Global Updates on COVID-19 and Other Diseases

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Summary

- The global public health risk associated with COVID-19 remains high.
- The first comprehensive evidence of measurable lung abnormalities in children with long-COVID has been found.
- Active surveillance 'caught' many undiagnosed cases of tuberculosis infections in India.
- Another TB vaccine candidate is undergoing clinical trials.
- Dengue alert remains high in Malaysia and countries in the Western Pacific Region.
- The Americas is preparing for a dengue serotype 3 outbreak.
- The H5N1 virus has evolved to infect cows (bovines).
- The zoonotic threat of the highly pathogenic avian influenza A(H5N1) remains high among birds.
- Sporadic cases of human influenza A(H5N1) are expected.
- Negeri Sembilan has had to deal with an ASF outbreak.
- A small 'outbreak' of leprosy was reported in Negeri Sembilan.
- Measles is on the rise in the US.
- The Sudan (Ebola) outbreak continues in Uganda.
- Tanzania is still battling a Marburg outbreak.
- An outbreak of unknown disease was reported in the Democratic Republic of the Congo (DRC).
- Mpox outbreaks continue to meet the criteria of a public health emergency of international concern (PHEIC).

COVID-19 and related issues

1.1 Update from the World Health Organization

During the four-week reporting period from 9 December 2024 to 5 January 2025, weekly SARS-CoV-2 virus test positivity changed from 8.5% in the beginning week of the reporting period to 8.1% in the last week, as detected in integrated sentinel and systematic virological surveillance within the Global Influenza Surveillance and Response System (GISRS). During this period, an average of > 59,000 specimens across 108 countries were tested for the SARS-CoV-2 virus each week[1].

Twenty-four (10%) countries reported COVID-19 deaths, and 79 (34%) countries reported COVID-19 cases globally. Over 161,000 new cases were reported, representing a 21% decrease in the number of reported cases. At the same time, an estimated 3,300 new deaths were reported, representing a 14% increase in new deaths compared to the previous 28 days (11 November to 8 December 2024).

Wastewater surveillance from around 30 countries from 5 WHO Regions have publicly available wastewater surveillance information and are featured on WHO's COVID-19 dashboard. According to estimates obtained from wastewater surveillance, circulation of the SARS-CoV-2 virus is approximately 2 to 19 times higher than identified and reported cases[2].

Hospitalisations and intensive care unit (ICU) admissions were reported at least once in 37 (16%) and 28 (12%) countries, respectively. Approximately 14,600 new hospitalisations and 1,000 new ICU admissions were recorded based on the data that was available. New hospitalisations increased by 10% while ICU admissions stayed unchanged among the countries that consistently reported these data over the past and previous reporting periods.

The World Health Organization (WHO) is monitoring several SARS-CoV-2 variants, including one variant of interest (VOI) JN.1, and 7 variants under monitoring (VUMs). JN.1, the VOI, accounted for 15.0% of sequences in week 1 of 2025 (1/2025). The VUM, XEC and LP.8.1 continue to increase in prevalence, accounting for 44.8% and 4.7%, respectively, of sequences in week 1/2025, and are the only tracked variants currently growing in prevalence. All the remaining VUMs are declining in prevalence.

Under the current risk assessment, the global public health risk associated with COVID-19 remains high. There has been evidence of decreasing impact on human health throughout 2023 and 2024, driven mainly by:

- high levels of population immunity, achieved through infection, vaccination, or both;
- similar virulence of currently circulating JN.1 sublineages of the SARS-CoV-2 virus as compared with previously circulating Omicron sublineages; and
- the availability of diagnostic tests and improved clinical case management.

The SARS-CoV-2 virus circulation continues at significant levels as indicated by test positivity from sentinel sites and wastewater sampling.

1.2 Long-COVID, lung injury in children

A type of magnetic resonance imaging (MRI), called free-breathing phase-resolved functional lung (PREFUL) MRI, was used in a study that found children and teenagers with long-COVID having significant lung abnormalities. PREFUL MRI was used as it is a contrast agent-free and radiation-free imaging modality that is not invasive, and hence, more suitable for children. [3,4]

The study involved 54 participants (27 with long-COVID and 27 without), whose median age was 15 years, who underwent PREFUL from April 2022 to April 2023. It was used to assess regional ventilation (oxygen flow), flow-volume loop correlation metric (FVL-CM), quantified perfusion (blood flow), ventilation and perfusion defect percentages, and ventilation-perfusion ratios.

Results showed that children with long-COVID had lung injuries that correlated to specific long-COVID symptoms and overall loss of blood flow in the lungs. In addition, those with long-COVID had greater lung perfusion which correlated with increased chronic fatigue severity. It also found higher ventilation-perfusion mismatch correlated with increased heart rate. In short, long-COVID can cause chronic fatigue in children.

It was proposed the same be used on long-COVID patients to determine how or if they are improving. This quantitative lung MRI “establishes a potential imaging biomarker profiling and helps to enable disease severity follow-up in the future”. It was proposed to use PREFUL MRI on larger, multicentre studies to validate these findings and evaluate the progression of lung abnormalities at various stages after a COVID-19 infection[4].

2.0 Tuberculosis

2.1 India

Maharashtra reported 24,287 new tuberculosis (TB) cases as part of the ongoing 100-day campaign under the National TB Elimination Programme (NTEP) which started on 7 December 2024. It involves 347 districts in the country. In 2024, Maharashtra reported 224,000 cases. The programme aims to enhance TB detection, improve the efficiency of TB testing and treatment, reduce the mortality rate, and prevent new cases through targeted interventions in the district. Over 42,446 TB patients have benefitted from the programme with treatments starting immediately and incentives for nutritional support following[5].

2.2 Vaccine trials, Phase II

The first doses of TB vaccine candidate, MTBVAC, have been administered in a large-scale safety and efficacy clinical trial. The announcement was made on 26 February 2025 by the Spanish biopharmaceutical company, Biofabri, and nonprofit scientific research organisation IAVI, which is also the sponsor of the trial[6].

The Phase IIb IMAGINE (Investigation of MTBVAC toward Accelerating Global Immunization for a Neglected Epidemic) trial, will test the safety and efficacy of the live-attenuated, single-dose TB vaccine candidate in approximately 4,300 participants with latent TB (LTBI) in 15 sites in Kenya, Tanzania, and South Africa. The first doses were administered on 19 February 2025 and will be followed up for 2 to 3 years.

MTNVAC is one of the 16 vaccine candidates currently in clinical trials. The only licensed TB vaccine is the bacilli Calmette-Guerin (BCG) vaccine, which has been in use for > 100 years. While it is effective at preventing severe TB in children < 5 years old; however, it is not as effective against TB in adults and adolescents[7].

