ASEAN BIODIASPORA VIRTUAL CENTER | DISEASE ALERT

With Support by:
bluedot · Korea Disease Control and Prevention Agency · In partnership with Canada · Kemenkes · Association of Southeast Asian Nations

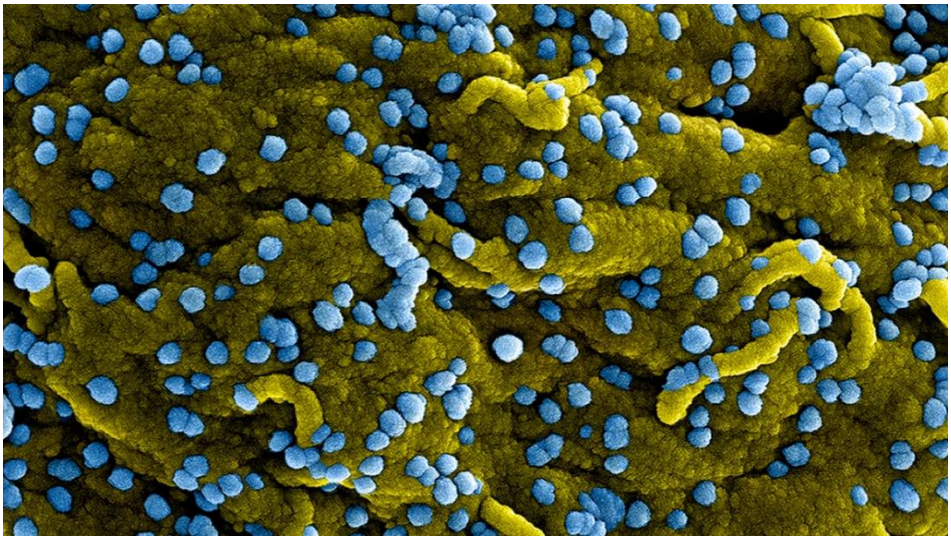
October 9, 2024 | Issue No. 15

First alert: 1 October 2024

Second alert: 9 October 2024 | Marburg Virus Disease in Rwanda

SUB-LOCATIONS AFFECTED

Eastern Province (Gatsibo District, Nyagatare District), Kigali Province (Gasabo District, Kicukiro District, Nyarugenge District), Southern Province (Kamonyi District), Western Province (Rubavu District)



Source: https://www.cnn.com/2024/09/30/health/marburg-virus-rwanda-outbreak-disease/index.html

Event Description

Rwanda is currently facing its first-ever outbreak of Marburg Virus Disease (MVD), a severe and often fatal illness in the same family as Ebola. The outbreak, confirmed on September 27, 2024, has rapidly become a significant public health concern.

As of October 8, 2024, health authorities have reported 58 confirmed cases, including 13 deaths across seven of Rwanda's 30 districts, marking an increase of 22 cases and five deaths from the previous alert. Alarmingly, 80% of the cases are healthcare workers, highlighting the high risk to medical personnel and the urgent need for enhanced infection control measures in healthcare settings.

The Rwanda Ministry of Health, supported by the World Health Organization (WHO) and other partners, is coordinating a robust response. This includes isolating and treating confirmed cases,

conducting extensive contact tracing with 400 individuals under surveillance and implementing public health measures to contain the spread.

The absence of specific treatments or vaccines for MVD underscores the critical importance of early detection and supportive care to improve patient outcomes. The WHO has assessed the risk as very high at the national level, high at the regional level, and low globally, emphasizing the need for heightened vigilance and preparedness, particularly in neighboring countries.

This outbreak serves as a stark reminder of the ongoing threat of emerging infectious diseases and the crucial role of strong health systems and rapid response capabilities in managing such crises.

Epidemiological Information

- Rwanda's health authorities reported the country's first-ever cases of Marburg virus disease (MVD) on September 27, 2024. The exact number of infections wasn't specified in the initial announcement. This outbreak is significant not only for Rwanda but also for the wider region, as it represents the fourth recorded instance of MVD in West Africa throughout its known history.
- On September 28, 2024, the Rwandan Ministry of Health reported multiple cases and fatalities in the Marburg virus outbreak, including healthcare workers, underscoring its severity and the heightened risk to frontline staff.
- On September 29, 2024, the WHO African Region Office reported that the Marburg virus outbreak in Rwanda had spread to at least seven of the country's 30 districts, though the specific districts were not disclosed. On the same day, Rwanda's Ministry of Health confirmed two additional fatalities linked to the outbreak.
- On September 30, 2024, the WHO noted 27 laboratory-confirmed cases of MVD, including 9 fatalities, with over 70% of the cases being healthcare workers from two facilities in Kigali. Cases have been recorded in four provinces: Kigali (Gasabo, Kicukiro, Nyarugenge), Eastern (Gatsibo, Nyagatare), Southern (Kamonyi), and Western (Rubavu). Of the 300 identified close contacts, one had traveled abroad but completed the observation period symptom-free.
- As October 7, 2024, contact tracing is ongoing, with approximately 400 contacts under follow-up. WHO assesses the outbreak risk as very high nationally, high regionally, and low globally. The outbreak's geographic spread and complexity demand a coordinated national response, supported by WHO and international partners.

