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# Global updates on COVID-19 and other diseases
# Sarawak Infectious Disease Centre (SIDC)

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## Contents

## Summary


- Globally, COVID-19 activity has remained low – the report to be taken with caution due to decreasing reports from sentinel and non-sentinel outputs.
- New funding for pathogen surveillance has been announced by the WHO.
- The WHO has updated its seasonal flu recommendations.
- The WHO is considering to include zoonotic influenza A viruses for seasonal influenza candidate vaccine development as part of pandemic preparedness.
- An updated guideline for tuberculosis will be published before the year ends.
- Anti-microbial stewardship is important in controlling anti-microbial resistance.
- Outbreaks of food-borne diseases in the US highlight the importance of food security, from farms to plate.
- Zoonotic diseases that have the potential to jump host to humans and establish themselves continue to be of concern.
- Symptoms evolve/change as the mpox epidemic moves forward.


# 1.0 Situational summary: cases and related issues

## 1.1 COVID-19 updates from the WHO

According to the WHO's latest integrated updates on respiratory infections, including COVID-19 and influenza,[1] globally, SARS-CoV-2 positivity from sentinel surveillance remained below 10% (~8.2%) in all WHO Regions except for the Americas. The positivity there increased to approximately 20%. The SARS-CoV-2 positivity from non-sentinel surveillance decreased to approximately 10% globally.

## 1.2 The Americas

### The US

COVID-19 disease severity marker levels in the US have remained on a downward trend. Hospitalisations remain elevated in two groups: older people and infants ≤ 12 months old. Emergency department visits declined 12.4% from the previous reporting week. Early disease indicators also showed downward trends; the national test positivity rate was at 8.1%, with some variation in different parts of the country. Wastewater SARS-CoV-2 virus detections, however, remained high. For the week ending 17 February 2024, the levels were higher in the southern region than in the rest of the country.[2] The current COVID-19 situation remains less severe than earlier in the pandemic.[3] [4]

Respiratory syncytial virus (RSV) levels continued on its downward trend with hospitalisation for seniors and infants declining further. Deaths have remained stable.

Flu levels, however, continue to remain high – national test positivity was 14.8%, and reports of outpatient visits were "a steady" of 4.5%. According to the CDC, hospitalisation indicators

have remained stable and have been decreasing since the beginning of the year. There have been 91 deaths since November 2023.

# 2.0 Planning

## 2.1 International Pathogen Surveillance Network grants

The WHO announced USD 4 million in funding from donors to create a catalytic grant fund for organisations working in pathogen genomic surveillance. The fund will "support projects across the world, particularly in low- and middle-income countries, to pilot projects and in doing so, create an evidence base for how to quickly scale up pathogen genomic surveillance". The results of this type of surveillance will help countries and the world to respond more quickly and effectively to prevent outbreaks and to respond to them.[5]

The initial grants for the catalytic fund have been provided by the Bill & Melinda Gates Foundation, The Rockefeller Foundation, and Wellcome, to support the International Pathogen Surveillance Network (IPSN).[6] IPSN is a new global network of pathogen surveillance group convened by WHO through a Secretariat at the WHO Hub for Pandemic and Epidemic Intelligence in Berlin. The fund is hosted by the UN Foundation on behalf of the IPSN.[7]

## 2.2 Flu vaccine updates, the WHO

The WHO announced the flu vaccine viral composition based on the recommendations from its advisory group.[8] [9] The agency has determined that the composition for the Northern Hemisphere 2024-25 flu season be the same as recommended for the Southern Hemisphere's 2024 season. The agency recommends the use of trivalent vaccines that contain the following (paraphrased):

- Egg-based vaccines:
  - an A/Victoria/4897/2022 $(H1N1)_{pdm09}$-like virus;
  - an A/Thailand/8/2022 (H3N2)-like virus; and
  - a B/Austria/1359417/2021 (B/Victoria lineage)-like virus.
- Cell culture- or recombinant-based vaccines:
  - an A/Wisconsin/67/2022 $(H1N1)_{pdm09}$-like virus;
  - an A/Massachusetts/18/2022 (H3N2)-like virus; and
  - a B/Austria/1359417/2021 (B/Victoria lineage)-like virus.