3.0 Vector-borne diseases (malaria, dengue, filariasis)

3.1 Dengue

3.1.1 Malaysia

According to the World Health Organization (WHO) Western Pacific Region *Dengue Situation Update (number 715)* published on 23 January 2025, a trend of increasing cases was observed in the second half of the year across several countries in the Western Pacific Region, including China, Laos, Viet Nam, Cambodia, and Malaysia. Meanwhile, Singapore saw a mid-year spike in cases, and Australia experienced a steady rise throughout the year[8].

Malaysia has one of the highest rates of dengue in Southeast Asia. The number of dengue cases has surged from 7,103 in 1999 to 122,423 in 2024 [9], with mortality rising from 45 to 117 in the same period. The increase in mortality is partially attributed to the shift in serotype dominance. Malaysia experienced a shift in serotype from DENV1 (2014-2015) to DENV2 (2017-2018) and DENV4 (2021). Mortality rates for 2021 and 2022 were recorded at 38 and 56, respectively, suggesting that DENV4 may not be as virulent as the other serotypes. However, the spike in mortality rates to over 100 in 2023 and 2024 indicates the need for further investigation into the role of serotype shifts.

The disease is endemic in Sarawak with 14,020 reported cases from 2013 to 2022. The dengue incidence rate varied from 14.65 per 100,000 population in 2021 to 112.22 per 100,000 population in 2016. Over the span of 10 years (2013-2022), there were a total of 37 deaths, with the highest number recorded in 2016, at 7 deaths. The case fatality rate, CFR, ranged between 0.12% and 0.75%[10].

Dengue remains a significant public health challenge in Malaysia. Dengue epidemics in the country require continuous surveillance and sustained vector control efforts. Dengue mortality rates are notably higher due to factors like population density, urbanisation, and healthcare access. To reduce outbreaks, targeted interventions such as vector control, public awareness campaigns, and strengthening healthcare infrastructure are essential, especially in high-risk areas[11].

3.1.2 Portugal

On 18 February 2025, the Regional Health Authority of Madeira (RAM) confirmed the detection of two locally acquired cases of dengue with symptom onset in January 2025. No further suspected cases have been identified[12].

In the third week of January 2025, entomological investigations confirmed the presence of dengue in mosquitoes captured on Madeira. No further positive detections in mosquitoes were made thereafter.

3.1.3 Pan American Health Organization/World Health Organization updates

The occurrence and magnitude of dengue outbreaks are usually associated with the introduction or increase in circulation of a serotype other than the one that previously predominated in an affected region. In the latest update from the Pan American Health Organization/World Health Organization (PAHO/WHO), Member States were urged to prepare for an increase in cases of DENV3 and ensure early diagnosis and timely care for dengue and other types of arboviruses. This will prevent severe cases and deaths associated with these diseases. This caution was given based on the observed increase in the circulation of DENV-3 in the southern hemisphere of the Americas Region during the peak dengue season in 2023/2024.[13,14]

The reappearance of a serotype that did not circulate in the last decade, such as DENV-3, combined with the increase in the susceptible population, not only increases the probability of severe cases of dengue, but it could also cause epidemics that overload health services, exceeding their capacity to respond. The risk of DENV-3 circulation in the Americas Region is high due to the widespread distribution of mosquito vectors, human mobility, and partial (and in many areas, absent) immunity in the populations.

The guidelines offered for national authorities are simplified as follows:[14]

- *Surveillance*: Continued epidemiological surveillance and the reporting of suspected and confirmed cases of dengue and other arboviruses (chikungunya, Zika, and Oropouche).
- *Case management*: Measures to ensure adequate clinical management of suspected cases should be a priority. Healthcare workers should be appropriately trained before the first deluge of cases occurs.
- *Adequacy of healthcare services*: Healthcare services provide a timely and correct response to the population at all levels of care.
- *Laboratory diagnosis*: A clear laboratory algorithm allows for early detection. Laboratory results should be analysed with clinical information and according to epidemiological context, for surveillance purposes and not for clinical decision-making.
- *Genomic surveillance and characterisation of DENV-3*: Dengue genomic surveillance plays a crucial role in monitoring the evolution, transmission, and spread of different serotypes and genotypes of DENV.

- *Aedes mosquito prevention and control measures*: Can be achieved through the implementation of integrated entomological surveillance and vector control strategies.
- *Personal prevention measures*: Communicate with the public about the risk of transmission and ways to prevent the disease (and virus) by reducing the vector population and contact between the vector and people.
- *Communication and community engagement*: Establishing and implementing a rapid communication action plan focused on the prevention formation of and elimination of mosquito breeding sites, and information on symptoms and warning signs of dengue for epidemiological investigations.

4.0 Rabies

India, human death

An 11-year-old boy from Kerala died due to rabies infection on 11 February 2025. He had been undergoing treatment at a private hospital since 6 February 2025 after he developed symptoms seen in human cases of rabies. Investigations revealed that he was bitten by a stray dog two weeks earlier while out riding on his bicycle. The boy did not inform his family about the incident, and since there were no significant injuries, the attack went unnoticed[15].

5.0 African swine flu

5.1 Malaysia

The latest ASF outbreak in Malaysia has significantly impacted the pig farming industry in Selangor. Reports indicate that approximately 76,000 pigs in the Kuala Langat and Sepang districts have tested positive for ASF.[16] The outbreak was first detected in late January 2025 when authorities received complaints about infected pigs. Following tests conducted between 24 – 25 January 2025, pigs from two farms in these districts were confirmed to be infected. Additional surveillance on 5 February also confirmed positive cases in Kampung Tumbuk, Kuala Langat.[17]

In response to the outbreak, the Selangor Veterinary Services Department (DVS) initiated containment measures, including the culling and disposal of infected pigs. As of 25 February 2025, around 1,868 infected pigs had been culled to prevent further spread.

