



# Monthly Epidemic Intelligence Report

Issue 10

October 2024



# Definitions

The below is a list of commonly referred to terms and keywords in the monthly reports.

## Gulf Public Health Emergency Network (PHEN)

A group of technical individuals within GCC health authorities, nominated to represent each GCC country. The composition typically includes International Health Regulations Focal Point, Ministry of Health Communicable Disease Directors and National Public Health Laboratory Directors or appointed representatives on their behalf. The Gulf CDC serves as the Network’s secretariat with the PHE Department Director chairing the network meetings.

## Hazard

A source/incident that has the potential to cause morbidity (including injury) or mortality in an exposed human population.

## Signal

An incident/situation involving a hazard that has occurred. Signals are typically news/updates identified through Event-Based Surveillance and Indicator-Based Surveillance, utilizing both official and non-official sources. Signals can be of a disease origin or a CRNE (Chemical, Radiological, Nuclear, or Environmental) origin.

## Potential Threat

Any threat that has been confirmed by the PHEN to have the potential to pose a near-future risk to the GCC countries’ populations and could be monitored closely by Gulf CDC for 2 weeks.

## Event of Regional Interest

Any threat, inside or outside the GCC, that has been identified by the Public Health Emergency Network to pose a certain type of risk for the GCC countries’ public health. For these threats, Gulf CDC produces regular risk assessments and recommendations for their control, as well as enhances daily monitoring of it to provide regular situational updates to the GCC countries.

## Rapid Risk Assessment

A prompt evaluation of the level of health risk in relation to a verified acute event within a short time frame, mainly for situation update, risk level determination and recommendation to support the GCC countries in risk communication and management.

GULF CDC Risk Scale					
Negligible	Very Low	Low	Moderate	High	Critical

*Country names in this report are as per the UN list*



# Summary of the Month

This monthly report provides an overview of the signals, potential threats, and specifically Events of Regional Interest detected and identified through the Gulf CDC Epidemic Intelligence system during the month of **October 2024** (September 24, 2024 – October 23, 2024).\*

72

Disease  
Signals

3

CRNE  
Signals

3

Events of Regional  
Interest

## Executive Summary

**Disease Signals** This month, the epidemic intelligence team at Gulf CDC detected 72 infectious disease signals. Of these, 21% were of poliovirus (different types), 11% were of mpox, 10% were of dengue, 9% of signals were disease signals detected in animals.

**CRNE Signals** 3 CRNE signals with potential public health consequences were identified, including 1 gas leak in Iraq and two environmental signals related to poliovirus in Spain and Yemen.

**Events of Regional Interest** the Gulf CDC continued monitoring 2 events of regional in the month of October; Avian Influenza globally and Mpox globally and identified 1 new event of regional interest; Marburg in Rwanda.

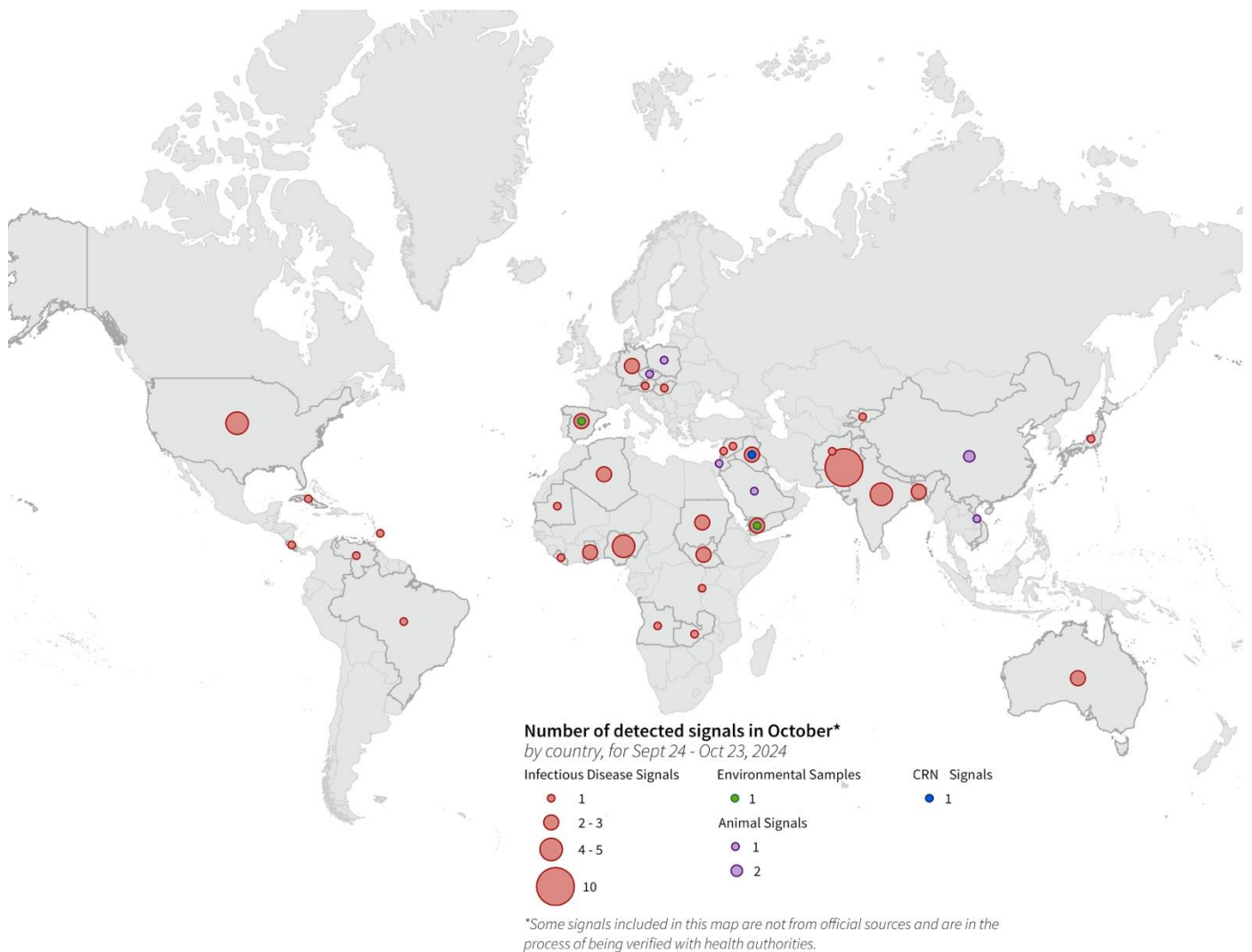
\* Monthly reports cover data from the 24<sup>th</sup> of the previous month to the 23<sup>rd</sup> of the reported month, ensuring there is no gap in reported data.