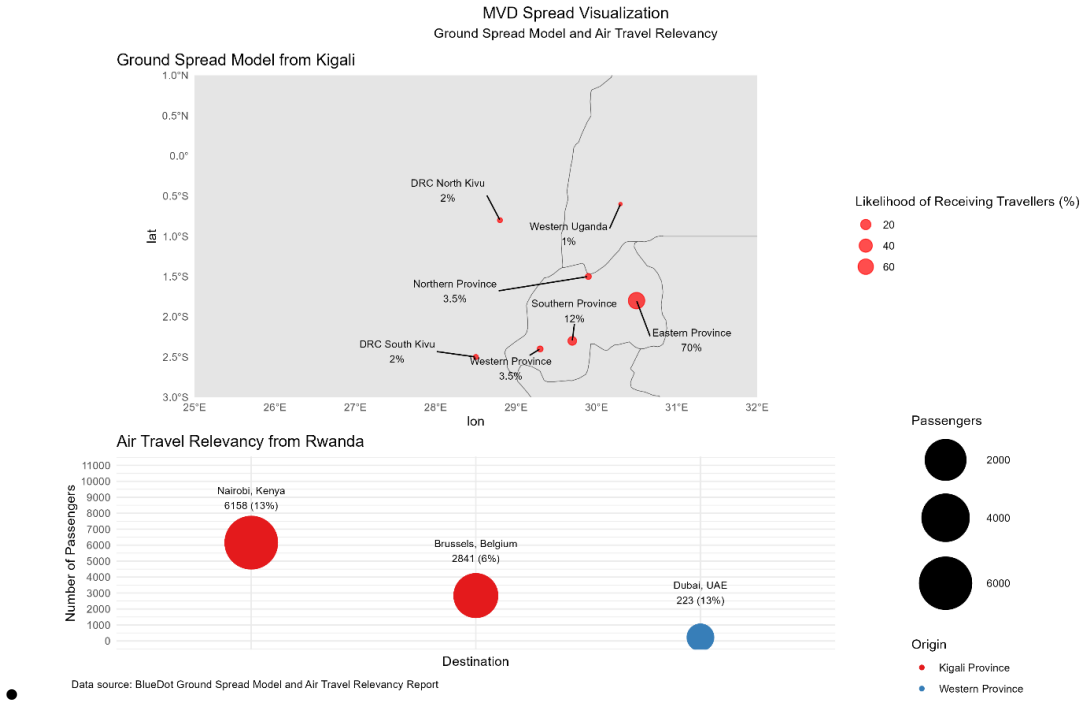
Potential Spread

Figure 1 presents a visual analysis of travel risks associated with the MVD outbreak in Rwanda, using a ground spread model (top panel) and air travel relevance data (bottom panel). The spread of MVD through ground travel and cross-border movement is considered a significant concern due to Rwanda's proximity to neighbouring countries and the location of the outbreak in Kigali, a highly interconnected region.

- Eastern province of Rwanda has the highest likelihood of receiving travelers from Kigali (approximately 70%), followed by the Southern Province (12%). The Northern and Western provinces are estimated to have much lower levels of overland travel (3.5% each).
- In the neighbouring country, the **Democratic Republic of Congo (DRC)**, the probability of ground movements from Kigali to the provinces of North and South Kivu is estimated at around 2%. The western region of **Uganda** is also estimated to have a low probability (1%) of receiving ground travellers from Kigali province.

The bottom panel shows the air travel relevancy, that uses both proportion and volume of forecasted passengers, from Kigali (the epicentre of the ongoing outbreak), and other affected sublocations suggests:

- 13% (223) of passengers from Western Province are projected to go to **Dubai, United Arab Emirates,**
- 13% (6,158) of passengers leaving Kigali Province, are projected to go to **Nairobi, Kenya,** and
- 6% (2,841) of passengers leaving Kigali Province are projected to go to **Brussels, Belgium.**



- *Figure 1. Marburg VirusDisease Spread Visualization*

Response Measures

The Rwandan government, in collaboration with WHO and partners, is managing the outbreak through early detection via the Rwanda Biomedical Center's hotline. Ongoing efforts include epidemiological investigations, contact tracing, and monitoring, with suspected cases isolated for testing and treatment. Infection prevention and control (IPC) protocols, along with Water, Sanitation, and Hygiene (WASH) measures, have been implemented across all healthcare facilities, while risk communication and community engagement (RCCE) are being intensified to address rumors and misinformation. Furthermore, recent measures to prevent further transmission include 1) restricted funeral sizes for fatal cases up to 50 people, and 2) no hospital visitations for the next 14 days except for one caregiver. On October 7, the government began vaccinating frontline healthcare workers to strengthen their protection against potential exposure.