Authorities have also imposed quarantine measures and enhanced biosecurity protocols on affected farms.[18]

While ASF poses no risk to humans, the outbreak has caused economic strain on the pig farming industry. The Selangor state government and veterinary and agricultural agencies are working to control the situation and prevent the virus from spreading to other regions.[16,19]

5.2 Laos

The African Swine Fever (ASF) was detected in Xaysomboun Province, Laos, with confirmed cases in Vang Hai village. Authorities designated Vanghai village in Thathom district as a red zone, while nearby Pakyong village and Thasy village were classified as yellow zones. Surveillance was expanded to 24 villages in Thathom district, where farmers were instructed to report any pigs showing symptoms such as high fever, red spots on the skin, or sudden deaths. Officials emphasised biosecurity measures, movement restrictions, and sample testing to prevent further spread of the disease. ASF continues to threaten pig production in Laos, impacting local livelihoods and food security.[20,21]

5.3 The Philippines

An ASF-like disease has killed over 100 pigs in Catarman, Northern Samar, Eastern Visayas affecting 50 backyard raisers. The municipal government reported that the pigs displayed ASF symptoms, but confirmation is pending. Authorities have restricted the movement of live pigs and pork products from affected areas, and quarantine checkpoints have been established. The National Meat Inspection Service reaffirmed that ASF does not pose a risk to humans. Officials continue monitoring to prevent further spread.[22]

The Philippine government has started distributing ASF vaccines to both commercial and backyard hog raisers. The Department of Agriculture (DA) has received 150,000 doses of ASF vaccines, which are currently being administered. The agency plans to expand the program with an additional 490,000 doses arriving in batches throughout the first half of 2025.[23]

This vaccination effort follows the initial government-controlled inoculation conducted in August 2024 in Lobo, Batangas, which was an ASF outbreak site. The goal is to curb the spread of ASF and stabilise pork prices.[24] The DA is also modifying its ASF zoning system to allow pork transport from ASF-affected areas, provided that the hogs test negative for the disease. The commercial rollout of the vaccine is expected by March 2025.[23]

5.4 Indonesia

Sikka Regency on Flores Island is facing a concerning outbreak of African Swine Fever (ASF), resulting in the deaths of 356 pigs between October 2024 and February 2025. The Sikka Regency Agriculture Service has identified 7 affected sub-districts, with Talibura experiencing the highest mortality rate at 128 pigs. Other significantly affected areas include West Alok Sub-district (115 pigs), Palue (80 pigs), Alok (11 pigs), Kangae (10 pigs), Nita (4 pigs), and Magepanda (3 pigs). Officials from the Sikka Agriculture Service attribute the escalating pig deaths to a lack of adherence to government guidelines by local pig farmers. In Palu'E sub-district, the absence of animal health personnel has resulted in a lack of official data regarding the number of pigs that the ASF virus has infected.[25–27]

5.5 Bhutan

An ASF outbreak has been confirmed in Zangkhaphug village, Tsento Gewog, Paro Dzongkhag, Bhutan, following reverse transcriptase polymerase chain reaction (RT-PCR) testing on 8 February 2025, revealing 11 infected pigs across two households. The Ministry of Agriculture and Livestock has identified poor farm biosecurity, inadequate farming practices, and the feeding of uncooked kitchen and restaurant waste as primary factors contributing to the outbreaks, despite repeated advisories for improved pig farm management. Furthermore, the ongoing illegal importation of pork and pork products poses a significant threat, with the Bhutan Food and Drug Authority (BFDA) having collected Nu 10.6 million in fines to date. The Ministry urgently appeals to the public and hoteliers to cease illegal importations and to report any suspected cases immediately via the toll-free number.[28]

5.6 Research Update: Spread and seasonal patterns worldwide

Recent years have seen a concerning spread of ASF across 5 continents, with time series analysis revealing increasing outbreak trends in Europe and Asia. Europe experiences heightened ASF outbreaks during summer and autumn (July, August, and October). Notably, wild boar accounts for a substantial 78.0% (25,017) of all reported outbreaks in Europe, exhibiting a unique seasonality with peaks in winter (December, January, and February) and a secondary peak in summer (July). In contrast, domestic pig outbreaks in

Europe primarily concentrate during the summer (July and August) and autumn (October) seasons. Poland and Romania stand out as the most heavily impacted European

nations, collectively contributing 57.8% of the continent's total reported outbreaks, with Poland accounting for 35.3% and Romania for 22.5%.[29]

In Asia, outbreaks peak in February and March, correlating with post-Chinese New Year activities and increased pork demand. Domestic pig outbreaks in Asia tend to occur in the early months of the year (February and March), the third quarter and early fourth (August, September, October, and November), with a dip in July and December. China reports a predominance of domestic swine outbreaks, accounting for 97.2% (209) of the country's total. Conversely, South Korea is the primary source of wild boar outbreak notifications in Asia, representing 96.5% (1,690) of the continental total.

Seasonality in Europe is linked to human movement and wild boar behaviour, while in Asia, it's tied to post-holiday pork consumption. The recent spread to the Caribbean in 2021-2022 raises alarms for the Americas, highlighting the disease's expanding reach and the urgent need for enhanced biosecurity measures.

6.0 Avian/zoonotic influenza

6.1 Highly pathogenic avian influenza A(H5N1)

6.1.1 The US

6.1.1.1 Genotype D1.1 species jump

6.1.1.1.1 Study findings: Genetic analysis of H5N1 virus in cattle

A recent study published by the US Centers for Disease Control and Prevention (CDC) analysed the genetic characteristics of the H5N1 virus found in dairy cattle. Researchers discovered that this virus has adapted to replicate efficiently in bovine hosts, a significant development given that avian influenza typically does not affect cattle. The study suggests that the virus could mutate further, potentially increasing its ability to infect other species, including humans. Continuous surveillance is recommended to track any changes in the virus's behaviour and impact.[30]

This new strain referred to as the D1.1 genotype raises concerns about its potential transmission to humans, particularly through unpasteurised milk. Some farmworkers who had contact with infected cattle have shown mild symptoms, such as conjunctivitis (pink eye), though the overall public health risk remains low. Health officials are closely monitoring the situation and urging caution around unpasteurised dairy products.[31]

6.1.1.1.2 Confirmation of D1.1 genotype in dairy cattle

The US Department of Agriculture (USDA) has officially confirmed that the D1.1 genotype of H5N1 bird flu is present in dairy cows in Nevada. This is the first documented case of this genotype in cattle. While there is no evidence of widespread transmission to humans, officials are implementing measures to prevent the spread, including restricting the movement of affected livestock and increasing biosecurity protocols on farms.[32]

6.1.1.1.3 Implication on D1.1 genotype: Risks and advances in treatment

The spread of the H5N1 D1.1 genotype in dairy cattle raises concerns about potential mutations that could increase human transmissibility and severity, though its full impact remains uncertain. Viral shedding in milk suggests a new transmission risk, emphasising the need for surveillance.

Meanwhile, the monoclonal antibody FNI9 shows promise in treating severe H5N1 infections, offering a potential therapeutic option alongside existing antiviral measures. As the virus continues to evolve, a combination of monitoring, prevention, and treatment strategies will be essential to mitigate future risks.