*The details of the detected signals and identified threats are shared weekly with the GCC Member States' technical representatives in the Gulf Public Health Emergency Network (PHEN) (available on this [link](#)) and are presented and discussed in weekly roundtable discussions. These are often verified through secondary research or communication with regional and international partners. In consultation with the PHEN members, a potential threat is escalated to an Event of Regional Interest based on its anticipated potential for causing a public health emergency in the GCC region.*

# Signals

The Gulf CDC monitors the globe for daily, weekly, and monthly disease signals. Based on Gulf CDC analysis, certain signals may be designated as threats and/or events of regional concern, depending on their risk level, impact, and likelihood. As outbreaks evolve, new diseases may be added to this list. Some diseases may also be removed if the risk they pose reduces below our threshold.

Potential threats are identified based on several considerations such as high connectivity between reporting country and the GCC countries, level of transmissibility of pathogens, vulnerability degree of GCC populations to the identified hazard, capacity levels of GCC health systems to respond to the identified hazard.



● Number of detected signals and potential threats by the Gulf CDC from September 24 to October 23, 2024

## Highlights of Signals Identified in October 2024

**Poliovirus globally:** several poliovirus signals were identified in October 2024, with the highest number coming from Pakistan (WPV1). Poliovirus (cVDPV2) were also identified in Afghanistan, Spain, Yemen, and several African countries.

- Since the start of 2024 and as of 23 October, the Gulf CDC has detected 39 cases in Pakistan. The country is also using [wastewater surveillance](#)[1] to monitor the viral levels, and have detected the virus in 71 districts.
  - Poliovirus vaccination coverage: WHO estimates that [vaccination](#)[2] coverage for the 3rd dose polio vaccine in Pakistan was at 86% in 2023 (85% in 2022, 83% in 2021). Polio herd immunity levels is achieved with at least 80% of the population vaccination, however this data indicates immunization gaps in communities.
  - In September 2024, the [Pakistan Polio Eradication Programme](#)[3] conducted a nationwide vaccination campaign, targeting nearly 33 million children under the age of five across 115 districts. A second round of mass vaccinations is scheduled for 28 October with the aim of inoculating 45 million children under 5[4].
- Since the start of 2024 and as of 23 October, the Gulf CDC has detected 22 cases in Afghanistan.
- On World Polio Day (24 October), the WHO reported that as of 5 September, [there had been 134 type 2 detections](#)[5] across Africa, including in Burkina Faso, Cameroon, Central African Republic, Chad, Mali, Niger, and Nigeria. The collaboration among Lake Chad Basin and Sahel nations is pivotal in addressing the polio resurgence. World Polio Day emphasizes the need for heightened efforts to eradicate the disease across the continent.
- The WHO announced a [38% reduction](#)[6] in circulating vaccine derived poliovirus type 2 (cVPDV2) cases in Nigeria, as compared to last year. This is attributed to governmental and partner efforts to combat the outbreak.
- Spain and Yemen reported poliovirus cVDPV2 [positive environmental samples](#).[7]

**Cholera in the Middle East:** Cholera signals were identified in neighbouring countries to the GCC region, including Iraq, Lebanon, Syria and Yemen.