The vaccine strain does not include influenza B Yamagata lineage viruses as the last naturally occurring cases have not been confirmed since March 2020. The WHO has recommended the use of vaccines with a strain similar to the Yamagata Phuket/3073/2013 lineage virus for countries that still use the quadrivalent (four-strain) versions of the vaccine.

The advisory group also proposed two new candidate strains, both targeting recent variant H1N1 viruses (zoonotic) to be considered seasonal flu vaccines; one is antigenically similar to

A/Catalonia/NSAV198289092/2023, and the other is similar to A/England/234600203/2023.[10]

### 2.3 Tuberculosis, updated guidelines from the WHO

The WHO, on 13 February 2024, announced updates on tuberculosis preventive treatment (TPT).[11]

It includes a recommendation to use a regimen of 6 months of levofloxacin as TPT for contacts of patients with multidrug- or rifampicin-resistant tuberculosis (MDR/RR-TB). This primary update was on the results of two randomised controlled trials in VietNam and South Africa that supported the use of the regimen in all age groups.

Other changes include (a) updated drug dosages for TPT regimens, (b) integration of recommendations on screening strategies to rule out TB ahead of starting TPT and the use of TB tests, as well as (c) an update of the algorithm for the management of TPT in contacts.

The full version of the updated guidelines will be released later in the year.

## 3.0 Others

### 3.1 Flu

#### 3.1.1 Updates from the WHO

While global detections of the flu have generally declined, the activity remains elevated in many parts of the Northern Hemisphere. A summary is as follows (paraphrased):[1] [12]

- In Europe and Central Asia, where flu hotspots are located, hospitalisations and intensive care unit (ICU) admissions remained elevated. Very high activity was reported from Russia and Slovakia.
- In North America, flu levels remained elevated (indicated by hospitalisations) but stable. The 2009 H1N1 virus [also known as Influenza A$(H1N1)_{pdm09}$ virus] remains dominant, with a slight uptick in influenza B in the US and Canada.
- Flu activity in China is elevated; however, it is declining in both the northern and southern provinces. Most detections involved influenza B. Flu hospitalisations in Hong Kong remain above the seasonal threshold.
- In Southeast Asia, activity showed an overall increase, especially in Malaysia, Singapore, and Thailand.
- In Western Asia, flu activity rose in Armenia, Georgia, Israel, and Turkey.
- Flu remained stable in parts of tropical Asia, with rises in the Maldives and Nepal.
- In Africa, flu detections increased in several western countries, including Mauritania and Niger, as well as Cameroon.

- In the temperate zones of the southern hemisphere, indicators of influenza activity were reported at low levels or below the seasonal threshold in most reporting countries.

A summary of the proportion of respiratory specimens which tested positive for influenza, by influenza transmission zone [13] is shown in **Figure 1**.

