



Monthly Epidemic Intelligence Report

Issue 02

February 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 of 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 **February 2024** (January 24 – February 25, 2024).*



Executive Summary

Disease Signals This month, the epidemic intelligence team at Gulf CDC detected 137 infectious disease signals.

CRNE Signals This month, the epidemic intelligence team at Gulf CDC detected 4 CRNE signals of unusual environmental hazards of a public health concern.

Potential Threats The Gulf CDC identified 1 potential public health threat that could impact the GCC region: Rift Valley Fever in Kenya.

Events of Regional Interest The Gulf CDC closely monitored four events of regional interest in February 2024: measles globally, yellow fever in South Sudan, diphtheria with a focus on West Africa, and highly pathogenic avian influenza H5N1 worldwide. Daily monitoring of these events did not reveal any changes to the risk levels assessed for GCC or public health recommendations over the reporting period.

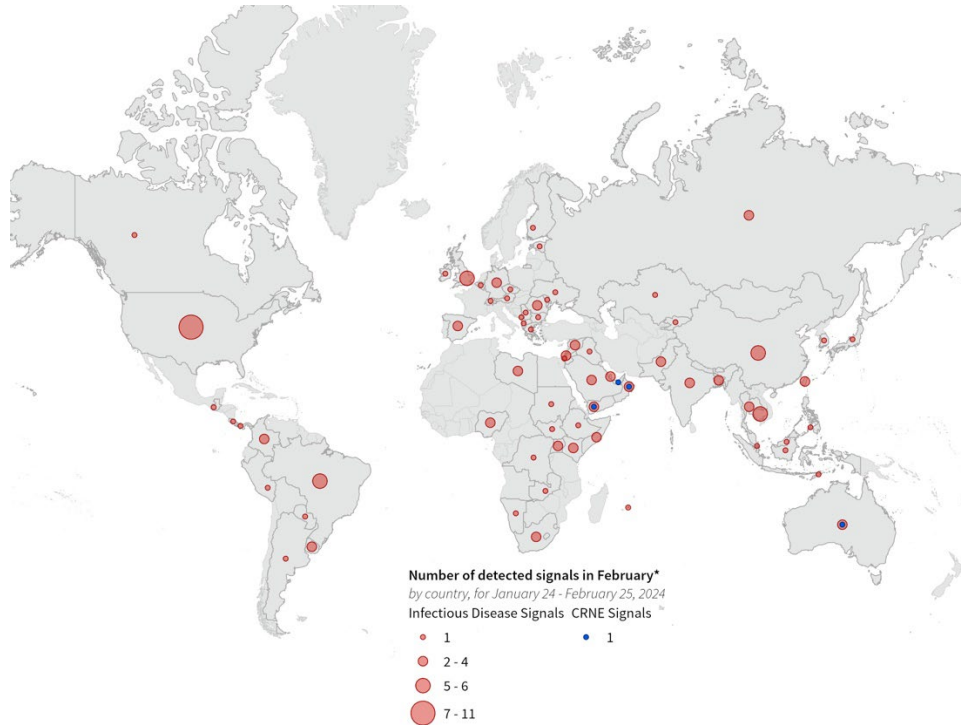
* Monthly reports cover data from the 24th of the previous month to the 25th of the reported month, ensuring there is no gap in reported data.

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 by the Gulf CDC from January 24 to February 25, 2024

Potential Threats Identified in February 2024

- **Rift Valley Fever in Kenya:** On 26 January 2024, the Ministry of Health of Kenya issued an alert after Rift Valley fever was confirmed in a human in Marsabit County. By 4 February, the government confirmed that there were four positive cases out of 43 samples already analyzed at the Kenya Medical Research Institute. Official authorities confirmed that intervention measures were underway.^{1,2}

Events of Regional Interest

Measles

Globally

Negligible	Very Low	Low	Moderate	High	Critical
Gulf CDC Risk Assessment of this Event					
<ul style="list-style-type: none"> • Risk Question: What is the risk of a significant number of measles cases being imported into the GCC Region in the upcoming 6 months, in terms of the likelihood and impact of the importation? • Impact: Moderate, MMR immunization is high as of 2022 but varies across countries. Current and upcoming mass gathering events pose a particular risk to increased transmission of measles from imported cases for unvaccinated or not-fully vaccinated populations. • Likelihood: Highly likely, due high travel volume from endemic regions and countries reporting an increase in measles cases. The magnitude of the impact of measles on the GCC countries is moderate, due to varying immunization coverage across the region potentially exacerbated by upcoming mass gatherings. There is a moderate level of confidence due to the availability of relevant data. <p><i>Please refer to the Gulf CDC Rapid Risk Assessment for further details.</i></p>					



WHY IS THIS NOTABLE?