- On 24 October, [Lebanon reported a cholera case](#)[8], prompting the Health Ministry to implement precautionary measures at land and seaports and airports. Additionally, there have been suspected cholera cases across [Syrian refugee camps](#)[9] in the country. The WHO warned of a potential cholera outbreak amid ongoing conflict in the region.
- In Syria, the city of Deir Ez-Zur recorded [200 suspected cases of cholera](#)[10] in September.
- Iraq is experiencing a [significant increase](#)[11] in cholera cases. Cholera cases have surpassed 400, with the highest concentrations in Sulaymaniyah, Kirkuk, and Diyala.
- As of 23 October, Taiz, Yemen has reported [6,682 cholera cases](#)[12], and 43 related deaths. The outbreak has intensified significantly in the densely populated region. There are also reports coming from Sana'a that hospitals are treating numerous suspected cholera cases, primarily in children.

**Mosquito borne diseases in India:** cases of chikungunya and zika virus have had a sharp increase in recent weeks.

- As of 18 October, the city of [Nagpur had 1,018 cases of chikungunya](#)[13], marking the first time the city has passed the 1,000-case mark, and surpassing the case number of the previous highest outbreak (<800 cases) in 2007. 80% of cases have been reported in the last 3 months.
- In Pune, the total number of [Zika cases has reached 138](#)[14], after its emergence in the region in June 2024. 33% of cases have been in pregnant women.

# Events of Regional Interest

## Highly Pathogenic Avian Influenza H5N1

### Globally

Negligible	Very Low	Low	Moderate	High	Critical
Gulf CDC Risk Assessment of this Event – 6 August 2024					
<ul style="list-style-type: none"> <li>• <b>Risk Question:</b> What is the likelihood of HPAI H5N1 human-to-human transmission occurring in the GCC countries and what is the impact of that transmission?</li> <li>• <b>Impact:</b> Moderate. Despite the global unavailability of specific antiviral drugs for HPAI H5N1, case management capacities of the GCC countries for influenza infections are generally high.</li> <li>• <b>Likelihood:</b> Unlikely. The likelihood of HPAI H5N1 importation to the GCC countries from the United States is unlikely given the low number of cases. Further, there is no evidence of human-to-human transmission at this time.</li> </ul> <p><i>Please refer to the Gulf CDC Rapid Risk Assessment: Highly Pathogenic Avian Influenza H5N1 from 6 August 2024 further details.</i></p>					



### Why is this Notable?

The Gulf CDC EI team escalated the Avian Influenza H5N1 outbreaks in the United States to an event of regional interest on 3 August 2024. The Gulf CDC has detected new signals of Highly Pathogenic Avian Influenza H5N1 (HPAI H5N1) infections caused by contact with infected cattle in multiple states within the United States of America.



### Key Stats

**31 Cases**  
 of HPAI H5N1 in Humans in the US in 2024

**44 Cases**  
 of HPAI H5N1 in Humans Globally in 2024



## Key Factors of Concern for Avian Influenza H5N1



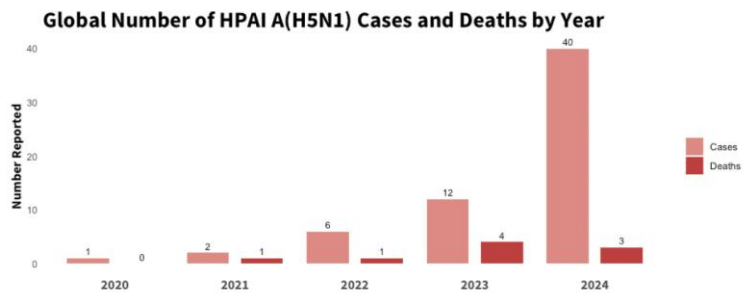
### Disease severity

Avian Influenza H5N1 with a severe pathogen severity level. The mortality rate for this infection can be as high as 60%. Infection is mainly through contact with infected poultry, however, there are growing concerns that this virus could mutate and cause more efficient person-to-person transmission.



### Trends from previous outbreaks

In 2023, there were [12 reported human infection cases of H5N1](#) across 4 countries (Cambodia, China, Chile, United Kingdom). In years prior, there have been small numbers of sporadic reported human infection cases of H5N1 across several countries.



### Healthcare capacity

All GCC countries have set up infectious disease programs or services for zoonosis, but lack strategic plans or programs needed to control and prevent the spread of avian influenza. For example, there are limited systems in place developed for ensuring systematic collaboration and coordination between the Health and Agricultural sectors. This detection delay may lead to the infected individual seeking healthcare at a later stage of the infection, risking further complications and severe symptoms. While recent clades of the H5N1 virus have not been detected in Gulf countries, the connectivity to other countries through agricultural trade and bird migration increases the likelihood of importation of the virus, and the possibility of spillover to humans (particularly those in close contact with poultry).