6.1.1.2 Cases

The USDA's confirmation of new H5N1 avian flu cases in Nevada dairy herds (as mentioned above) has prompted state and federal officials to expand disease control efforts. Authorities are removing non-native European starlings in multiple counties, as the birds can spread the virus to livestock through contaminated food and water. Additional outbreaks have been reported in US poultry farms and wild bird populations. Meanwhile, investigations of a recent human case in the UK involved mild symptoms linked to an avian strain distinct from US variants (see **Section 6.1.6.2**).[33]

6.1.1.3 The Centres for Disease Control updates

The US Centers for Disease Control (CDC) has confirmed that 70 people in the US have been infected by avian flu. So far, person-to-person spread of the H5 virus has not been identified. The latest update on the H5N1 bird flu outbreak, as of February 26, 2025, states that the overall risk to the public remains low. However, individuals with frequent exposure to infected animals – such as farm workers, veterinarians, and backyard flock owners – face a higher risk, particularly if they do not use proper protective equipment. [34]

Key points from the CDC's response are summarised as follows:[34]

- *Virus Transmission*: No evidence of sustained human-to-human transmission has been detected in the US. However, the virus continues to spread among wild birds, poultry, and some mammals, including dairy cattle.
- *Disease Severity*: Most reported human cases have been mild; however, a few severe cases have been observed, including one fatality in Louisiana. The CDC is monitoring whether changes in the virus may be responsible for increased severity.
- *Case Distribution*: Infections in humans have been so far linked to direct animal exposure. The CDC is watching for signs of broader community transmission.
- *Genetic Changes*: No significant mutations have been found that would increase infectivity in humans. The effectiveness of current diagnostic tests and antiviral treatments remains stable.

The agency is prepared to adjust its response if conditions change, including modifying protective guidance, securing additional treatments and vaccines, and potentially rolling out a voluntary H5 vaccination program for at-risk populations

In its risk assessment, the CDC has outlined its strategic priorities for managing the ongoing outbreak of H5N1, particularly in dairy cattle and humans. While the agency reiterates that the virus has not yet demonstrated efficient human-to-human transmission, continued monitoring is essential due to its potential for rapid evolution.

The key objectives of the strategy include:[35]

- Preventing infections in people exposed to the virus (such as dairy workers and those handling infected animals).
- Understanding the clinical, virological, and epidemiological characteristics of H5N1 infections in humans through surveillance and laboratory research.
- Preparing for potential pandemic scenarios by assessing the virus's ability to adapt to human transmission and ensuring vaccine readiness.

The document also highlights the importance of global collaboration between public health and animal health organisations to track the virus in wild birds, poultry, mammals, and humans. The CDC works closely with the World Health Organization (WHO) and other international partners to guide preparedness efforts.[35]

6.1.1.4 Outbreaks update and its growing impact

The latest *New England Journal of Medicine (NEJM) Outbreaks Update* discusses the ongoing H5N1 avian influenza outbreak in the US, detailing its effects on poultry, cattle, cats, and humans. The H5N1 virus, a highly pathogenic influenza A virus, has spread widely, with two major strains (2.3.4.4B clade: D1.1 and B313) currently circulating in the

US. Poultry suffers nearly 100% mortality when infected, while dairy cattle have been significantly affected since early 2024, spreading the virus across 17 states. Infected cattle shed the virus in milk, raising concerns about oral transmission, particularly for humans and pets like cats.

Although over 70 human cases have been reported, most were mild, with two severe cases linked to the D1.1 strain. Transmission occurs primarily from wild birds to poultry and cattle, with humans suspected of facilitating spread between farms. Preventive measures such as pasteurisation, poultry culling, and vaccine development for both poultry and cattle are ongoing, though regulatory challenges remain.

The outbreak has driven up egg prices due to high mortality in laying hens, while chicken and beef supplies remain stable. The discussion highlights the increasing ability of H5N1 to infect mammals, stressing the need for continued monitoring to mitigate future risks.[36]

6.1.2 Taiwan, wild birds

The World Organisation for Animal Health (WOAH) has reported an ongoing outbreak of H5N1 in Taipei, affecting wild birds.[37] The outbreak was first detected on 6 November 2024 and was confirmed on 9 November 2024. It has been classified as a recurrence of an eradicated strain (type not mentioned), raising concerns among authorities about its resurgence in the region.

Among the affected wildlife, 66,000 black-faced spoonbills and 11 eastern grass-owls have been reported as susceptible. The latest confirmed cases were detected in Guanmiao District, Tainan City, with previous outbreaks also recorded in Annan District, Budai Township, and Qigu District. The Veterinary Research Institute (VRI) confirmed the presence of the H5N1 virus through RT-PCR testing and gene sequencing.

Authorities have implemented several control measures to contain the spread of the virus. Surveillance has been intensified both within and outside restricted zones, and disinfection efforts are underway at affected sites. Zoning measures have been applied to limit further transmission, and screening will be conducted to monitor the outbreak more closely.

While the source of the infection remains unknown, officials have placed poultry farms within a 3 km radius of the sampling site under strict surveillance for 28 days. With the outbreak still classified as ongoing, authorities continue to assess the situation and implement necessary containment strategies.[37]

6.1.3 Japan, ongoing

Since the beginning of 2025, Japan has been facing a "surge" in avian influenza cases, causing widespread concern nationwide. In January alone, an alarming 5.4 million chickens and other birds were culled to control the outbreak. The Ministry of Agriculture, Forestry, and Fisheries (MAFF) reported 43 outbreaks for the fiscal year, with Chiba Prefecture being the hardest hit, culling 2.5 million birds. The outbreak has also impacted egg prices, with retail prices rising 16% compared to previous years.[38]

Additionally, Japan has reported an ongoing outbreak of H5N1 in poultry. The latest World Animal Health Information System (WAHIS) *Follow-up Report 18* documents outbreaks in Morioka and Choshi cities, where increased mortality was detected in layer farms.[39] Testing by local Livestock Hygiene Service Centres (LHSCs) confirmed the H5N1 subtype, leading to movement restrictions within 3 to 10 km of affected areas. Control measures, including disinfection, screening, and stamping out, have been implemented. Over 5.4 million birds have been culled so far as the Japanese authorities continue surveillance and containment efforts to prevent further spread.[39]

6.1.4 South Korea, poultry

The Central Disaster and Safety Countermeasures Headquarters for Highly Pathogenic Avian Influenza (AI) announced the outbreak of a highly pathogenic (HPAI) H5N1 AI at a native chicken farm in Gunsan, Jeollabuk-do on 8 February 2025. This was the 34th case to occur in poultry farms nationwide during the winter of 2024-2025. An emergency response team was sent to the farm to control access, including taking quarantine measures such as culling and epidemiological investigation. A temporary movement ban was issued to all native chicken farms and related livestock facilities and vehicles nationwide until 9 February 2025. Detailed inspections of 216 poultry sales outlets in traditional markets nationwide, 86 poultry farms, and 125 related vehicles were conducted by the Central Disaster and Safety Countermeasures Headquarters up until 18 February. Authorities have further decided to ban the distribution of live poultry in traditional markets located in areas with an epidemiological connection to the outbreak farm until 10 February.[40]

6.1.5 India, outbreak in veterinary college and infection in cats

The HPAI H5N1 has been confirmed in the samples of chickens tested at the poultry farm of Birsa Veterinary College in Rachi, Jharkhand state. An outbreak has resulted in the death of approximately 150 Guinea fowls housed there. Active surveillance of poultry farms within a 10 km radius of the affected farm by the Animal Husbandry Department

follows. The remaining chickens at the farm will be disposed of by the Rapid Response Teams (RRT). The team is also responsible for cleaning and disinfecting the affected farm. Other mitigation measures include the banning of bird sales in the region.[41,42] No reports of the incident were found in WOAH.

