



# Monthly Epidemic Intelligence Report

Issue 07

**July 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.

## Threat

Any signal as assessed by the Gulf CDC PHE Department to have the potential to pose a near-future risk to the GCC countries' populations.

## Threat of Regional Interest

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



# 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 **July 2024** (June 24, 2024 – July 23, 2024).\*



## Executive Summary

**Disease Signals** This month, the epidemic intelligence team at Gulf CDC detected 81 infectious disease signals. Of these, 4% were in GCC countries, and breaking down the signals by the most signaled hazard 15% were whooping cough signals, 12% were dengue signals, and 7% were on Crimean-Congo hemorrhagic fever.

**CRNE Signals** 3 CRNE signals with potential public health consequences were identified, including 2 environmental samples of vaccine-derived poliovirus (one in Nepal and one in Palestine), and an oil spill incident from a sea ship in Oman.

**Potential Threats** The Gulf CDC identified 2 potential threats this month: the Nipah virus in India and the West Nile virus in Israel.

**Threats of Regional Interest** The Gulf CDC monitored 2 threats of regional interest up to the 23<sup>rd</sup> of July 2024: Whooping cough (Pertussis) globally, and Zika in India.

**Events of Regional Interest** The Gulf CDC closely monitored one event of regional interest in July 2024: Avian Influenza H5N1, A revised assessment is currently being developed and will be released in the coming weeks.

**Situational Awareness** The Gulf CDC identified a growing global spread of invasive Group A *Streptococcus* as a notice for situational awareness, that while global in nature, does not yet present a threat or potential threat to the Gulf region.

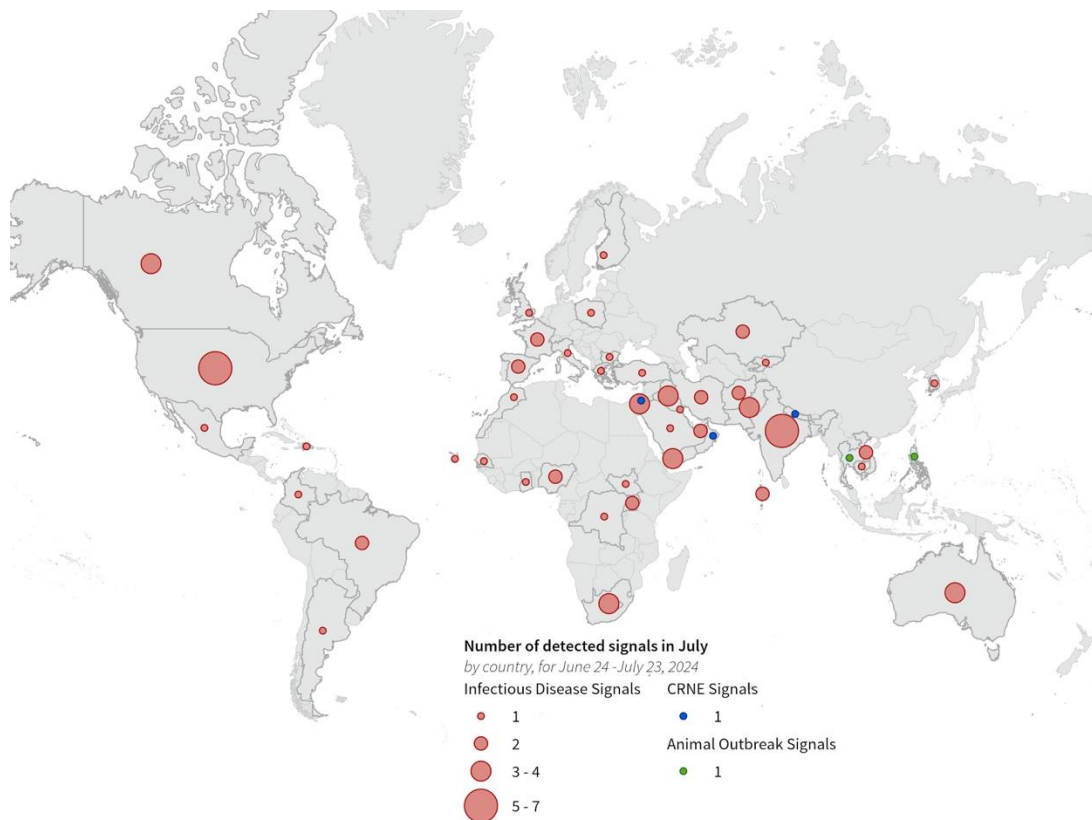
\* Monthly reports cover data from the 24<sup>th</sup> of the previous month to the 23<sup>rd</sup> of the reported month, ensuring there is no gap in reported data.