*Please refer to the Gulf CDC Rapid Risk Assessment on Avian Influenza H5N1 (6 August 2024) for further details.*



### Connectivity to the Gulf Region

While the United States is highly connected via air travel to the Gulf Region, the low number of cases in humans and the lack of evidence thus far regarding human-to-human transmission makes the likelihood of importation 0.001% as per the modelling system used at Gulf CDC.

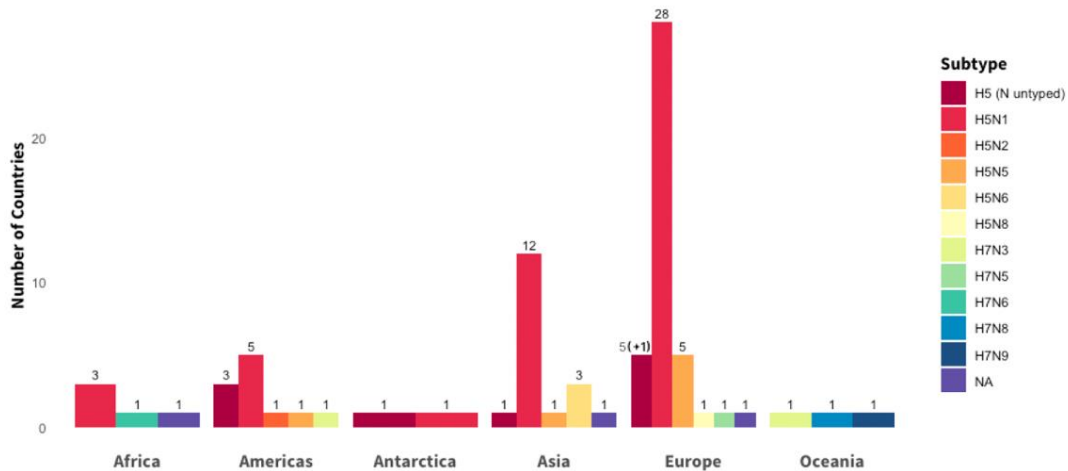


## Situational Highlights for Avian Influenza H5N1

- Since the start of 2024, there have been 44 human cases of HPAI H5N1 reported across 5 countries.
  - All new human cases since 23 September have been reported in the [United States](#)[15] (31 human cases as of 24 October).
  - From 24 September to 23 October, no new human cases of HPAI H5N1 were reported in Cambodia, with the total number of human cases remaining at 10.
  - Cases of HPAI H5N1 in humans have also been reported in Australia (1), Vietnam (1) and China (1) since the beginning of 2024.
- New and ongoing outbreaks in animal populations continue to be reported globally.
  - As of 20 October 2024, HPAI (H5N1) has been reported in 14 states with over 331 affected livestock herds[15]. Five states continue to report detections in the last 30 days. Since the onset of the HPAI A(H5N1) outbreak in livestock, four states have been substantially affected: Colorado, Idaho, Michigan, and Texas.
  - As per WOAH-World Animal Health Information System ([WAHIS](#))[16], HPAI events were reported in 71 countries globally between 1 January 2024 and 20 October 2024. The chart below outlines the number of countries reporting HPAI events per continent. Most of the events were dominated by HPAI H5N1 and were reported as recurrence of eradicated disease.