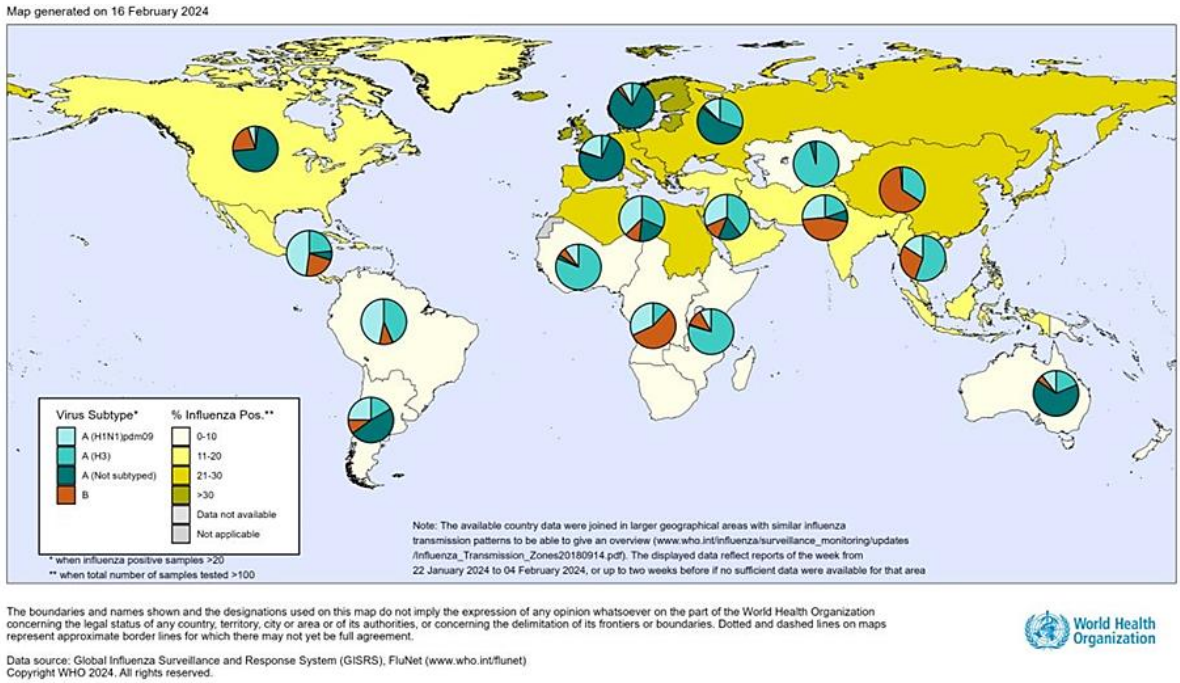


**Figure 1**. Percentage of respiratory specimens testing positive for influenza, by influenza transmission zone. The map was generated on 16 February 2024 based on data from reports from 22 January to 4 February 2024 or up to two weeks before if insufficient data were available for an area for that period. The chart and narration were obtained and adapted from 2024_02_05_surveillance_update_464.pdf (who.int).

Globally, during the reporting period (19 January – 4 February 2024), 78.9% of respiratory samples that were found positive by national flu labs were influenza A – approximately 55% were H3N2. All influenza B viruses belonged to the Victoria lineage.

### 3.1.2 Vaccine effectiveness, updates from Canada

According to a Canadian-based study using data from across 9 pre-COVID flu seasons in Ontario, flu vaccine effectiveness (VE) wanes 9% every 28 days beginning 41 days post-vaccination in adults. It, however was not observed in children.[14]

The Canadian Immunization Research Network (CIRN) Provincial Collaborative Network (PCN) Investigators analysed data from 53,065 people over the age of 6 obtained from lab and

health administration databases in Ontario from the 2010/11 through the 2018/19 flu seasons. Of the total, approximately 19% tested positive for flu. Investigations revealed that (paraphrased):

- The odds of contracting influenza [15]
  - increased from 1.05 (95% confidence interval, CI: 0.91-1.22) at 42 to 69 days after vaccination, and
  - peaked at 1.27 (95% CI: 1.04-1.55) at 126 to 153 days compared with the reference interval, which was 14 to 41 days after vaccination;

  corresponding to a 5% to 27% drop in VE compared with shortly after vaccination.
- VE declined 9% every 28 days, or a 1.09-times increased risk of influenza every 28 days (adjusted odds ratio, aOR, 1.09; 95% CI: 1.04 to 1.15). Waning VE was not observed in children.
- Adults 18-64 years old showed the greatest decline in protection against the H1N1 strain (aOR per 28 days, 1.26; 95% CI: 0.97 to 1.64). For people ≥ 65 years old, it was against the H3N2 strain (aOR per 28 days, 1.20; 95% CI: 1.08-1.33).

Annual influenza vaccination programmes, therefore, need to strike the balance between the timing of vaccinating the population, while taking into account system vaccination capacity and year-to-year variability of influenza season timing. Furthermore, people of different age groups may experience more pronounced waning based on virus types/subtypes.

### 3.3 Measles, the WHO's warning

Approximately half of the world's population is at high or very high risk of measles outbreaks by the end of the year unless urgent action is taken.[16] Cases have increased globally due to waning vaccination rates – the crisis attributable to disruptions to healthcare and school vaccine programs during the pandemic, as well as the rise of anti-vax disinformation.[footnote1].

