

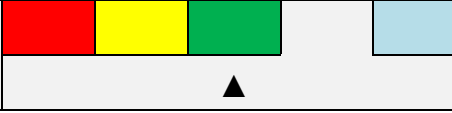
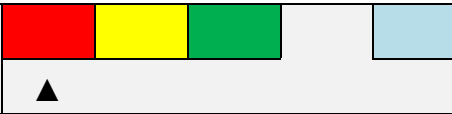


## Infectious Disease Surveillance and Monitoring for Animal and Human Health: summary of notable incidents of public health significance: September 2021

### Incident assessment

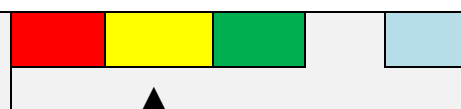
| Deteriorating   | No Change  | Improving  | Undetermined   |
|---|--|--|--|
| Incident is deteriorating with increased implications for public health | Update does not alter current assessment of public health implications | Incident is improving with decreasing implications for public health | Insufficient information available to determine potential public health implications |

| Notable incidents of public health significance  | Incident assessment |  |  |  |
|--|---------------------|--|--|--|
| <b>COVID-19: global summary</b>  |                     |  |  |  |
|  |                     |  |  |  |
| <p>By the end of September 2021, the World Health Organization (WHO) had reported over <a href="#">232 million coronavirus (COVID-19) cases</a> and over 4.75 million deaths globally. The number of new cases reported has been on a downwards trajectory throughout September since a plateau in August. A total of <a href="#">5.92 billion vaccine doses</a> had been administered globally as of 26 September 2021.</p> <p>For further insight, please refer to the following reports:</p> <ul style="list-style-type: none"> <li>WHO's global <a href="#">weekly epidemiological updates</a></li> <li>ECDC's <a href="#">weekly surveillance summary</a> for European countries</li> <li>UKHSA's <a href="#">national COVID-19 surveillance reports</a></li> </ul> <p><b>Updates to note</b></p> <ul style="list-style-type: none"> <li>COVAX continues to work towards guaranteeing global access to COVID-19 vaccines. According to the <a href="#">Global Supply Forecast</a>, COVAX expects to have access to 1.425 billion doses of vaccine in 2021, of which approximately 1.2 billion will be available for lower income economies. Globally, only 20% of people in low- and lower-middle-income countries have received the first dose of a COVID-19 vaccine. This is compared to 80% in high and upper-middle-income countries.</li> <li>On 9 September, the Medicines and Healthcare products Regulatory Agency (MHRA) approved the use of booster doses of Pfizer and AstraZeneca COVID-19 vaccines.</li> </ul> |                     |  |  |  |

|   |  |
|---|--|
| <b>Nipah virus disease, India, Kerala</b>   |    |
| <p>On 4 September, a <a href="#">fatal case of Nipah virus disease</a> was reported in Kozhikode district, Kerala state, India. The case was a 12-year-old boy who presented to a local health facility on 29 August with low grade fever. On 4 September, the presence of Nipah virus was confirmed in samples by the National Institute of Virology in Pune. The case died on 5 September and a safe and dignified cremation was performed the same day.</p> <p>A multi-disciplinary team from the National Centre for Disease Control was sent to the state to provide support. Contacts of the case, including healthcare workers and close family members, were placed under quarantine. None of the contacts developed symptoms consistent with Nipah infection during their follow-up periods.</p> <p>This is the fifth Nipah virus outbreak reported in India. The current outbreak is in an area where a previous outbreak was reported in <a href="#">2018</a>, in which the probable source was bats (<i>Pteropus</i> spp). The source of the 2021 outbreak remains under investigation. The National Institute of Virology, Pune, identified <a href="#">Nipah virus antibodies in samples from 2 species of fruit bat</a> in Kozhikode district. Further testing is ongoing to confirm whether these bats were the source of infection.</p> <p>The WHO consider the current outbreak to be an isolated case, with low risk at a national and regional level.</p> |  |
| <b>Meningitis, Democratic Republic of the Congo (DRC), Tshopo</b>   |  |
| <p>A suspected <a href="#">meningitis outbreak</a> in Tshopo was alerted to the local Health Division of Tshopo in the north-eastern region of the DRC in July 2021. This alert followed an increase in deaths among people presenting with symptoms including fever, headache, and stiff neck, and some with bloody diarrhoea.</p> <p>Testing of samples identified <i>Neisseria meningitidis</i> (Serogroup W) and the DRC's Ministry of Public Health declared a meningitis epidemic on 7 September 2021. All 20 health districts in <a href="#">Tshopo</a> have reported cases. As of 30 September 2021, 1,195 suspected cases of meningitis and 184 deaths have been reported in the <a href="#">media</a>. The WHO are providing support to the national health authorities in incident response.</p> <p>Tshopo is considered to lie within the African meningitis belt. The last meningitis epidemic in Tshopo occurred in November 2009, where there were 214 cases and 18 deaths (case fatality rate of 8%). Passive surveillance was established, and 1.7 million people between the ages of one and 29 years old were vaccinated against meningitis A in 2016.</p> <p>WHO consider there is a high risk of the disease spreading to other health zones and Kisangani, the capital of the province. The risk is considered moderate at the regional</p>   |  |

level, due to cross-border movements with the Central African Republic, but low at the global level.