### Number of Countries Reporting HPAI Subtypes by Region

Including poultry and non-poultry species, from 01-Jan-2024 - 18-Oct-2024

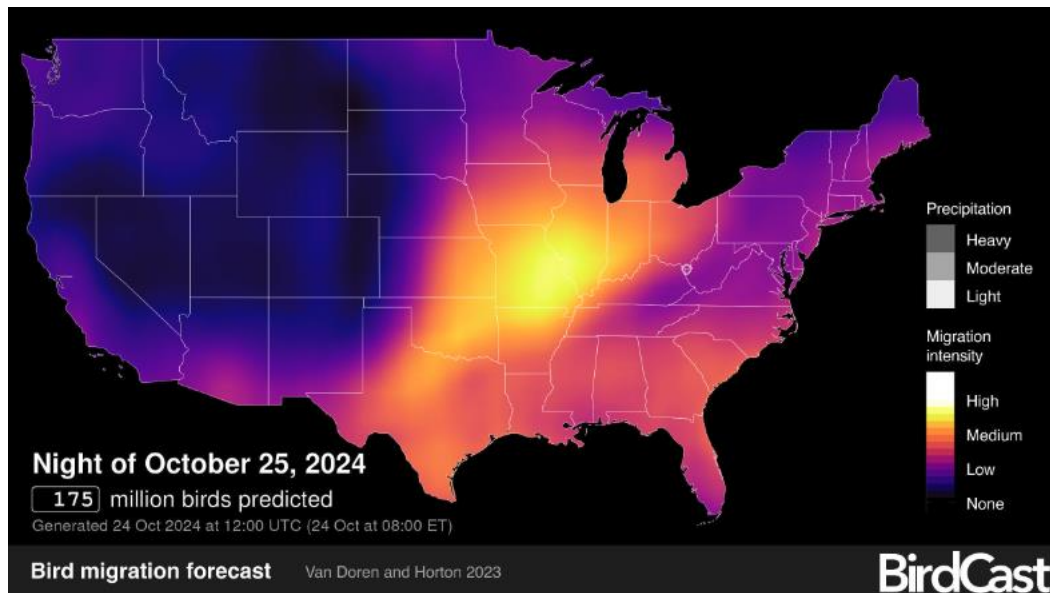


- Recent findings:
  - A [recent study on H5N1 influenza panzootic in mammals](#)[17] examined three case studies of HPAI A (H5N1) clade 2.3.4.4b transmission in mammals to describe the expansion of host range and pandemic potential through new evolutionary pathways.
    - The 3 case studies were: fur farms in Europe (2022-2023); marine mammals in South America (2023) and dairy cattle in the United States (2023-2024).
    - Primary transmission routes for the above events are unconfirmed; however, movement of contaminated equipment, clothing, or infected carcasses are thought



to have contributed to farm-to-farm transmission on fur farms, similarly seen in the US livestock event.

- Mammalian adaptation through PB2 mutations arise rapidly seen in these events. M631L in cattle, E627K in mink farms, and Q591K, D701N in marine mammals. Whereas changes in the HA receptor binding phenotype are less common.
  - It is yet to be determined whether the mammalian-adapted strains from B3.2 or B3.13 genotypes have been acquired or disseminated by wild birds and/or long-range migratory birds. It should be noted that genomic surveillance of wild populations can be challenging.
- Colorado State University and the Cornell Lab of Ornithology released a [forecasted bird migration map](#)[18], forecasting the nightly movement of birds in the United States. The forecasted indicated that high predicted migration traffic rates continue over the United States as birds move south towards non-breeding locations. Increased bird densities during this time provides additional opportunities for transmission and/or recombination of AIV strains.



# Mpox

## Globally

Negligible	Very Low	Low	Moderate	High	Critical
Gulf CDC Risk Assessment of this Event – 14 August 2024					
<ul style="list-style-type: none"> <li>• <b>Risk Question:</b> What is the likelihood of importing a mpox clade 1b case into the GCC causing an occurrence of subsequent cases in the GCC in the next 3 months?</li> <li>• <b>Impact:</b> Moderate, With the low transmission potential of the virus in the Gulf communities, and the high national capacities established for mpox prevention and control, the level of potential impact of mpox has been characterized as moderate.</li> <li>• <b>Likelihood:</b> Likely, as there is a large volume of travelers to the Gulf from countries reporting mpox Clade 1b cases, it is likely that unlinked cases/clusters to be detected within the next 3 months.</li> </ul>					



### Why is this Notable?

The Gulf CDC EI team escalated the global mpox to an event of regional interest on 14 August 2024 due to an increase in the expected incidence of epidemic activity. Furthermore, On 14-Aug-2024, the WHO declared mpox as a public health emergency of international concern (PHEIC) for the second time.



### Key Stats

**4 Clade 1b exported cases**  
 Outside the African continent

**42,000+**  
 Reported suspected cases in African countries in 2024



### Key Factors of Concern for Mpox



#### Disease severity

Severe complications of mpox may include secondary bacterial infections, pneumonia, sepsis, and encephalitis; immunocompromised individuals are particularly susceptible to severe infections.

Mpox is divided into two distinct clades, clade I and Clade II, with Clade II being further divided into the Clade IIa and Clade IIb subclades. Clade I is predominantly found in central Africa around the Congo basin while Clade Ia is found in West Africa. Clade IIb however, was able to spread and cause outbreaks globally in 2022.

Clade I has been shown to cause more severe disease than clade II, with case fatality rates (CFRs) of approximately 10% and 1% respectively.



**Trends from previous outbreaks**

Although ongoing human-to-human transmission of [mpox in the DRC](#) has been documented since the 1970s, there are still gaps in knowledge of all the dynamics involved. Initially, infections happened within minor domestic or local clusters, believed to be predominantly caused by the transmission from animals to humans, as sexual transmission of the MPXV clade I was not officially reported until April 2023. Most cases in the multi-country outbreak (non-endemic) in 2022 were Clade II, lineage B.1, and its descendants, while the current outbreaks in several countries in Africa (DRC, Uganda, Kenya, Rwanda, Burundi) are primarily Clade I.



**Healthcare capacity**

In 2024, the majority (96%) of mpox cases have been reported from the DRC and Burundi. The current outbreak in the DRC (started in 2023) is due to mpox clade I with at least one new strain of clade I, proposed as clade Ib, and around 70% of cases reported in children under 15. However, within the DRC, testing in rural areas is limited and just 24% of the clinically compatible (reported as suspected) cases in the country have been tested in 2024. Of those tested, the positivity is approximately 65% at the national level. Surveillance and response capacity have been strengthened within the DRC by government initiatives with the aid of institutions such as the WHO, particularly in the most affected provinces such as South Kivu. Risk communication has also been updated and increased to inform the population about the risks and precautions to take to avoid acquiring Mpox. The [Interim Medical Countermeasures Network \(i-MCM-Net\)](#)[19], that the Gulf CDC participates in, established an access and allocation mechanism for the mpox response. As of 27 September 2024, 2.7 million MBA-BN, 3 million LC16 and 50,000 ACAM2000 vaccines had been pledged by both public and private donors.