The WHO was "worried that 2024 is going to look like 2019" when measles cases surged by almost 50% since 2016 – 869,770 cases were reported including >207,000 deaths; with the former being the highest number since 1996, before a steady progress (control and decline) was made from 2010 to 2016. [17] [18] The agency had recently reported that measles rose by 79% in 2023.[19]

### 3.4 Anti-microbial stewardship

#### 3.4.1 Multidrug-resistant urinary tract infections, East Africa

An analysis of urinary tract infection (UTI) isolates from East African countries found that approximately half were multidrug-resistant (MDR). Children and adults with UTI-like symptoms (n=7,583) from healthcare facilities in Tanzania, Kenya, and Uganda were recruited. Urine samples were collected for microbiologic analysis, including anti-microbial

[1] Report 2024-R6, Section 4.4.1 (The WHO and ECDC updates).

susceptibility testing. MDR bacteria were defined as isolates resistant to at least one agent in three or more classes of antibiotic agents.[20] [21]

According to the study, of the total number of participants with UTI-like symptomatic, approximately 35% (2,653) had a microbiologically confirmed UTI (sample containing $>10^4$ cfu/mL). The predominant bacteria were *Escherichia coli* (37.0%), *Staphylococcus sp*. (26.3%), *Klebsiella sp*. (5.8%), and *Enterococcus sp.* (5.5%). Of the 2,266 isolates submitted for anti-microbial susceptibility testing, 1,153 (50.9%) were categorised as MDR.

Other findings are as follows (paraphrased):

- MDR rates were 60.9% in Tanzania, 57.5% in Uganda, and 36.9% in Kenya.
- By pathogen, *Staphylococcus sp*. had the highest MDR rate (60.9%), followed by *E. coli* (52.2%), *Klebsiella sp.* (50.6%), *Enterococcus sp.* (38.1%), and other Enterobacterales (31.2%).
- The rate of MDR bacteria was much higher in inpatients than in outpatients.
- There were "severely high" levels of resistance across pathogens to first-line antibiotics for UTIs.

In low- and middle-income countries (LMIC), antibiotics are often prescribed for patients presenting with symptoms of UTIs without microbiological confirmation. Inappropriate antibiotic use can contribute to anti-microbial resistance (AMR) and the selection of MDR bacteria.

Data on antibiotic susceptibility of cultured bacteria are important in drafting empirical treatment guidelines and monitoring resistance trends, which can prevent the spread of AMR. These findings fill a crucial data gap and should be used to inform guidelines for empiric antibiotic treatment of UTIs in East Africa.

### 3.4.2 Macrolide-resistant *Mycoplasma genitalium*, Belgium

A report published in *Eurosuveillance* reported that > 50% of sequenced samples of *Mycoplasma genitalium* (MG) in Belgium were found to be resistant to macrolides.[22] [23]

Between July to November 2022, 244 frozen MG-positive samples from 21 Belgian laboratories were analysed for macrolide and fluoroquinolone resistance-associated mutations (RAMs). Approximately 55% of the 232 samples that were able to be sequenced were positive for RAMs, including all samples (24 of 24) from men who have sex with men (MSM). Macrolide resistance was also higher in men who have sex with women (18/30, 60%) than in women (64/143, 44.8%). Fluoroquinolone RAMs were found in 25.9% of samples, with little variation in resistance between genders.

The authors of the study mooted the implementation of macrolide resistance testing for MG-positive samples for all patient groups other than MSM to limit the use of fluoroquinolones and avoid the emergence of multidrug-resistant MG. Continued surveillance is vital to guide national testing and treatment strategies to effectively manage AMR in MG infections.

*Note:*

Macrolides are a class of drugs used to manage and treat various bacterial infections including sexually transmitted infections such as gonococcal and chlamydial infections by inhibiting bacterial protein synthesis.[24]

## 3.5 Food security

### Enteric bacteria outbreak, the US

*Salmonella*

The CDC has confirmed an additional 40 cases of Salmonella illnesses in a 30-state outbreak linked to charcuterie meats, bringing the total to 87 since it was first reported to the agency in November 2023. Up to 20 January 2024 and of the 74 initial cases with information available, 18 people were hospitalised. No deaths have been reported. The outbreak strain has been identified as Salmonella I 4:I:- (STM).[25] At least 9 food brands are involved in the Class I (product) recall[Footnote2] by the US Department of Agriculture's Food Safety and Inspection Services (USDA-FSIS).[26] The CDC first alerted the public to the outbreak on 5 January 2024.

