The first-ever outbreak of Marburg virus disease in Rwanda

Benjamin Mateus 29 September 2024

On Saturday, September 28, 2024, the World Health Organization (WHO) reported a first-ever outbreak in Rwanda of the deadly Marburg virus. It is the fourth largest Marburg outbreak documented in modern history. Local health authorities have confirmed 26 cases with six deaths thus far. Cases have occurred across seven of the country's 30 districts. The survivors are presently in isolation receiving treatment, while 161 people who have been identified through contact tracing are being monitored.

Rwanda's Ministry of Health had informed the public and the international health authorities on Friday of these developments. The statement said, "Marburg virus disease (MVD), a hemorrhagic fever, has been confirmed in a few patients in health facilities in the country. Investigations are being carried out to determine the origin of the infection. Enhanced preventive measures are being implemented in all health facilities. Contact tracing is underway, and cases have been isolated for treatment."

The country's health minister, Dr. Sabin Nsanzimana, told reporters on the same day via a video statement posted on X, "We are counting 20 people who are infected, and six who have already passed away due to this virus. The large majority of cases and deaths are among healthcare workers, mainly in the intensive care unit."

The following day, addressing the public, Dr. Nsanzimana told Rwandans on video:

I want to emphasize that people can continue with their daily activities. There is no prohibition on any activities. What we ask is that people who have symptoms, specifically high fever, severe headaches, muscle aches, fatigue, diarrhea and vomiting, if you experience these symptoms don't ignore them. These are the main symptoms

indicating the onset of this virus. Do not continue your daily activities. Instead, call 114 or visit the nearest health center. People should not panic as we have started identifying the hotspots of the disease and are taking appropriate action. We cannot implement guidelines that hinder people's livelihoods.

There is no cure for the disease and supportive care in health facilities means access to intensive care units with healthcare providers well versed in maintaining strict isolation controls. Mainstays of care include pain control, balancing fluids and electrolytes, antibiotics and antifungals as deemed appropriate, and anticoagulation to prevent or control disseminated intravascular coagulation. Such measures are resource intensive and can quickly overwhelm healthcare facilities in poor countries even with just a few cases.

Marburg virus disease is a viral hemorrhagic fever that has similar clinical symptoms to infection with the Ebola virus. Even with supportive care, fatality rates range from 24 to 88 percent. The incubation period after exposure lasts a week on average, but can be between two to 21 days, underscoring the importance of immediate public health efforts to trace all contacts.

The initial phase of the infection (days one through five) is accompanied by high fevers (104 degrees Fahrenheit) with severe headaches, chills, extreme fatigue, nausea, vomiting, diarrhea and horrible sore throat. Additionally, red and purple discolorations cover the entire body. Abdominal cramping, red inflamed eyes, and malaise are experienced by most.

By week one to two, patients are listless in bed out of weakness. They also suffer from shortness of breath, swelling, and marked eye redness. They can suffer from central nervous symptoms such as delirium, confusion and aggression, which places caregivers in danger of secondary infection. The infected also manifest bloody stools and hemorrhaging from mucosal surfaces and blood draw sites.

While fatal cases will continue into coma, convulsions, multiorgan failure accompanied by diffuse coagulopathy, metabolic disturbances, shock and lastly death in this period, those who survive and enter the convalescence phase will have generalized aches and pains, liver dysfunction, muscle weakness, and possibly psychosis.

Transmission of Marburg virus disease is not well understood but can occur through exposure to one species of fruit bats or through consumption of bush meat. The infection can be spread between people via contact with body fluids through unprotected sex or broken skin.

The source of the infection in Rwanda remains to be determined. The majority of cases confirmed have been among healthcare workers in and around the capital city, Kigali, with a population of 1.2 million and an airport well-connected to domestic and international destinations.

The WHO has announced that it is assisting with medical supplies and mobilizing expertise to assist with public health containment measures to end the outbreak quickly. As the report noted, "A consignment of clinical care and infection prevention and control supplies is being readied and will be delivered to Kigali in the coming days from WHO's Emergency Response Hub in Nairobi, Kenya." Additionally, WHO Regional Director for Africa Dr. Matshidiso Moeti said that efforts to bolster "crossborder" measures with bordering countries is underway.

These developments come on the heels of recent Public Health Emergency of International Concern declaration with the clade 1b mpox outbreak centered in the neighboring country of the Democratic Republic of Congo (DRC) where promised funds and vaccinations have been slow to materialize as the virus rampages across the country.

In particular, the previous year, Tanzania, a neighboring country to its east, had reported its first-ever outbreak of Marburg virus disease in nine human cases, with six deaths. At the same time, Equatorial Guinea, which lies on the western coast of the continent, nearly 3,000 kilometers away, reported 40 human cases of Marburg virus disease and 35 deaths.

Given its continuing emergence across central Africa and in densely populated cities, it will be only a matter of time, as the mpox pandemic demonstrated in 2022, that these highly virulent diseases may quickly erupt as a global infectious disease crisis. Marburg virus disease continues to be classified by the WHO as a neglected tropical disease as there is limited research, funding, and any attention given it as compared to other infectious diseases. As the authors of a 2023 report on Marburg in Africa stated bluntly:

Lack of commercial incentives for drug development and limited investments in MVD vaccine development have hindered the progress. In view of this, the global health agencies, governments, and nongovernmental organizations may prioritize MVD?specific research and development. Strengthening the surveillance and diagnostic capacities in particularly the endemic regions may aid in expeditious detection and response and could also potentially prevent an outbreak from ramifying.

As another study on Marburg in sub-Saharan Africa from last year explained, the continent has in the last decade experienced a 63 percent increase in zoonotic diseases, a majority of these caused by emerging deadly viruses like Ebola and Marburg. These have already placed considerable strain on the region's healthcare systems and overall quality of life for its population.

The COVID pandemic has only exacerbated these developments, which are a product of uncontrolled capitalist exploitation and urbanization of the continent without the creation of the social infrastructure to address the growing needs of the population, including protection from deadly viruses emerging from the rain forests and other undeveloped regions.



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