The GULF CDC EI team escalated the measles outbreaks globally from a potential threat to a threat of regional interest on 19 February 2024 as a result of an increase in the expected incidence of measles globally. Of note, the GULF CDC monitored the increase in cases in several high-connectivity and neighbouring countries.



KEY STATS

79% year-over-year increase

1

In global measles cases (reported by the WHO)

New variant of measles from the D8 genotype identified






KEY FACTORS OF CONCERN FOR MEASLES



Disease severity

Measles is a virus most commonly transmitted between humans via airborne route and respiratory droplets. It is considered to have a moderate severity level.

	<p>It is highly contagious, needing hospitalization in 25% of people who are infected. Complications such as pneumonia, otitis media, meningitis and encephalitis may occur.</p>
 <p>Trends from previous outbreaks</p>	<p>According to WHO data, there has been a 79% increase in reported measles cases from 2022 to 2023³. The most affected regions were the WHO European region, which reported 937 cases in 2022 and 58,115 cases in 2023; the WHO Eastern Mediterranean region, which reported 54,245 cases in 2022 and 88,598 cases in 2023, and the WHO South-East Asia region, which reported 49,492 cases in 2022 and 84,720 cases in 2023. There exist immunization gaps related to pandemic disruptions to routine public health programs and growing vaccine hesitancy in several regions including the United Kingdom, the United States⁴ and Europe, leading to recent concerning outbreaks. Some notable examples are the United States in 2019, reported 1,274 confirmed measles cases across 31 states. It was the greatest number of cases reported in the U.S. since 1992, and most cases were among people who were not vaccinated against measles. The United Kingdom has seen a rise in year-over-year suspected cases⁵ of measles in the last 3 years – 360 cases reported in 2021, 735 in 2022 and 1,603 in 2023.</p>
 <p>Healthcare capacity</p>	<p>The WHO recommends a vaccination threshold of 95% for the Measles, Mumps, Rubella (MMR) vaccine. According to the WHO, no region in 2022 met that suggested threshold for the 1st dose (highest reporting regions were European Region (93%), Western Pacific Region (92%), and South-East Asia Region (92%))⁶. In 2024, the United Kingdom, Switzerland and the United States have all reported outbreaks of measles, and their respective national vaccination rates falls beneath the recommended threshold, with varying vaccination rates at sub-national levels. While the UK, US and Switzerland have high healthcare capacity to manage hospitalized measles cases, the lack of available treatment and the complications that may occur in infected individuals could place strain on healthcare systems that are still struggling to recover from the COVID-19 pandemic.</p>