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 and Potential Threats

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 June 24 to July 23, 2024

*\*Some signals included in this map are not from official sources and are in the process of being verified with health authorities*

## Potential Threats Identified in July 2024

**Nipah virus in India:** [Nipah virus \(NiV\) infection has been laboratory-confirmed](#)<sup>1</sup> in a 14-year-old boy in the southwestern Indian state of Kerala on 20 July 2024.

- Health authorities have initiated emergency protocols while investigations are ongoing to determine the source and contain the virus.
- The Ministry of Health confirmed on 21 July 2024 that the individual had died.
- Contact tracing: 330 individuals are under observation (101 are considered to be in a high-risk category).
- On 21 July 2024, it was reported that [68-year-old man](#)<sup>2</sup> was admitted into the ICU at Kozhikode Medical College Hospital exhibiting Nipah virus symptoms. His sample was collected and sent for testing. The patient was not on the contact list for the laboratory-confirmed case.
- Health authorities continue to activate emergency NiV protocols.<sup>1</sup> Most recently this includes an active case search and survey of affected neighborhoods, active contact tracing, implementation of strict quarantine protocols, and the collection/transportation of samples for lab testing. A mobile BSL-3 laboratory has arrived in Kozhikode to support testing.

**West Nile in Israel:** Since the beginning of this year and up to 08 July 2024, Israel has experienced a 400% increase in West Nile fever (WNf) cases compared to the same period in 2023.

- According to data from the [Israel Ministry of Health](#)<sup>3</sup>, there have been at least 175 cases and 11 associated deaths.
- The case fatality rate stands at 6.28%.
- Most cases have been found in Tel Aviv and nearby cities such as Petah Tikva and Kiryat One, all within 80 km of the Gaza border.
- Official data indicates that the largest documented WNf outbreak in Israel was in 2000 when 439 cases were confirmed, with 29 deaths. Since then, cases have significantly declined.
- Israel typically reports around 50 WNf cases annually, mostly during the summer. There were two cases with one associated death in 2022, while there were 17 cases and no deaths in 2020.
- Officials have highlighted that contributing factors to recent trends may be linked to global rising temperatures and climate change, and due to ongoing conflict.
- This is an incidence of potential risk to the Gulf primarily due to the presence of the virus's primary vector, the Culex mosquito, in most GCC countries and the region's close geographic proximity to Israel.



# Threats of Regional Interest

## Zika Virus

 India

This threat is being monitored closely by Gulf CDC.



### Key Stats

**3 states**  
 reporting Zika virus cases in 2024

**54**  
 Laboratory-confirmed cases



### Key Factors of Concern for Zika



#### Disease severity

Zika virus is a mosquito-borne virus that is considered to have mild severity in most cases. However, Zika virus infection has been associated with complications including microcephaly and other severe fetal brain defects when the infection occurs during pregnancy. Neurologic complications are related to infection in adult populations, such as Guillain-Barré Syndrome. With proper supportive management, the case fatality rate for Zika virus is extremely low. Common clinical features include a headache, myalgias, arthralgias, a diffuse pruritic erythematous maculopapular rash, and conjunctivitis



#### Trends from previous outbreaks

The first ZIKV outbreaks in India were reported in the states of Gujarat (2016–2017) and Tamil Nadu (2017). Following this, outbreaks of ZIKV were detected in Rajasthan and Madhya Pradesh in 2018. [In 2021, ZIKV outbreaks<sup>4</sup>](#) were reported for the first time in the states of Kerala (May–July), Maharashtra (July), and Uttar Pradesh (October). Retrospective scientific research has also revealed the circulation of ZIKV in the states of Delhi, Jharkhand, Rajasthan, Punjab, and Telangana in 2021.