The news of an H5N1 outbreak is a setback for the country whose self-declaration stating that it is free from HPAI was approved by the WOAH in October 2023.[43,44]

In February 2025, the HPAI avian influenza A(H5N1) was reportedly detected in samples collected from cats in Chhindwara district, Madhya Pradesh; neither the clinical symptoms associated with the infection nor the genotype was specified. It was also not known if the animal was domesticated or semi-feral. Family members involved with the case were kept under quarantine as per protocol. The sale and consumption of chicken and mutton within a 1 km radius of the case was banned for 30 days with shops in the area ordered to shut down. Poultry products available in the area have been destroyed. The remaining part of the town within a 10 km radius was placed under surveillance.

6.1.6 Human H5N1 cases, global

6.1.6.1 Cambodia, fatal

The Ministry of Health of the Kingdom of Cambodia in a statement on 26 February 2025 stated that a 2-year-old child had died from the H5N1 avian influenza. Investigations revealed that 15 chickens on the deceased family's farm had died with several more sick, and that the child had been sleeping and playing under the house near the chicken coop.[45] According to the WHO's update on influenza, this case had an onset date of 1 January 2025.[46]

Emergency response teams from the Ministry of Health have been collaborating with the teams of the provincial departments of agriculture and local authorities to investigate the outbreak and respond according to the necessary protocols. This includes continuing to search for sources of infection in both animals and humans, and continuing to search for suspected cases and contacts to prevent further transmission of the virus to the rest of the community. Concurrent with the distribution of antivirals (Tamiflu) to close contacts, authorities conducted a health education campaign for citizens in the villages where the incident occurred.[45]

6.1.6.2 The UK, active surveillance

One human case, reported on 28 January 2025, is the first since 2023 when surveillance detected infection from poultry workers.[47] The case was detected after the Animal and

Plant Health Agency (APHA) identified an outbreak of avian influenza A(H5N1) in a flock of birds. The patient had prolonged contact with infected poultry on a farm, and had mild respiratory symptoms and irritated eyes. One symptomatic household member tested negative, and health officials are tracing other contacts and offering antiviral medication to those at high risk.

The H5 strain that has affected the individual is the DI.2 genotype, a strain of the virus that has been circulating in UK birds this season and is distinct from genotypes circulating in the US. The UK's strain was also found nearly identical to a strain collected in the middle of January 2025 from a UK chicken.

According to the UK Health Security Agency (UKHSA), there is no indication of onward transmission related to the case and the risk of avian flu to the general public remains very low. The public was reminded not to touch sick or dead birds. It is also important that the public follow the Department of Environment, Food and Rural Affairs (DEFRA) advice about reporting any suspected avian influenza cases.[47,48]

6.1.7 Update from the World Health Organization

Globally, from 1 January 2003 to 20 January 2025, 964 cases of human infection with avian influenza A(H5N1) virus were reported from 24 countries. Of these 964 cases, 466 were fatal (CFR of 48%). Out of the 964 cases, a total of 262 cases have been reported from 5 countries within the Western Pacific Region (Australia, Cambodia, Laos, Viet Nam and China). One hundred and forty-three of the 262 cases died giving a case fatality rate (CFR) of 55%. [46]

The WHO maintains that a risk for sporadic infection and small clusters of human cases due to exposure to infected poultry or contaminated environments is not unexpected. Evidence has pointed out that the influenza A(H5) viruses circulating have not acquired the ability to efficiently transmit between people, therefore sustained human-to-human transmission is currently considered unlikely for now.[46]

The zoonotic threat remains elevated due to the spread of the viruses among birds. However, the overall pandemic risk associated with A(H5) is considered to not have significantly changed in comparison to previous years. The WHO recommends that Member States remain vigilant and consider mitigation steps to reduce human exposure to potentially infected birds to reduce the risk of additional zoonotic infection.[46]

6.1.8 World Organisation for Animal Health update

Together with the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (WOAH) on 21 February 2025 unveiled a new 10-

year strategy aimed at preventing and controlling high pathogenicity avian influenza (HPAI). This was done in response to the evolving global ecological and epidemiological landscape of the disease.[49]

The Global Strategy for the Prevention and Control of High Pathogenicity Avian Influenza (2024–2033) replaces the previous framework established in 2008 and is set to guide efforts to mitigate the impact of the disease over the next decade.[50] With a vision to establish effective prevention and control measures within poultry value chains, the strategy seeks to protect domestic animals, wildlife, the environment, and human health. It aligns with broader efforts to sustainably transform agrifood systems while reducing disease risks.

The revised global strategy emphasises:

- Strengthening biosecurity measures to minimise transmission and outbreaks.
- Enhancing surveillance systems to detect and monitor the spread of the H5Nx goose/Guangdong (Gs/GD) lineage of HPAI.
- Promoting the sustainable transformation of poultry production to support resilience against disease threats.
- Encouraging cross-sectoral collaboration through the One Health approach, integrating veterinary, environmental, and human health expertise.
- Engaging both public and private stakeholders to ensure coordinated efforts in controlling HPAI.
- The strategy also underscores the importance of securing commitments from governments, industry leaders, and international organizations to ensure its effective implementation.