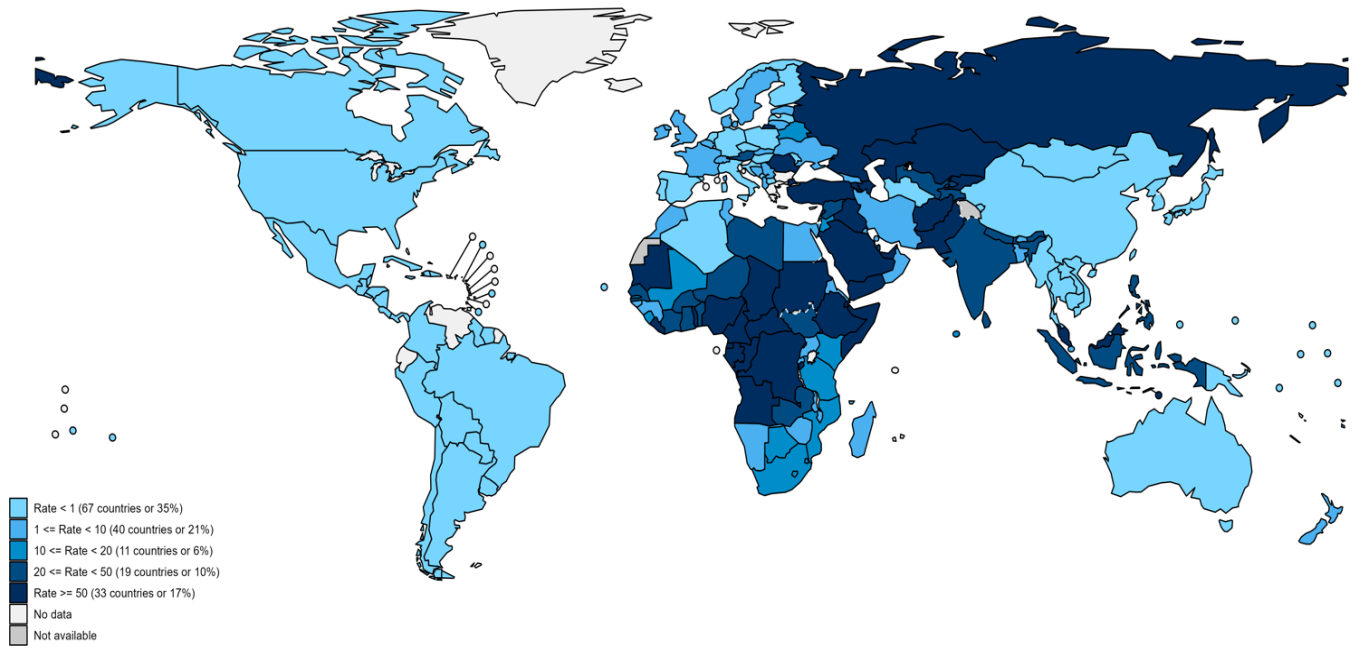

SITUATIONAL HIGHLIGHTS FOR MEASLES

- **Global overview:** there has been a significant increase in measles cases across countries worldwide, including high-connectivity countries and neighboring countries (India, Kyrgyzstan, and Iraq) with the Gulf region.
- There has been a global increase in reported measles cases in recent months. [A 30-fold rise of measles cases was recorded in 2023 in the WHO European Region⁷](#) leading the WHO to call for urgent action.
- **High-connectivity and neighbouring countries to the Gulf region³:**

- In 2023, India reported 68,936 cases of measles, which marked a 58.1% increase from 2022 reported cases.
- In 2023, Kyrgyzstan reported a total of 7,044 cases, with the highest monthly cases being reported October-December. This is a significant increase, as in 2020-2022 combined, the country had reported 742 cases. No cases have been reported by the WHO in 2024.
- In 2023, Iraq reported 9,367 cases of measles, with highest monthly cases being reported in November and December. So far in 2024, the country has already reported 5,551 cases.
- **United States:** in late January and early February, the United States reported measles cases in 8 states (California, Delaware, Georgia, Maryland, New Jersey, Ohio, Pennsylvania, and Washington) and the District of Columbia.
 - [Pennsylvania reported five cases](#)⁸ linked to a daycare facility, and four additional cases (for a total of nine cases) linked to hospital exposure, and [Florida reported four cases](#)⁹ at an elementary school in Boward County.
 - Cases within school settings, including daycares, provide additional risk for larger outbreaks and community transmission due to prolonged close contact and falling vaccination rates in these settings.
 - Cases reported in California, Georgia, Maryland, and the District of Columbia were all associated to residents who recently travelled internationally, although details are not provided.
 - Most confirmed cases are in children and non-immunized individuals.
- **United Kingdom:** cases of measles have reached historically high levels over the last 34 years, since the measles-mumps-rubella roll-out in 1990 in the West Midlands, England.
 - Between 1 October 2023 and 18 January 2024, there were [216 confirmed cases](#) and 103 probable cases in the West Midlands¹⁰
 - Countrywide, [vaccination rates for the MMR vaccine are 85%](#). Birmingham and London have lower vaccination rates (83% and 80% respectively) and rates vary greatly within sub-regions (as low as 56.3% in the Hackney region of London).¹¹
- **Switzerland:** On 2 February 2024, Swiss health authorities reported an outbreak of measles among [university students in Lausanne](#).¹²
 - In recent years, both federal and cantonal public health authorities, along with medical professionals and laboratories, have dedicated substantial efforts to enhance measles protection and address outbreaks. Measles incidence has since reached historically low levels. Nonetheless, vaccination rates, particularly for young children, still fall significantly below the threshold required for elimination.
- **Italy:** [A new variant of measles \(MeV\) from the D8 genotype](#)¹³, with at least three mutations and the ability to escape regular laboratory diagnostic testing, has been identified in the city of Milan, and the surrounding areas of Lombardy, in Northern Italy and bordering Switzerland.
 - The WHO recognizes 24 measles variants (MV) genotypes (A, B1, B2, B3, C1, C2, D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, E, F, G1, G2, G3, H1, and H2), divided in eight clades (A–H).
 - Currently, only three of the 24 known MV genotypes are responsible for outbreaks worldwide: H1, which is endemic in China; B3, which had been reported mainly in African