#### Healthcare capacity

For ZIKV clinical testing in India, all states currently rely upon the National Institute of Virology (NIV), Pune, which has very limited capacity and resources to scale. In addition, there is the National Centre for Disease Control (NCDC), in Delhi, and a few selected virus research and diagnostic laboratories of the Indian Council of Medical Research (ICMR) that test for ZIKV.



### Connectivity to the Gulf Region

India is a highly connected country to the Gulf region and given the known vector presence of Zika-carrying vectors, it is a longer-term risk for the region. The suspected underreporting hinders the accurate assessment of importation risk. However, air travel connectivity exists between the most affected states (Maharashtra) and the GCC countries.

To get an accurate estimate of flight patterns in the same time period, in July 2023, the following air travel was recorded between Maharashtra, India and each of the GCC countries:

- Maharashtra, India to UAE – 110,920
- Maharashtra, India to Saudi Arabia – 38,906
- Maharashtra, India to Oman – 15,116
- Maharashtra, India to Kuwait – 11,018
- Maharashtra, India to Qatar – 6,854
- Maharashtra, India to Bahrain – 5,906



### Situational Highlights for Zika in India

- There are concerns over a growing multi-state outbreak of Zika virus (ZIKV) infection in India.
- This year cases have been reported from the states of Karnataka, Kerala, and at least across three districts in Maharashtra; however, it is highly plausible that the actual number of cases is higher and that other affected states remain unknown as there is no official public tracker.
- The [centralized laboratory is reportedly overwhelmed](#)<sup>5</sup> with a large backlog of samples for testing.
- Maharashtra ZIKV state outbreak details:
  - As of July 2024, there have been [54 cases of Zika](#) reported in the state in 2024.<sup>6</sup>
    - Most of the cases (48) have been reported from Pune district.
  - Local media reports state over 20,000 individuals require ZIKV screening, and that there are already over 200 samples awaiting ZIKV testing.
  - Despite guidelines issued by the Ministry of Health and Family Welfare (MoHFW) for [mandatory testing of all pregnant women](#)<sup>7</sup> in Zika virus-affected areas, Pune Municipal Corporation (PMC) has tested only 5% of expecting mothers from these areas.
  - Of the total cases in the state, so far, [11 pregnant women](#) have tested positive for the infection and 6 have required hospitalization.<sup>8</sup>
    - On 20 July 2024, the Pune Municipal Corporation sent samples of 39 suspected patients, 38 of whom were pregnant women.
  - Given the recent upward trends of dengue and malaria across the country, it is very likely that ZIKV cases are masked by more prevalent diseases and are not being tested
  - The interplay of dengue virus and ZIKV has been scientifically studied and infections in tandem can exacerbate the severity of each other, while it was initially thought one could offer some protection.

# Whooping Cough (Pertussis)

## Globally

This threat is being monitored closely by the Gulf CDC.

### Key Stats

**3x whooping cough cases reported**  
 In first 7 months of 2024 as compared to all of 2023



### Key Factors of Concern for Whooping Cough (Pertussis)

 <b>Disease severity</b>	Pertussis is a bacterial disease considered to have a moderate pathogen severity level. Pertussis is a disease that affects primarily children and can lead to severe complications such as pneumonia, encephalopathy, and seizures. Case fatality rates are less than 2%.
 <b>Trends from previous outbreaks</b>	Pertussis is endemic worldwide with peaks every 3-5 years even in the presence of high-vaccination coverage. Due to the challenges with the surveillance of pertussis, data on reported cases likely does not capture the true extent of the burden.
 <b>Healthcare capacity</b>	While global vaccination rates of pertussis-containing vaccines tend to be high, waning immunity due to the primary acellular vaccine used and disruptions in vaccination schedules (both childhood and boosters through adolescence and adulthood) due to the COVID-19 pandemic is leading to an increase in reported cases. Prophylaxis and specific antibiotic treatments tend to be widely available globally.