6.1.9 Study findings: Antibody therapy shows promise against severe H5N1 in monkeys

A recent study found that an antibody therapy effectively prevented severe H5N1 avian influenza in monkeys. The treatment, a monoclonal antibody called FNI9, was able to neutralise the virus and reduce lung damage when administered after infection. The research demonstrated that the antibody could be a promising candidate for treating H5N1 infections in humans, particularly given the growing concern about the virus's potential to spread. Scientists believe this approach could complement existing antiviral drugs and vaccines, offering an additional layer of protection against severe disease.[51]

6.2 Other avian influenza (HyNy) reports

6.2.1 H7N8

Australia, domestic poultry farm outbreak

On 21 February 2025, one new outbreak of HPAI H7N8 was reported in domestic poultry farms in Victoria, with 25 new cases and 23 deaths, and 175,185 birds killed and disposed of. [46] The outbreak began on 3 February 2025. Biosecurity controls (quarantine) have been implemented on the farms. A detailed surveillance plan has been implemented and epidemiological investigations and tracing have progressed.[52]

6.2.2 H9N2

Hong Kong, human cases

Two cases of human H9N2 avian flu infections were reported from Hunan province in the southern part of China. One of the patients is a 2-year-old boy whose symptoms began on 27 December 2024, which would raise the total for 2024 to 18. The second patient was a 15-year-old boy whose symptoms began on 8 January 2025, the first H9N2 case of the new year. [53]

6.2.3 H10N3

China, human cases

A 23-year-old obese female was the fourth case of the rare H10N3 avian influenza reported worldwide and the first case in Guangxi. She had been critically ill and has since recovered. She had had a history of contact with live chickens in the vegetable market and parrots in the flower and bird market in early December 2024. Her symptoms (fever, cough, and difficulty breathing after activities) which began on 12 December 2024 worsened and she fell into a coma while waiting for medical treatment at a hospital 10 days after symptom onset. [53,54]

7.0 Other diseases/current outbreaks

7.1 Sudan (Ebola) virus, Uganda

Following the declaration of the Sudan virus disease outbreak on 30 January 2025, a total of 9 confirmed cases, including one death, have been reported from Uganda (case fatality rate, CFR, of 11%). Eight cases received care at treatment centres in the capital, Kampala, and in Mbale, and were discharged on 18 February after two negative tests 72

hours apart. Cases ages range from 1.5 to 49 years, with a mean age of 27; males accounted for 56% of the total cases. As of 20 February 2025, 58 contacts that have been identified are still under follow-up in designated quarantine facilities located in Jinja, Kampala and Mbale.[55]

7.2 Marburg virus disease, United Republic of Tanzania

Since the outbreak was declared on 20 January 2025, and as of 10 February 2025, a cumulative two confirmed cases and 8 probable cases have been reported by the Ministry of Health. All 10 died, including 8 who died before the confirmation of the outbreak. The presumptive index case, an adult female, had symptom onset on 9 December 2024; she died 7 days later, on 16 December 2024. The median age of cases was 30 years (range: 1 to 75 years). The majority of cases, 70% (n=7) were females. Cumulatively, 90 suspected cases were reported between 20 January and 10 February, all of which tested negative for Marburg Virus Disease (MVD). The epicentre of the outbreak is in the Biharamulo district in the Kagera region. As of 10 February 2025, all 281 contacts that were listed and under monitoring have completed the 21-day follow-up. Fruit bats, the zoonotic reservoir for MVD, are endemic in the country.[56]

7.3 Unknown disease, Democratic Republic of Congo (DRC)

The Democratic Republic of the Congo (DRC) reported two clusters of unexplained community deaths within the first two months of 2025. The first event occurred at Boloko, Bolomba Health Zone (between 10 – 27 January 2025) and the second in Ekoto, Basankusu Health Zone (between 9 – 25 February 2025). The WHO found no evidence linking the two outbreaks despite both areas being within the Equateur Province; the two health zones are separated by approximately 175 km of challenging terrain.[57]

Boloko documented 12 cases with 8 deaths. The cause of death remained undetermined. Initial tests ruled out Ebola and Marburg infections. The outbreak may be linked to severe malaria.[57] Multiple sources reported that the first victims (three kids) involved in the outbreak consumed meat from wild bats and died 48 hours later due to haemorrhagic fever. This raised some concern that a haemorrhagic fever virus, endemic in some of these creatures, had led to the outbreak.[58–60]

In Ekoto, an initial cluster of 24 deaths with unknown origins was reported on 9 February 2025 from a single village in Ekoto Health Area. As of 25 February, 1,318 suspected cases and 53 deaths have been documented. Peculiarly, the mysterious disease disproportionally affected adolescent and young adult males.[57] The median time from symptom onset to death is one day, while the mean is two days. Symptoms of the disease include fever, chills, headaches, muscle aches, abdominal pains, diarrhoea, sweating,

dizziness, shortness of breath, agitation, and others. The broad case definition coincides with many other infections, including malaria, meningitis, viral infections, and toxin shock syndromes. The prevalence of various febrile diseases in the region complicated disease aetiology and detection.[57,58]

The definitive cause of the mysterious outbreak remained undetermined. Similarly to the Boloko event, the initial test results for Ebola and Marburg viruses are negative. Approximately half of the cases also tested positive for malaria, which is not surprising as the disease is hyperendemic in the DRC. Current hypotheses suggest chemical poisoning or rapid onset of bacterial meningitis. Additional laboratory testing and field investigation are ongoing.[57]

The event was classified as a clustered, localised outbreak, with a rapid decline in death incidence after the initial cluster. The event is not spreading in time or place; thus, the WHO assessed moderate risk to the affected communities while low risk at the national, regional, and global levels.[57]

7.4 Leprosy, Malaysia

Negeri Sembilan reported 9 cases of leprosy including one death in mid-February 2025. These cases involved individuals from 5 families in two Orang Asli villages, Kg Chergun and Kg Guntur, in Kuala Pilah. The deceased was an 18 year old female from Kg Chergun. To control the spread of the disease, state authorities quarantined the villages and closed the nearby Jeram Tengkek Ecopark to the public indefinitely. Investigations are ongoing to determine the cause of the spread. As of 22 January 2025, an estimated 65% of the villagers had completed health screenings. Additional screenings are planned to achieve full coverage and promptly address any new cases. Kementerian Kesihatan Malaysia (KKM) reports that this localised outbreak is happening amid a nationwide rise in leprosy cases. In 2023, 256 new cases were reported, a 40% increase from the 183 cases recorded in 2022. KKM attributes this surge to enhanced targeted case detection efforts, aligning with the World Health Organization's (WHO) goal of achieving zero local leprosy cases by 2030. [61,62]

7.5 Measles

7.5.1 The US

As of 6 March 2025, 222 measles cases have been reported in 12 US jurisdictions this year; 201 occurred in New Mexico and Texas. Most cases are among children who had not received the MMR vaccine. There have been three outbreaks (three or more related cases) and 93% of these reported cases are associated with the outbreaks. The outbreak caused two deaths: an unvaccinated child and an unvaccinated adult. These are the first deaths caused by measles in the country since 2015. In comparison, 16 outbreaks and 285 cases were reported in the country during 2024; however, only 69% of cases were outbreak-associated.[63]