*Note:*

Salmonella I 4:I:-, also known as *Salmonella enterica* I serotype 4 [5] 12:I:-, is a monophasic variant of *Salmonella enterica serotype* Typhimurium (STM). It is the most prevalent Salmonella serotype in Europe, the US, and Asia. It causes nontyphoidal Salmonella (NTS) infection and is an emerging threat to both human and animal health. STM was first identified in the 1980s in poultry products and has become increasingly prevalent in meat products including pork. It has been associated with feed-manufacturing environments and the feed itself. Studies have suggested a link between the ingestion of contaminated feed by farmed animals and the source of food-borne illness in humans. Since its emergence, it has become a prevalent multidrug-resistant serovar and a growing food safety concern, especially in pork products and swine. [27] [28] [29] [30] [31] [32]

*Escherichia coli*

At least 10 people in four states have been infected with pathogenic *Escherichia coli*. Four have been hospitalised; one developed haemolytic uremic syndrome, a condition that can cause kidney failure. None of the patients in the outbreak have died. The infection is linked to cheese made from raw milk. The first cases were reported on 18 October 2023, and the last on 29 January 2024. The number of people who are affected could be higher as some may have recovered without medical care. The products have been recalled. [26] [33]

[2] High or medium risk. A health hazard situation where there is a reasonable probability that the use of the product will cause serious, adverse health consequences or death. [26]

## 3.6 Zoonotic disease

### 3.6.1 Prion disease: Chronic wasting disease, concerns of spread to humans

Chronic wasting disease (CWD) is an infectious disease discovered in 1967 among North American cervids (hoofed ruminants). The causative agent is a prion—a misfolded protein. It causes serious neurodegenerative symptoms in affected animals. It is transmitted from animal to animal via direct contact, or through contact with contaminated saliva or urine (from an infected animal). [34] [35] [36]

The disease has since spread among other cervids, including white-tailed deer, elk, moose, and Sika deer to 32 (out of 50) US states, two Canadian provinces, as well as four other foreign countries, including South Korea.[37] The spread is specifically prominent among deer populations recently. A risk of infection for other domestic and wildlife species is also plausible.[38] No treatments or vaccines are currently available.

Cervids are normally hunted in the colder months of the year in North America traditionally; the meat is consumed by hunters and made available to the general public. These hunters are exposed to the disease when they hunt these animals; becoming a serious threat to public health for CWD. There is a concern that the disease will cross the animal-animal barrier to spillover into humans. The prion has evolved to become more able to infect humans and the barrier has changed to become “less formidable” in preventing its spread. [38] [39] [40]

Other prion diseases, such as bovine spongiform encephalopathy (BSE, also known as mad cow disease) and Creutzfeldt-Jakob disease (CJD) have affected humans.[41] There have not been any human CWD cases reported to date. This has caused many people, including hunters to struggle to comprehend how serious the disease can be.

Scientists, however, are worried as prions are extremely difficult to eradicate, whether with disinfectants or with high heat (survives medical sterilisation and cooking), the latter concentrates the particles instead. Unlike prions that cause BSE and CJD that localises in the brain tissues, CWD prions can be found in almost any organ. Furthermore, prions in general, are “extremely persistent” in the environment as they can remain in the ground for many years and be taken up by plants.[42] [43] [44] [45]

Clinical signs alone are not diagnostic as several other diseases cause similar symptoms. Diagnosis can only be confirmed upon postmortem examination of the brain for spongiform lesions and/or accumulation of the CWD-associated prion in the brain and/or lymphoid tissues; the correct portion of tissue must be used for a meaningful test.[34]

Despite warnings about the disease, there is low uptake of the free testing offered by the authorities. Checking an animal for prions requires a sample of the lymph node to be examined; the results can take more than a week to know – deemed too slow to get an animal cleared for consumption.

Research of the disease focuses on the development of quick testing methods on live animals such as rapid tests and the use of metabolomics to help prevent spillover event(s).[46] [47] Research gaps include CWD prion ecology to determine specific biological characteristics of

potential CWD reservoir species that would better explain susceptibility to spillover, landscape, and climate configurations that are suitable for CWD transmission. The significance of sampling bias in the current understanding of CWD distribution and risk also needs attention.