On October 8, the WHO issued a Strategic Preparedness and Response Plan (SPRP) for Rwanda to address the ongoing Marburg virus outbreak. The SPRP's objectives are to: 1) ensure supportive care and IPC, 2) engage communities, 3) enhance case investigation and contact tracing, 4) improve cross-border collaboration, and 5) strengthen partnerships. The plan aims to help the Rwandan government provide optimal care for MVD patients, halt transmission chains, and minimize the outbreak's impact

on human health through coordinated global, regional, and national efforts. Key actions include integrated surveillance, testing, contact tracing with isolation, safe clinical care, protecting healthcare workers, and empowering communities to engage in outbreak prevention.

Disease Information

- **Pathogen:**
  The Marburg virus is a zoonotic pathogen from the *Filoviridae* family, which also includes the Ebola virus.
- **Host:**
  The African fruit bat (*Rousettus aegyptiacus*) is the main natural reservoir. It can transmit the virus to both animals and humans, either directly or indirectly, such as through contact with contaminated fruits like figs, mangoes, or dates.
- **Transmission:**
  Once the virus crosses from animals to humans, it spreads through direct contact with the bodily fluids of infected individuals or through contact with contaminated surfaces and materials.
- **Symptoms:**
  Common symptoms include fever, headache, vomiting, nausea, and severe cases may result in hemorrhagic symptoms.
- **Fatality Rate:**
  The Marburg virus is extremely infectious, with a fatality rate that varies between 24% and 88%, depending on the strain and how quickly cases are diagnosed and treated.

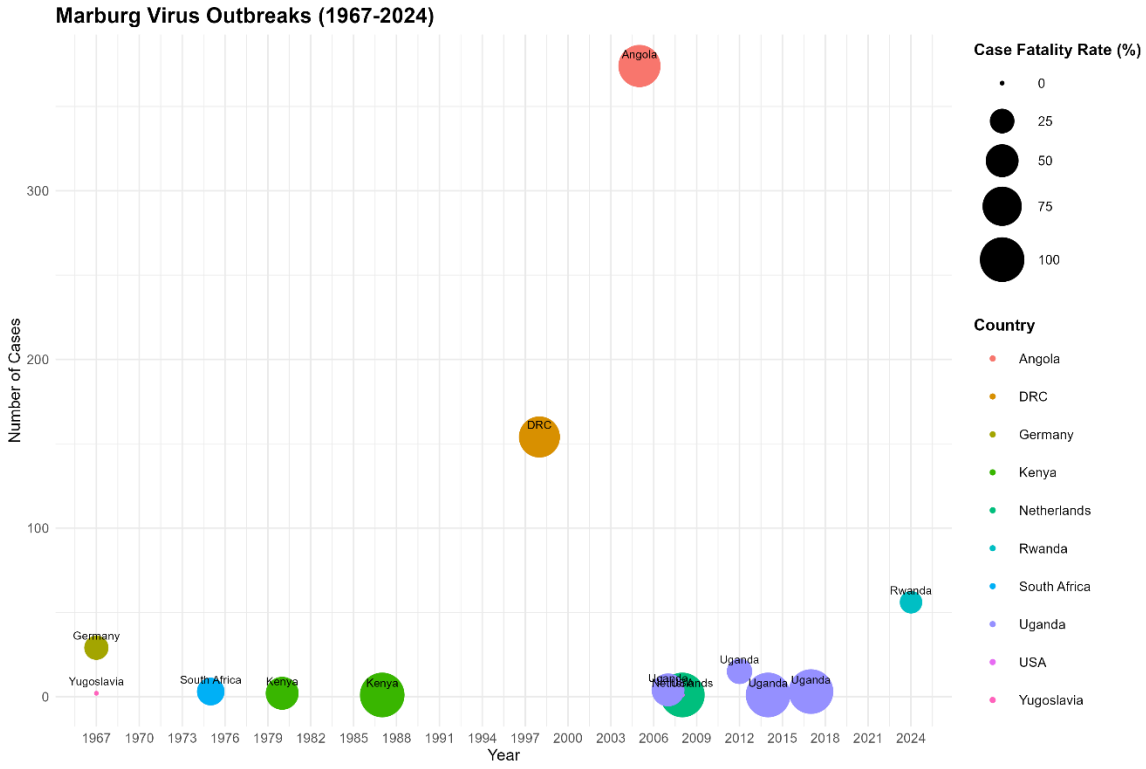


Figure 2. Marburg Virus Notable Outbreaks

Sources:

1. **BlueDot**. (2024, September 30). BlueDot Portal. Available at: https://portal.bluedot.global/.
2. **World Health Organization (WHO).** (2024, September 30). *Disease outbreak news: 2024-DON537*. Retrieved from https://www.who.int/emergencies/disease-outbreak-news/item/2024-DON537
3. **Ministry of Health of Rwanda.** (2024, October 8). Marburg Virus Update. Retrieved from https://x.com/RwandaHealth/status/1843706851038568587
4. Okafor, M. (2024, October 1). *Rwanda limits funeral sizes due to Marburg virus outbreak*. BBC News. Retrieved from https://www.bbc.com/news/articles/c5y3pxky2lno
5. **World Health Organization (WHO).** (2024, October 8). *Marburg virus disease global strategic preparedness and response plan for Rwanda*. Retrieved from https://www.who.int/publications/m/item/marburg-virus-disease-global-strategic-preparedness-and-response-plan-for-rwanda