The incubation period for measles is usually about 7–10 days from exposure to fever. The symptoms of measles infection begin with fever, cough, runny nose, and conjunctivitis (pink eye), followed by rash onset in 2-4 days. The total incubation period, from exposure to rash onset, may range from 7 to 21 days. Measles infection may deteriorate into severe complications such as pneumonia, encephalitis (brain inflammation), and death.[63]

The measles virus is highly contagious and transmitted through direct contact with infectious droplets or by airborne spread when an infected person coughs, breathes or sneezes. The virus may remain infectious in the air or on surfaces for up to 2 hours after an infected person leaves an area. Infected people will turn contagious from 4 days before the rash manifests through 4 days afterwards.[63]

Measles-mumps-rubella (MMR) vaccination remains the most effective preventive measure. No antiviral therapy is available for measles. Medical care helps relieve symptoms and address clinical complications, for example, pneumonia or secondary bacterial infections. According to the American Academy of Paediatrics, Vitamin A may be administered to infants and children with measles as part of supportive management.[63]

The risk of widespread measles remains low in regions with robust immunisation programs, high vaccine coverage, and sufficient surveillance programs.

7.5.2 Canada

As of 15 February 2025, Canada has reported a total of 106 measles cases, 96 of which are confirmed and 10 probable. An estimated 78% of the confirmed cases occurred in non-vaccinated individuals. Furthermore, official reports stated that 91% of cases were epidemiologically and/or virologically linked to exposure from within the country. Measles has been eliminated in Canada since 1998, and therefore endemic transmission no longer occurs in the country. However, sporadic cases continue to occur, usually due

to importation from regions where the disease circulates. Some imported cases result in time-limited outbreaks. From 1998 to 2024, an average of 91 measles cases were reported in Canada annually, with between 0 and 751 cases reported each year.[64]

7.5.3 Spain

An outbreak involving three children was reported in early February 2025 in Costa Del Sol. Health officials believe the cases were linked as the children attend the same nursery. Investigations revealed that all three children were not vaccinated against the disease. Control measures on cases and contacts have been carried out following the country's measles surveillance and alert protocol. This includes monitoring all close contacts for 23 days after their last contact with the positive cases. Earlier in January 2025, cases were reported from the Basque country which mainly involved young adults between 25-45 years of age, citizens of foreign origin and healthcare workers who tended to the first cases there.[65]

7.5.4 Australia

Following a rap concert/show in Perth in early February 2025, concertgoers were put on an alert after a person with measles attended the performance. The confirmed case, the first to be reported in Western Australia this year, was a traveller who had returned from Bali and had also made several stops in the city. According to reports, 9 locations, including the concert venue, were listed as exposure sites. Anyone who has visited the locations on the list was to monitor for symptoms. Those who presented with symptoms were urged to call their general practitioner's office or a hospital emergency department to warn staff of their exposure before seeking help and help minimise exposure to people (medical and patients) in these medical facilities.[66]

The Department of Health at the Victoria state announced an outbreak of measles after two new cases were reported. These cases are not related to overseas travel or had known contact with other measles cases. Investigations found both were infectious at multiple locations in Melbourne and Bendigo between 19 – 26 February 2025. The department listed 21 active public exposure sites in the state and advised those who attended these sites during specified periods should monitor for symptoms and seek immediate care if symptoms develop within 18 days. As of 3 March 2025, 8 cases of measles have been identified in the state in 2025. [67,68]

7.5.5 Other Regions

Measles outbreaks occur in every region of the world. The top 10 countries with reported measles outbreaks (July to December 2024) were Pakistan, Thailand, India, Yemen, Ethiopia, Afghanistan, Indonesia, the Russian Federation, Kyrgyzstan, and Vietnam.[69]

8.0 Mpox

8.1 Clade I cases

8.1.1 The US

On 7 February 2025, the New Hampshire Department of Health and Human Services (DHHS) reported a case of Clade I mpox. The person had travelled to Eastern Africa, where there is an ongoing outbreak of Clade I mpox. The individual's illness has not posed any current risk to the public and was likely related to their recent travel. There is no evidence of Clade I mpox virus (MPXV) spreading from person to person in New Hampshire or within the US. This is the first Clade I mpox diagnosis in New Hampshire and the third Clade I mpox diagnosis in the US. Investigations were held to identify close contacts with the individual. To date, no public locations have been identified where exposure may have occurred.[70,71]

Another case was confirmed by the New York State Department of Health on 11 February 2025. This Clade Ib case is the first such case in New York adding to the global concerns over the spread of the little-known variant. This is the fourth case of Clade I mpox reported in the US. The other two were reported by California and Georgia previously. [72,71]

According to the CDC, all four cases were separate events and were not linked. Furthermore, the agency stated that a single person or household with mpox is not a cause for widespread concern, since (their) public health authorities can quickly identify, isolate, and treat the person or family, and the risk of spreading to other people and households can be minimised. Rapid response measures, such as contact tracing and vaccination, can effectively stop disease spread in these situations.[73]

8.1.2 Ireland

The Health Service Executive (HSE) has detected one imported case of Clade I mpox. The Irish resident had returned to Ireland following travel to the DRC where mpox is circulating in the community. They are currently receiving specialist care in a hospital in the east of the country. This is the first detected case of Clade I mpox in the country. The case was not unexpected, as small numbers of cases have been seen in Europe and countries outside Africa in people who have travelled from countries where mpox is spreading in the community. The risk to the Irish public remains low. [74]

8.2 World Health Organization update

The Director-General (DG) of the WHO advised that the mpox outbreaks continue to meet the criteria of a public health emergency of international concern (PHEIC) after the third meeting of the International Health Regulations (2005) (IHR) Emergency Committee regarding the upsurge of mpox 2024 on 25 February 2025, an extension from the previous announcement made on 23 November 2024. In parallel with the announcement, a revised set of temporary recommendations applicable to all State Parties experiencing mpox virus (MPXV) transmission for better control and prevention of the disease was issued. In addition to the standing recommendations for mpox, these recommendations will be extended until 20 August 2025.[75]

The key aspects covered include emergency coordination, collaborative surveillance, safe and scalable clinical care, international traffic, vaccination, community protection, governance and financing, research gaps, and reporting on the implementation of temporary recommendations. The full list of the recommendations is available at https://www.who.int/news/item/27-02-2025-third-meeting-of-the-international-health-regulations-2005-emmergency-committee-regarding-the-upsurge-of-mpox-2024-temporary-recommendations.

The WHO maintained the MPXV's risk level in February 2025 as:

- high risk for Clade Ib (spreading in non-endemic regions), and
- moderate risk for Clade Ia, II, and IIb.