countries where it originated and is now endemic globally; and D8, originated in Asia in the 1980s and now spreads globally.

- Genotypes D8 and B3 are the genotypes responsible for outbreaks that occurred in the past four years in Europe, Asia, and North America.
 - According to the Measles Nucleotide Surveillance (MeaNS) database, many European countries, including Italy, have reported the dominance of B3 and D8 measles strains since 2014.
- A new study conducted by the University of Milan and the Istituto Superiore di Sanità (ISS), published on 15 February 2024 in Eurosurveillance⁹ has indicated:
 - Since January 2024, five measles cases were all classified as genotype D8 (MeV) and determined to be sporadic since no clear epidemiological links were found among these cases.
 - A recent history of travel was reported among three individuals of the D8 MeV cases. The destinations included Uzbekistan, Thailand, and Southern Italy.
 - Two of these cases, each with a travel history to either Southern Italy or Thailand, were infected with D8 MeV strains characterized by the three mismatches (mutations).
 - The mutations occurred in the 450 nucleotide-long C-terminal, a region of the nucleoprotein gene that is usually the target of the PCR assays commonly employed by surveillance laboratories.
 - Due to the location of the mutations, this new variant from D8 genotype would be more likely to escape regular measles diagnostic tests.
 - Notably, research carried out among samples of measles cases reported between 2017 and 2023 indicated that none of the 163 analyzed samples contained these newly found mutations.
 - The current measles vaccine (MMR) continues to be effective against this new variant (MeV D8) with mutations, and there are no concerns on the overall measles protection or disease severity changes. Scientific review indicates that measles virus is generally stable, in comparison to SARS-CoV-2, for example, which continues to mutate.



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Data source: IVB Database

Disclaimer: The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization 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.

0 875 1750 3500 Kilometers

Figure 1: Measles incidence rate per Million, January – December 2023.³

Yellow Fever

South Sudan

Negligible	Very Low	Low	Moderate	High	Critical
Gulf CDC Risk Assessment of this Event					
<ul style="list-style-type: none"> • Risk Question: What is the risk of one case of YF being imported into the GCC Region from South Sudan in the upcoming 3 months, in terms of likelihood and impact of the importation? • Impact: Moderate, due to severity of disease and low rate of immunization against yellow fever among GCC country populations. Robust vector control measures are in place to combat mosquito-borne diseases. • Likelihood: Unlikely, there is a low number of travelers forecasted to travel between South Sudan and GCC countries, and South Sudan MOH has reported that entry and exit screening is in place as all travelers are requested to present their yellow fever vaccination cards. <p><i>Please refer to the Gulf CDC Rapid Risk Assessment for further details.</i></p>					



WHY IS THIS NOTABLE?

This event is of concern as it highlights the possibility of a larger ongoing outbreak and potential risk of further spread of yellow fever in South Sudan.



KEY STATS

48

Suspected yellow fever cases

0%

Importation risk from South Sudan to the Gulf Region






KEY FACTORS OF CONCERN FOR YELLOW FEVER



Disease severity

Yellow fever is a mosquito-borne disease considered to have a severe pathogen severity. It has a mortality rate of 15-50% in individuals who evolve from a flu like illness to a toxic phase. Prevention measures through immunization are available, however there are no approved treatments for yellow fever.