**Connectivity to the Gulf Region**

Of the 5 African countries reporting cases of mpox Clade 1b, the GCC has the highest connectivity with Kenya. To get an estimated of volume of travelers for October 2024, the following passenger volumes were recorded between African countries that have reported cases of mpox Clade Ib, historical passenger volumes including both direct and indirect passengers for October 2023 are presented below[20]:

	Burundi	DRC	Kenya	Rwanda	Uganda
UAE	563	2,1166	13,755	2,882	14,865
Bahrain	-	17	212	21	94
Saudi Arabia	157	267	3,923	126	1,054
Oman	55	64	558	58	196
Qatar	44	60	2,732	513	1,246
Kuwait	12	79	384	16	212

*Connections between the above-mentioned countries and the region are primarily counted based on airline data. Other routes of entry and illegal migration might contribute to the importation likelihood.*



## Situational Highlights for Mpox

- **New countries reporting mpox cases in 2024:** Since the last updates by Gulf CDC (see September 2024 report) 2 countries in Africa ([Zambia and Zimbabwe](#)) reported their first-ever laboratory-confirmed cases of mpox[21], and Germany reported the first confirmed case of Mpox Clade Ib.
  - **Zambia:** On 10 October 2024, the Ministry of Health reported one confirmed case with no deaths of mpox, making it the first mpox outbreak reported in the country.
    - The case is a 32-year-old male Tanzanian truck driver in the Chitambo District (Central Province) on 04 October with complaints of body rash, joint pain, sore throat, and general malaise, which started on 01 October.
    - The patient was initially treated for chickenpox, with suspicion for mpox.
    - The diagnosis of mpox was confirmed by polymerase chain reaction at the Zambia National Public Health Reference Laboratory on 08 October.
  - **Zimbabwe:** On 13 October 2024, the Ministry of Health declared the first mpox outbreak in the country, reporting two confirmed cases and no deaths.
    - The index case is an 11-year-old patient, with recent travel history to a country with an ongoing mpox outbreak, who developed mpox symptoms in late September.
    - The second case is a 24-year-old male with a history of international travel.
    - The National Microbiology Reference Laboratory confirmed for both cases by polymerase chain reaction. The circulating clade has not been confirmed.
  - **Germany:** On 22 October 2024, the [Robert Koch Institute in Germany](#)[22] announced the first confirmed case of mpox Clade Ib.
    - The case was detected on 18 October and was acquired abroad. There are no further details regarding demographic information, symptoms onset, travel history, close contacts, previous medical history, and vaccination status.
    - The RKI stated that the risk to the public was considered low, however close monitoring of the situation continues and the risk assessment is subject to change.
- **Vaccination updates:** The WHO has indicated that the Democratic Republic of the Congo (DRC) has launched the [mpox vaccination campaign on 5 October](#)[23], focusing on outbreak control. The DRC accounts for about 90% of mpox cases in the African region.
  - Vaccination started in North Kivu province, prioritizing health workers, frontline responders, contacts of confirmed cases, and other at-risk groups.
  - The campaign will expand across 11 highly affected health zones in provinces including Equateur, North Kivu, Sankuru, South Kivu, Sud-Ubangi, and Tshopo.
  - DRC has received 265,000 doses of the modified vaccinia Ankara-Bavarian Nodic (MVA-BN) vaccine, donated by the European Commission, Gavi, and the U.S. government.
- Over 300 WHO polio eradication experts have joined the mpox response, bringing experience in surveillance, case investigations, and risk communication.
- WHO has supported health worker training, vaccine delivery infrastructure, community engagement, and measures to address vaccine misinformation.
- Mpox vaccines are limited, especially in Africa, but the MVA-BN vaccine was added to WHO's pre-qualification list in September 2024, aiming to improve access.

- **Cumulative cases:** According to the [Africa CDC](#)[21], as of 18 October, there have been 42,442 suspected cases, 8,548 confirmed cases, and 989 deaths of mpox in Africa in 2024.