Clade Ia and II primarily affect endemic countries, while Clade IIb has been associated with the global mpox epidemic since 2022. Notably, sustained human-to-human transmission of Clade Ia MPXV has been observed in Kinshasa since the second half of 2024 and is linked to a higher risk of spread, which warrants specific caution. [76]

8.2.1 Africa

As of 2 March 2025, the DRC remained the most affected area. The country reported 2,415 laboratory-confirmed cases this year, with four deaths. The outbreak is attributed to two interspersed outbreaks, caused by the endemic Clade Ia and the Clade Ib mpox virus MPXV) which began in 2023 in South Kivu. Uganda and Burundi are the other two African countries heavily affected by mpox, predominantly Clade Ib MPVX. Uganda, which had the second-highest number of cases in 2025 (1,983), also suffered the highest

number of casualties (13 deaths) this year. The African region reported 19,924 laboratory-confirmed cases in 2024 and 5,247 this year. The spread of mpox will surpass 2024 if no effective measure is enforced rapidly.

8.2.2 Clade Ib international spread

As of 7 March 2025, 14 countries outside of the African region reported Clade Ib MPXV-positive cases to the WHO. All cases detected in these countries are linked to travellers. These include the European, Western Pacific, Southeast Asia, Americas, and Eastern Mediterranean regions. All cases are imported, and no community transmission is detected in countries outside of Africa. Three African countries, namely South Africa, Angola, and Zimbabwe, also only reported imported cases. The UK has the highest count at 14 cases, while the rest recorded single-digit cases. The most recent cases reported in March are in Belgium (one adult male) and France (one adult male), with no onward incidences detected.

Implications for Sarawak based on the views of SIDC

To reiterate the WHO, under the current risk assessment, the global public health risk associated with COVID-19 remains high even though evidence suggests a decreasing impact on human health over the last two years. A SARS-CoV-2 infection can still render a person with symptoms worse than the common/seasonal flu. While most people recover from COVID-19 within a month of initial infection, some individuals experience the long-term effects of long-COVID. Reinfections with the SARS-CoV-2 virus can increase the risk of long-COVID. [77,78] For some, a 'non-threatening infection' after COVID-19 can be debilitating, taking away time at school and economic activities.

As COVID-19 and seasonal flu are upon us, we should continue using the basic public health tools that we have learnt during the early days of the COVID-19 pandemic. These include generally maintaining personal hygiene (correct etiquette for coughing and sneezing), masking up when in a crowd, and staying home and seeking medical advice when not feeling well. This collective tool together with having a sense of social responsibility – keeping the environment clean (for example, not littering, ensuring no mosquito breeding sites, *etc.*), and correct use of public facilities (for example, toilets *etc.*) – play a role in helping curb diseases such as the flu and measles from spreading.

Measles is not, and never was, a benign illness. Keeping up to date with vaccinations is important to prevent the spread of vaccine preventable diseases such as measles, COVID-19 and some types of cancers (for example, cancers caused by human

papillomavirus, HPV). While sporadic cases of measles can occur, vaccinations keep outbreaks in check, protect families and communities and spare the health services and their resources from being stretched thin from dealing with this (and other) vaccine preventable diseases.

Leprosy often carries a social stigma. It is caused by the bacteria *Mycobacterium leprae*. The disease affects the skin, the peripheral nerves, the mucosa of the upper respiratory tract and the eyes. Apart from the physical deformity, persons affected by leprosy also face stigmatisation and discrimination. However, the disease is curable and treatment in the early stages can prevent disability. [79] The vaccine for TB, the Bacillus Calmette-Guérin (BCG) vaccine, offers some protection against leprosy and was included for leprosy by the WHO in 2018. [80–82] However, apart from other prevention strategies, better vaccines against leprosy are still needed. Fundamental research about the *M. leprae* is still needed to move forward in designing vaccines against this disease.

In contrast to passive disease surveillance, active disease surveillance conducted by the health services and local councils helps identify diseases that have gone unchecked or gone under-reported, as well as social and public health issues associated with them. This is especially so in rural areas or in minority communities where stretched health services will find it difficult to reach and service. Sarawak envisions to serve all her subjects irrespective of location. Ideally, private-public entities (involving various agencies) can close the gap in health and equity for all in the state. Getting communities' trust is important before starting this journey, and maintaining this trust is key to a sustainable disease surveillance programme. Given time, it is envisioned that TB and other preventable and neglected tropical diseases (NTDs) in the state will be eliminated.

It is exciting that vaccine candidates for TB are being trialled, especially one that only requires one dose. It will be a boon for Sarawak if such a vaccine once proven effective and authorised for use, is available. It will prevent TB in communities that are most affected by the disease, particularly in the rural and hard to reach locations within the (Sarawak's) Territory and neighbouring states and countries. [6] We await the results with much anticipation.

Moving on to avian influenza. More cases of animals other than birds are being recorded in the US and elsewhere globally. The protocol to control the spread of avian influenza is already in place in Sarawak. Active surveillance of farmed animals helps to control the spread of the disease in animals. Reporting 'suspicious' animal carcasses to the authorities (for example, local authorities or Sarawak Forestry Corporation) is a passive

yet good method to monitor the spread of the disease in non-domesticated or farmed animals and wild migratory birds. Members of the public are encouraged to assist in mitigating the disease. Clear and simple instructions on how to do so need to be made, for the effective removal and testing of the dead animal.

The H5N1 virus has evolved to adapt to bovine hosts. So far, none of the human cases reported are linked. Whether the jump of genotype D1.1 will represent more of a risk of increased transmissibility and morbidity/mortality in humans affected by bovine transmission of D1.1 is yet to be determined. So far, cases of avian influenza in humans, from H5N1 or other types meant contact with infected animals For now, minimising the risk of contracting the infection is best. Minimising contact with animals suspected to have been infected with the virus (including pets) can help mitigate the incidences of human cases.

ASF remains a problem in Asia in pig farms and backyard breeders. The importance of biosecurity measures, including movement restrictions, and sample testing prevents the further spread of diseases such as ASF. Therefore, all parties involved with breeding pigs must understand that the lack of adherence to the rules related to biosecurity can in the long term be more costly – the disease will spread further and for longer.

A few fatal human rabies cases in Sarawak were linked to not getting treated on time. Cases of human rabies are preventable if only those affected seek medical attention early post-bite/scratch, and get the necessary rabies post-exposure prophylaxis (PEP, rabies immunoglobulin or monoclonal antibodies) into the wound. Other PEP includes extensive wound washing with water and soap for at least 15 minutes soon after an exposure.[83] This message needs to be repeated numerous times so that everyone in Sarawak irrespective of age or education status knows what to do for animal (dog) bites and scratches.

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