized. Separate PPE guidance is available for managing clinically stable and clinically unstable patients.

Recommendations for Clinical Laboratory Biosafety
Early symptoms associated with MVD are similar to other illnesses associated with fever in returning travelers. MVD is rare; patients with suspected symptoms should be asked a detailed travel history and should be tested for other conditions and treated accordingly. Clinical laboratories can safely perform common diagnostic testing for patients with suspected MVD by following Standard Precautions for All Patient Care and Universal Precautions for Preventing Transmission of Bloodborne Infections.

Under the Occupational Safety and Health Administration's (OSHA's) Bloodborne Pathogens Standard, laboratories handling blood and body fluids must have a written Exposure Control Plan in place to eliminate or minimize employees' risk of exposure to blood or other potentially infectious materials. Proper PPE should be available and staff should be trained to properly put on and take off (don and doff) their PPE. If a facility does not have the appropriate risk mitigation capabilities, the specimen should be forwarded to another facility that does.

Recommendations for the Public
MVD is a serious and often deadly disease. When living in or traveling to a region where Marburg virus is potentially present, there are a number of ways to protect yourself and prevent spread. This includes avoiding contact with blood and body fluids (or materials possibly contaminated with blood and body fluids) of people who are sick; funeral or burial practices that involve touching the body of someone who died from suspected or confirmed MVD; or contact with fruit bats and nonhuman primates and areas known to be inhabited by fruit bats (such as mines or caves). These same prevention methods should be used when living in or traveling to an area experiencing an outbreak of MVD. After returning from an area experiencing an outbreak, people should monitor their health for 21 days and seek medical care immediately if they develop symptoms of MVD.

For More Information

Note: Recommendations for clinicians, infection prevention and control, and biosafety precautions that apply to Ebola Disease also apply to Marburg Virus Disease (MVD) in U.S. healthcare settings. These pages are currently being reviewed and terminology will be updated to reflect this broader application.

General Marburg Information

- General Resources for Marburg Virus Disease
- History of MVD Outbreaks

Clinician Resources

- Screening patient for Marburg virus disease
- Guide for clinicians evaluating an ill person for Marburg virus disease
- Guidance for collection, transport and submission of specimens for Marburgvirus testing
- U.S. CDC - Malaria - Guidance for Malaria Diagnosis in Patients Suspected of Ebolavirus Infection in the United States
- Considerations for Discharging People Under Investigation (PUIs) for Ebola Virus Disease

Infection Prevention Resources

- Maine CDC Healthcare Associated Infection Program
- Interim Guidance for U.S. Hospital Preparedness for Patients Under Investigation (PUIs) or with Confirmed Ebola Virus Disease
- Infection Prevention and Control Recommendations for Hospitalized Patients Under Investigation (PUIs) for Ebola Virus Disease (MVD) in U.S. Hospitals
- Personal Protective Equipment (PPE) | Public Health Planners | Ebola (Ebola Virus Disease) | U.S. CDC Cleaning and disinfecting
- Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus
- Guidance for U.S. Hospitals and Clinical Laboratories on Performing Routine Diagnostic Testing for Patients with Suspected Marburg Virus Disease | U.S. CDC
- Procedures for Safe Handling and Management of Ebola-Associated Waste

Travel Resources

- Ebola and Marburg: Travel Information | Quarantine | U.S. CDC
- Ebola and Marburg: After You Travel | Quarantine | U.S. CDC
- Ebola and Marburg | Disease Directory | Travelers' Health | U.S. CDC