Addressing these gaps would help in anticipating novel areas and species where CWD spillover can occur. This in turn will inform on the necessary control strategies to be taken (such as detection methods, biotic and abiotic reservoirs, population density and predators, and landscape modification).

### 3.5.2 Middle East Respiratory Syndrome Coronavirus, Saudi Arabia

Saudi Arabia has reported four Middle East respiratory syndrome coronavirus (MERS-CoV) cases. Two of them died. They came from three different regions: Riyadh, Eastern, and Qassim. The patients, two men and two women, whose symptoms began in the latter months of 2023 were all confirmed for the disease between 10 October and 16 November 2023. All had underlying health conditions, and none were health workers.[48] [49]

One patient was a camel owner, while another had a history of indirect contact with camels. Exposure to the virus has not been determined for the other two patients. None of the patients had consumed raw camel milk before their symptoms began. The WHO did not find any epidemiologic links between any of the patients, and to date, no secondary cases have been found.

According to the WHO, MERS-CoV cases have declined substantially since the start of the COVID-19 pandemic. The reason could be linked to public health and social measures used to mitigate the transmission of the SARS-CoV-2 virus. Cross-protection from COVID-19 infection or vaccination could also play a role – a hypothesis that requires further investigation.

Since it was first reported in Saudi Arabia, a total of 2,220 cases, including 858 deaths, have been reported. The last case reported to the WHO was on 26 October 2023. Human MERS-CoV infections have been reported from 27 countries, in all six WHO regions. To date, a total of 2,609 MERS-CoV cases and 939 deaths have been reported globally.

The WHO has not changed its risk assessment of the disease, which remains at moderate globally and regionally. More cases are expected from Saudi Arabia and other countries where the virus circulates in dromedary camels. [Footnote3]

## 3.7 Mpox symptoms evolution, meta-analysis

A meta-analysis conducted on studies published from epidemics from 1970 to 2023 suggests that symptoms in affected patients have become more diverse, with a decrease in symptoms other than rash.[50] [51] The analysis encompasses three epidemic periods: 1970 to 2022 (period

[3] Report 2024-R6, Section 4.1.3 (Zoonosis).

1, within Africa), 2003 to 2021 (period 2, mostly within Africa, but clusters elsewhere), and 2022 to 2023 (period 3, worldwide).

The most common symptom in all three periods was rash (period 1, 92.6%; period 2, 100%; and period 3, 94.8%), followed by enlarged lymph nodes (period 1, 59.8%; period 2, 74.1%; and period 3, 61.1%). In period 1, the primary symptoms were fever (99%), enlarged lymph nodes (80.5%), and headache (69.1%), with a significant decline in these symptoms in period 3 (37.9%, 31.2%, and 28.7%, respectively).

Some symptoms were correlated. In period 2, chills/shivering (73.3%), fatigue (68.2%), and difficulty swallowing (61.2%) emerged as the main symptoms. These associations, however, were not prevalent in period 3.

In period 3, most other symptoms were similarly prevalent or declined relative to periods 1 and 2. Nausea/vomiting correlated most closely with 13 other symptoms and was highly positively correlated with enlarged lymph nodes and conjunctivitis ("pink eye") in period 2. During period 3, rash and headache were both most closely correlated with 21 other symptoms and were highly positively correlated with fever.

## 4.0 Implications for Sarawak based on the views of SIDC

Though we have ridden through the latest COVID-19 wave, the threat of another respiratory disease, influenza, is on the rise.

The prescription of antibiotics without microbiological confirmation may still be prevalent in our society – especially when patients themselves request them. It is a psychological need that has to be broken to maintain healthy anti-microbial stewardship. Investigating anti-microbial resistance (AMR) and links to stewardship via the One Health approach can fill in gaps related to AMR, the environment (for example, the presence of AMR genes), and the management of health and food security in the state.

Food recall because of microbial contamination and food poisoning in the US highlights the threat of the emerging Salmonella 4,[5],12:i:- on the state's farming industry.

Prion diseases may not be a priority on emerging diseases/pandemic preparedness. Nevertheless, it should be reviewed to determine its geographical distribution in the state or region (Borneo Island).

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