### Situational Highlights for Whooping Cough (Pertussis)

- Since mid-2022, there have been reported increasing cases of pertussis with peaks documented across many countries in 2023, and increasing trends observed globally thus far in 2024.
- The [COVID-19 pandemic hindered immunization coverage](#)<sup>9</sup> due to disrupted vaccine campaigns and altered perceptions of vaccinations.



- There are a few countries observing a resurgence in pertussis cases above pre-pandemic levels in 2023/2024, including China and Czechia.
  - While these countries have acceptable coverage with the pertussis vaccine, there are other factors that can be contributing to large outbreaks such as: groups of un-immunized or partially immunized populations, waning immunity of the acellular pertussis vaccine, and a marked decrease in booster uptake (for example, in Czechia, the coverage with the 4<sup>th</sup> dose (1<sup>st</sup> booster) of a pertussis-containing vaccine dropped from [97.5% in 2019 to 89.7% in 2023](#).<sup>10)</sup>
- **Surveillance data:**
  - Between 1 January 2024 and 24 July 2024, there have been 311,068 event-based surveillance reported cases of pertussis globally, of them, 37,791 were confirmed. The top 5 countries reporting are:
    - China: 150,000 reported cases
    - Czechia: 20,114 reported cases (6,006 confirmed)
    - Spain: 19,816 reported cases (8,034 confirmed)
    - France: 15,000 reported cases
    - United Kingdom: 13,953 reported cases (10,832)
  - This has surpassed the total number of event-based surveillance reported cases in 2023, when 98,083 cases were reported.
  - Data from the [European Centre for Disease Control](#)<sup>11</sup> shows a 10-fold increase in pertussis cases in 2023 and 2024 compared to 2022 and 2021.
- **Pertussis Vaccines:** In the mid-1990s, a paradigm shift occurred in vaccine technology as many countries transitioned from employing whole-cell bacterial vaccines to acellular formulations. These latter vaccines incorporate only specific antigenic components of the pathogen.
  - The reasons for the change were a significant drop in pertussis cases in these countries and the acellular vaccine was associated with less adverse effects.
  - Within a few years, whopping cough cases began to rise again since the acellular vaccine's protection wears off after 2-3 years.
  - Since then, booster shots for adolescents and elderly people have been widely recommended.
  - The [previous whole bacteria vaccine](#) initiated a strong Th17 immune response, which involves the activation of the immune system's T cells to fight infections on mucosal surfaces such as in the nose and mouth through IL-17 production.
  - The newer acellular vaccine provokes a more Th2 skewed immune response, which results in the secretion of antibodies into the bloodstream. Therefore, the *B. pertussis* bacteria can colonize an individual's nose, mouth, and throat, where it can then spread to other individuals while not necessarily becoming sick themselves.

# Events of Regional Interest

## Avian Influenza H5N1

### Globally

Negligible	Very Low	Low	Moderate	High	Critical
Gulf CDC Risk Assessment of this Event					
<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 15 October 2023 further details. Given the emerging reports of infections linked to cattle with the United States, a revised assessment is currently being developed and will be released in the coming weeks.</i></p>					



### Key Stats

**12 states**

Reporting HPAI H5N1 in affected herds in United States

**10**

Human cases of HPAI H5N1 in the United States 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, and recently, human infections linked to outbreaks in mammals (cows) were reported, however, there are growing concerns that this virus could mutate and cause more efficient person-to-person transmission.