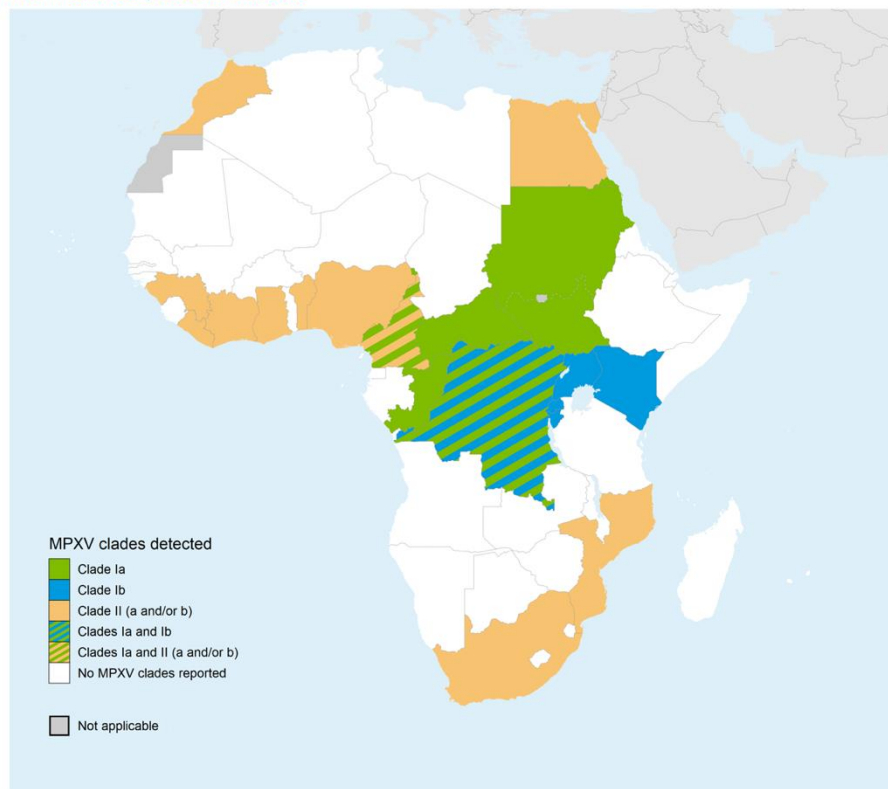
*Cumulative cases (2024) by African country reporting mpox cases*

Country	Confirmed	Deaths
Burundi*	1,170	0
Cameroon	6	2
Central African Republic	57	1
Congo	22	0
Côte d'Ivoire	74	1
Democratic Republic of the Congo*	6,962	981
Gabon	2	0
Guinea	1	0
Kenya*	13	2
Liberia	18	0
Morocco	2	0
Nigeria	94	0
Rwanda*	6	0
South Africa	25	3
Uganda*	91	0
Zambia	1	0
Zimbabwe	2	0

*\*Country has confirmed at least one case of mpox clade lb.*



**MPXV clades detected in Africa**  
 from 1 Jan 2022, as of 20 Oct 2024



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization  
 Map Production: WHO Health Emergencies Programme  
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*MPXV clades detected in Africa (1 Jan 2022 to 20 Oct 2024), [WHO](#)[24]*

# Marburg

## Rwanda

Negligible	Very Low	Low	Moderate	High	Critical
Gulf CDC Risk Assessment of this Event – 01 October 2024					
<ul style="list-style-type: none"> <li>• <b>Risk Question:</b> What is the risk of one case of Marburg virus being imported into the GCC Region from Rwanda in the upcoming month, in terms of the likelihood and impact of the importation?</li> <li>• <b>Impact:</b> Minor, given that GCC countries have high reported capacities for detecting and responding to epidemic-prone diseases.</li> <li>• <b>Likelihood:</b> Unlikely, due to the current scale of the outbreak, and the limited direct travel links to the GCC region.</li> </ul>					



### Why is this Notable?

The Gulf CDC EI team escalated the Marburg outbreak in Rwanda to an event of regional interest on 29 September 2024 due to the Marburg outbreak reported by the Rwandan Ministry of Health. Marburg virus is an epidemic-prone disease, with a high CFR and severity level, and considering the direct travel links between Kigali, Rwanda, and some GCC countries, this event requires swift preparedness and vigilance.



### Key Stats

**62 cases**  
Reported in Rwanda

**80%**  
Of confirmed cases are in healthcare workers



## Key Factors of Concern for Marburg



### Disease severity

[Marburg virus disease](#)[25] (MVD) is a severe and often fatal human illness. Marburg virus, along with the Ebola virus, is part of the Filoviridae family, that can cause severe haemorrhagic fever in humans. The case fatality ratio can be as high as 88% but can be much lower with timely diagnosis and appropriate patient care.



### Trends from previous outbreaks

There have been 14 previously documented Marburg outbreaks (1967-2022). The 2005 outbreak in Angola and the 1998-2000 outbreak in the Democratic Republic of the Congo remain the most expansive and deadly of these (154 cases, 128 deaths and 252 cases, 227 deaths respectively). Most other outbreaks were smaller and better contained, with 1-5 reported cases. The most recent outbreak occurred in 2023 in Equatorial Guinea and Tanzania, with 40 and 9 respective total reported cases.