 <p>Trends from previous outbreaks</p>	<p>Neighbouring countries (Uganda, Central African Republic) reported cases of yellow fever in 2023. South Sudan has experienced several yellow fever outbreaks in the past, most recently in November 2018.¹⁴</p>
 <p>Healthcare capacity</p>	<p>South Sudan is classified as a high-risk country in the Eliminate Yellow Fever Epidemics initiative.¹⁰ Population immunity is negligible. The vaccination campaign launched aims to protect populations at high risk and support in South Sudan’s plans to introduce the yellow fever vaccine into their routine immunization systems. The country’s previous experience with outbreaks allowed for rapid response team mobilization and improved surveillance to enhance case detection and reporting.</p>
 <p>Connectivity to the Gulf Region</p>	<p>There is relatively low connectivity between South Sudan and GCC countries. The highest connectivity is with UAE, with a forecasted 937 travelers in February 2024.</p>



SITUATIONAL HIGHLIGHTS FOR YELLOW FEVER

- On 24 December 2023, [the Ministry of Health in South Sudan confirmed](#)¹⁵ an outbreak of yellow fever in Yambio County, Western Equatoria State, located close to the border with the Democratic Republic of the Congo.
 - As of 3 February 2024, 48 suspected and two confirmed yellow fever cases were reported from 6 counties of Western Equatoria State
- Health officials activated the Public Health Emergency Operations Centre (PHEOC) and began field investigation and active case search.
- The Ministry of Health, in collaboration with the World Health Organization, UNICEF and other partners initiated a reactive yellow fever vaccination campaign as part of preventive response intervention.
 - The campaign is targeting approximately 610,000 individuals (between the ages of 9 months to 65 years) in the affected counties.
 - Doses were secured from the global emergency yellow fever vaccine stockpile of the International Coordination Group of Vaccine Provision.
- This is an ongoing situation that requires close monitoring given the severity of the disease and limited immunity in the affected region and in GCC countries.



Diphtheria



West Africa

Negligible	Very Low	Low	Moderate	High	Critical
Gulf CDC Risk Assessment of this Event					
<ul style="list-style-type: none"> • Risk Question: What is the risk of a significant number of diphtheria cases being imported into the GCC Region in the upcoming 6 months, in terms of likelihood and impact of the importation? • Impact: Minor, rare disease in the Gulf Region and immunization coverage estimates for diphtheria, tetanus toxoid, and pertussis (DTP) in 2022 are high but vary across GCC countries • Likelihood: Likely, due to significant population movement between GCC countries and regions where diphtheria is reported. <p><i>Please refer to the GULF CDC Rapid Risk Assessment for further details.</i></p>					



WHY IS THIS NOTABLE?

Low vaccine uptake in the region, with risk of further spread and declining healthcare capacity to manage the outbreak, opening the possibility for further outbreaks. Small risk of importation to Gulf region.



KEY STATS

27,991

Reported Cases in Africa (May 2022 to 14 January 2024)¹⁶



KEY FACTORS OF CONCERN FOR DIPHTHERIA




Disease severity


Diphtheria is a vaccine preventable disease considered to have a moderate pathogen severity. The case fatality rate for diphtheria can be up to 10%.



Trends from previous outbreaks

This diphtheria outbreak has been ongoing in West Africa since December 2022 (Nigeria- December 2022, Niger – July 2023, Guinea – July 2023). The ongoing outbreak in Nigeria is the largest reported since 1989, with over 20,000 cases of infection thus far.

 <p>Healthcare capacity</p>	<p>Countries in West Africa experiencing diphtheria outbreaks including Guinea, Chad, Niger, and Nigeria have low immunization rates. In Guinea, the response to the outbreak¹⁷ is being coordinated by a national strategic committee and regional coordination teams that include several partners. Intensified surveillance efforts in active case finding along with a strategy for tracing outpatient cases are being implemented, as well as ongoing community engagement efforts, encompassing diphtheria and vaccination awareness sessions with various community stakeholders, including contacts, traditional leaders, and the general population. Clinical case management protocols are being implemented, combined with the provision of psychosocial support to households affected by diphtheria.</p>
 <p>Connectivity to the Gulf Region</p>	<p>There is overall low connectivity between Chad and Guinea to GCC countries (most connectivity is below 100 passengers per month between the two origin countries and each GCC country, except for Guinea-UAE with 641 forecasted passengers, Chad-UAE with 641 forecasted passengers, and Chad-Saudi Arabia with 194 forecasted passengers). Nigeria continues to be the affected country with highest connectivity to the GCC countries. Despite no cases being reported in February, the outbreak is considered ongoing.</p>