In 2023, there were [12 reported human infection cases of H5N1](#)<sup>12</sup> across 4 countries (Cambodia, China, Chile, United Kingdom).

- Cambodia – 6 cases, all cases Clade 2.3.2.1c

<p><b>Trends from previous outbreaks</b></p>	<ul style="list-style-type: none"> <li>○ United Kingdom – 4 cases, all cases Clade 2.3.4.4b</li> <li>○ Chile – 1 case, Clade 2.3.4.4b</li> <li>○ China – 1 case, Clade 2.3.4.4b</li> </ul> <p>In years prior, there have been small numbers of sporadic reported human infection cases of H5N1 across several countries.</p>
<p> <b>Healthcare capacity</b></p>	<p>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. 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). <i>Please refer to the Gulf CDC Rapid Risk Assessment on Avian Influenza H5N1 for further details.</i></p>
<p> <b>Connectivity to the Gulf Region</b></p>	<p>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%.</p>



### Situational Highlights for Avian Influenza H5N1

- **Human cases:** there have been a total of [10 reported human cases](#)<sup>13</sup> in the United States since 1 April 2024. 7 in Colorado, 2 in Michigan and 1 in Texas.
  - Of the total human cases to date, four are linked to exposure to infected dairy cattle, while six are linked to infected poultry.
  - In Weld County, Colorado (where the most recent 6 human cases were reported), 60 workers developed respiratory symptoms. They were all tested and 6 are confirmed positive for H5N1, while the other 54 were diagnosed with other respiratory illnesses.
- **State of animal disease outbreak**<sup>5</sup>: as of 3 July 2024, HPAI A(H5N1) was reported in 12 states with over 145 affected herds, with the state of Colorado reporting the largest number of affected hers
- **Recent findings:** The US CDC has sequenced the influenza virus genome<sup>2</sup> from the most recent cluster of cases in Colorado, confirming the virus is A(H5N1) from clade 2.3.4.4b. An analysis of one of the sequences further indicates:
  - The virus is genotype B3.13 clade 2.3.4.4b HPAI A(H5N1) with each gene segment closely related to viruses detected in recent poultry outbreaks and infected dairy cattle herds made available from USDA.
  - Among human virus sequences, A/Colorado/109/2024 is most like the genome of the human case reported earlier in Michigan.
  - The sequence maintains primarily avian genetic characteristics and lacks changes that would make the virus better adapted to infect or spread among humans.
  - There are no changes to the virus that would suggest the risk to human health has increased.
- Michigan H5N1 seroprevalence investigation preliminary findings<sup>5</sup>:

- The US CDC analyzed 35 blood samples collected from individuals who were exposed to dairy cattle infected with HPAI A(H5N1) clade 2.3.4.4b viruses causing outbreaks among animals in the United States.
- Study participants were from multiple counties and had different roles on affected farms, but most worked with sick cows directly and fewer than half reported using PPE (i.e. masks or goggles).
- These samples were tested for antibodies against avian influenza A(H5N1) clade 2.3.4.4b virus and a seasonal influenza virus (control virus) to measure antibodies.
- None of the 35 tested individuals showed neutralizing antibodies (a sign of prior infection) specific to the avian influenza A(H5N1) virus, while many had neutralizing antibodies to seasonal flu (expected given the recent flu season and influenza vaccine).
- "[Pathogenicity and transmissibility of bovine H5N1 influenza virus](#)<sup>14</sup>" by Eisfeld, A.J. et al. This study provides preliminary results via animal models supporting the ineffective but possible respiratory transmission of HPAI A(H5N1) for humans and likely vertical transmission via milk in animals. The receptor binding assay experiment also suggests some level of affinity for human-type receptors (sialic acids expressed in human upper airways, a requirement for human upper-respiratory tract infections and/or transmission). However, ongoing research is needed given that these animal models approximate respiratory virus pathology in humans and the degree of relevancy to other mammals including livestock animals is unclear.

# 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, review, and consultation provided in its risk assessments by GCC and international subject matter experts.

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

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