*Please refer to the Gulf CDC Rapid Risk Assessment on Marburg (1 October 2024) for further details.*



### Healthcare capacity

In recent years, Rwanda has invested in its healthcare capacity to handle infectious diseases, particularly through partnerships and infrastructure development. The country has established a [strong disease surveillance system](#)[25], bolstered by collaborations with international organizations like the CDC, WHO, and CEPI. Rwanda's biomedical capabilities include early pathogen detection at airports and a biosecurity infrastructure designed to respond rapidly to outbreaks such as Marburg virus, Ebola, and COVID-19. Additionally, the government is constructing a [center of excellence for highly infectious diseases](#)[26], aimed at enhancing the country's ability to manage outbreaks effectively. Public health initiatives, such as the [Field Epidemiology Training Program \(FETP\)](#)[27], have also trained local professionals to investigate and respond to emerging health threats.



### Connectivity to the Gulf Region

The GCC countries have limited connectivity with Rwanda. To get an estimated of volume of travelers for October 2024, the following passenger volumes were historical passenger volumes including both direct and indirect passengers for October 2023 are presented below[20]:

	Rwanda
UAE	2,882
Bahrain	21
Saudi Arabia	126
Oman	58
Qatar	513
Kuwait	16

*Connections between the above-mentioned countries and the region are primarily counted based on airline data. Other routes of entry and illegal migration might contribute to the importation likelihood.*





## Situational Highlights for Marburg

- **Marburg outbreak reported for the first time in Rwanda:** on 27 September 2024, the Rwandan Ministry of Health confirmed an [unspecified number of Marburg cases](#)[28] reported in the country for the first time.
  - As of 24 October, there have been 64 cases and 15 deaths.
    - According to the Rwanda's [Ministry of Health](#)[29], all new cases since the outbreak was announced have been within the hospital cluster in Kigali and related contacts.
    - The case fatality rate stands at 24.2%. While this is the third-largest MVD outbreak globally, it is the lowest CFR reported among previous large outbreaks.
    - [Two patients have been extubated](#)[30] (taken off life support), the first time for Marburg patients in African records.
  - [100% of cases were traced to a known source](#)[31] – a hospital in Kigali. A full epidemic investigation has indicated that the index case was almost certainly a 27-year-old man who had been exposed to the virus from contact with a specific cave-dwelling bat species, who then sought treatment at Kigali's King Faisal Hospital, exposing many healthcare workers.
    - Using [genomic tools](#)[32], it was established that from three branches of a single cluster sequence, these all share a single zoonotic origin, indicating that the virus jumped from animal to human just once.
      - The first generated draft genome indicates a close evolutionary relationship to the Marburg virus strain, that caused outbreaks in the region in 2014. This suggests that there have been no virus changes or mutations in the last 10 years.
      - Phylogenetic analysis also showed that all sequences are closely related, with four being identical, indicating rapid spread in a short timeframe.
  - The WHO[25] has mobilized expertise and essential medical supplies to support Rwanda's containment measures in response to the outbreak.
    - Emergency clinical care supplies have been dispatched from WHO's Nairobi hub to Kigali.
  - The WHO is also collaborating with neighbouring countries to reinforce cross-border readiness and response measures to prevent the virus from spreading beyond Rwanda.
- **Vaccination and treatment information:** Rwanda has begun vaccine trials for the MVD.
  - As part of a clinical trial, Rwanda has received a total of 1,700 doses of the vaccine from the [Sabin Vaccine Institute](#)[33], a US-based non-profit organization, and has administered 1,302 [29].
    - The trial (phase 2 of an open-label study) started with those most at risk, including doctors, healthcare workers, and close contacts from confirmed Marburg patients.
    - Marburg vaccine trials had already been held in Kenya and Uganda.
    - According to scientific results, Sabin's single-dose investigational Marburg vaccine was found to be promising in Phase 1 clinical and non-clinical studies, with results showing it to be safe, while eliciting rapid and robust immune responses among volunteered healthy individuals in Kenya and Uganda in 2023.
  - In addition, the ministry expects to receive about [5,000 doses of remdesivir](#)[34] to provide advanced treatment for patients with MVD. Observational data is showing positive outcomes, but formal preliminary results are still awaited.

# Acknowledgements

The production of this monthly epidemic intelligence report was made possible through the collaboration and contributions of multiple individuals and organizations. Thus, the Gulf CDC is grateful to, and would like to acknowledge, all contributing individuals and organizations for their expertise and dedication to epidemic intelligence that were essential to our collective efforts in detecting, monitoring, and preparing for potential public health threats to the GCC region.

The Gulf CDC is grateful for insights on GCC countries' capacities and national data provided by members of the Public Health Emergency Network members. This provided valuable contextual understanding that enhanced the PHE team's assessment of risk posed by the hazards detected.

In addition, the Gulf CDC acknowledges the insights provided by international and GCC subject matter experts on reviewing risk assessment reports and on sharing best practices and lessons learned to improve preparedness for the hazards detected.

For queries regarding this publication, please contact us at [eidetect@gulfcdc.org](mailto:eidetect@gulfcdc.org)

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