SITUATIONAL HIGHLIGHTS FOR DIPHTHERIA

- There is a notable surge in weekly cases in Guinea, while there is an observed decline in the remaining affected countries.
 - [According to the WHO](#)¹⁷, between 1 January and 4 February 2024, there were 1,184 suspected cases in Guinea. Although there was a slight decline in weekly cases between late January and early February, the epidemic curve shows a general trend of increasing number of reported cases with progressively higher peaks since the beginning of the outbreak.
 - While the outbreak was initially localized in the Kankan region, seven of Guinea’s eight regions have now been affected, including the capital, Conakry. Kankan region accounts for most reported cases, with 96.7% attributed to this region.
- Since June 2023, more than 825 cases and 36 deaths have been recorded in Chad because of the diphtheria epidemic.
 - [Médecins Sans Frontières](#)¹⁸(MSF) and local health authorities launched a mass vaccination campaign on 29 January 2024 in the Batha region of central Chad.
 - As of 14 February, a total of 24,489 people have been vaccinated against diphtheria out of the 24,553 expected, giving vaccination coverage of more than 99 per cent.
- MSF has called for a regional and international response to curb the diphtheria epidemic in West Africa, by stepping up routine vaccination and improving access to healthcare for communities at risk, particularly in countries where the disease is still active, such as Chad, Niger, and Nigeria.

Avian Influenza H5N1

Globally

Negligible	Very Low	Low	Moderate	High	Critical
Gulf CDC Risk Assessment of this Event					
<ul style="list-style-type: none"> • Risk Question: What is the likelihood of HPAI H5N1 human-to-human transmission occurring in the GCC countries and what is the impact of such transmission? • Impact: Low, zoonosis programs are available or being established. Case management capacities in GCC countries for influenza infections are generally high. • Likelihood: Unlikely, as there is currently no global evidence of human-to-human transmission. <p><i>Please refer to the Gulf CDC Rapid Risk Assessment for further details.</i></p>					



WHY IS THIS NOTABLE?

While there is no evidence of sustained transmission of avian influenza viruses among humans, cases and transmission events may contribute mutations to support human-to-human transmissions.



KEY STATS

5

Confirmed H5N1 cases in Cambodia 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 H5N1²⁰](#) 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.



Public Health Response

A [team of experts¹⁹](#) have been deployed in the affected area to investigate additional probable cases and close contacts to prevent further spread.



SITUATIONAL HIGHLIGHTS FOR AVIAN INFLUENZA H5N1

- On 9 February 2024, Cambodia’s Ministry of Health [released a statement²¹](#) about this year’s first laboratory-confirmed human death of H5N1.
 - Official information indicates the affected individual was a nine-year old boy who lived in the Kratié province, in the Northeastern part of the country.
 - The two reported cases in January were from the Siem Reap and Prey Veng provinces. These cases were confirmed to belong to the 2.3.2.1c clade, which has circulated in the country in birds and poultry for many years and was the same clade for the cases reported in 2023.
- On 21 February 2024, Cambodia’s Ministry of Health reported [the fifth case²²](#) of highly pathogenic avian influenza H5N1 in Cambodia since the beginning of this year.
- Including this case, Cambodia has reported ten cases and five associated deaths of H5N1 from avian origin in less than year, which is the highest number of cases and deaths reported since 2015.
- Further analysis is still needed to confirm if the most recent case belongs to the same clade (2.3.2.1c) or a newer clade, known as 2.3.4.4b, that has been circulating globally with an increasing number of mammalian spillover events.
- So far, there has not been any evidence of sustained human-to-human transmission of avian influenza. However, the recent uptick in clade 2.3.2.1c infections in Cambodia warrants further attention. The more frequently the virus spills over into humans (or other mammals including swine), the greater opportunities exist for reassortment events which can lead to sustained human-to-human transmission.

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Note:

Connectivity data is collected via the BlueDot Data Portal, February 2024.

CRNE signal data are provided by A3M.



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The Gulf CDC is grateful for insights on GCC countries' capacities and national data provided by members of the Public Health Emergency Network members as well as international and GCC subject matter experts who provided valuable contextual understanding that enhanced the Gulf CDC risk assessments for the hazards detected.

For queries regarding this publication, please contact us at eidetect@gulfcdc.org