### Wild polio and circulating vaccine derived polio virus: global update 2021 to date



#### Wild polio virus

[No cases](#) of type 1 wild polio virus were reported by the Global Polio Eradication Initiative (GPEI) in September 2021. In total in 2021, 2 cases have been identified: one case in Pakistan and one case in Afghanistan.

#### Circulating vaccine derived polio virus (cVDPV)

As of 28 September, [11 acute flaccid paralysis \(AFP\) cases of cVDPV1](#) have been reported in 2021: 8 in Madagascar and 3 in Yemen.

As of 28 September 2021, [297 acute flaccid paralysis \(AFP\) cases of cVDPV2](#) have been reported this year across 14 countries. Of these case 152 (51%) were reported from Nigeria, up from 8 cases in 2020. In 2020, a total of 1,073 cases were reported across 24 countries.

#### Other polio updates

A [vaccination campaign](#) in northwest Syria concluded in September, with over 900,000 children vaccinated across the region. The government of Malaysia declared the [polio outbreak in the country to be over](#), after the implementation of successful vaccination campaign. Media have reported an [attack on a polio vaccination team](#) in northwest Pakistan, in which a police constable guarding the workers was shot dead.

In September, the GPEI announced a series of commitments to advance [gender equality](#), including increasing women's meaningful participation and decision making across all levels of the program.

#### Other incidents of interest

##### Anthrax

- In Kyrgyzstan, in the Jalal-Abad region, [7 people](#) in Aksy and [8 people](#) in Suzak, were hospitalised with suspected Anthrax, in September 2021. Cattle in the region were also affected.
- A [case of anthrax](#) was reported in Extremadura, Spain in a veterinarian who had performed an autopsy on a cow. Two other veterinarians were admitted to hospital as a precaution.
- A [case of cutaneous anthrax](#) was reported in Shumen, Bulgaria in a patient who had handled the skin of a dead animal. This is the first case of anthrax to be reported in the country since [2016](#).
- An anthrax outbreak is ongoing in Zimbabwe. As of 12 September 2021 [122 cases](#) have been reported. This outbreak started in 2019 and has mainly affected Buhera and Gokwe North and South districts.

### **Avian influenza A(H5N6), China**

As of [30 September](#), 21 cases of avian influenza A(H5N6) have been reported in mainland China, with 6 cases reported in September.

- On [8 September](#), authorities reported a case in Guangxi, who had contact with domestic poultry before onset of symptoms on 25 August.
- On [17 September](#), a case with prior exposure to poultry was reported in a resident of Hunan Province. The date of symptom onset was 8 September.
- On [23 September](#), a case was reported in a resident of Guangdong. The individual became symptomatic on 13 September. Presence of wild birds and backyard chickens was reported at the case's home.
- On [29 September](#), a fatal case was reported in Guangxi. The individual became symptomatic on 14 August, following contact with live domestic poultry.
- Two cases of avian influenza A(H5N6) were reported on [30 September](#) in individuals from Guangxi and Chongqing Municipalities. Both had exposure to poultry and the latter case was fatal.

### **Influenza A(H1N2)v, France**

On 3 September, an individual residing in Côtes-d'Armor, France, was confirmed to be infected with [influenza A\(H1N2\)v](#) clade 1C.2.4 of porcine origin. The case had been exposed to live pigs before symptom onset. The case was reported to be in good health and no contacts were reported to be symptomatic. This is the first detection of the virus in humans in France.

### **Cholera**

- In Nigeria, [88,563 suspected cases of cholera](#) were detected between 1 January and 26 September 2021. There have been 3,057 suspected deaths (case fatality rate of 3.5%) across 29 states. Cases have been declining since 29 August 2021 and there was a 65% decrease in cases between 19 and 26 September 2021.
- In Niger, as of 27 September, a total of [5,070 cases](#) including 154 deaths (case fatality rate of 3.1%) have been reported. This is an increase of [2,734 cases](#) since reporting on the 28 August 2021. To date, 33 out of 72 health districts have reported cases.
- On 11 September 2021, a [cholera outbreak](#) was declared in Mali. As of 26 September, [11 cases](#), including 2 confirmed cases and 4 deaths have been reported. The outbreak resulted from cross-border transmission from the large-scale outbreak in Niger. The security situation in Mali may make effective control measures more difficult to implement.
- In the DRC, there were [4,671 suspected cases](#) of cholera between 1 January and 12 September 2021. Cases of cholera are reported each year in the DRC. This year's outbreak appears to be of a lower intensity than in previous years which may be attributed to response measures such as strengthening of water-sanitation.

## Dengue

- Several areas in India are reporting a rise in dengue cases. In the north, [Delhi](#), recorded 341 dengue cases during 2021, including 217 in September (63% of the years total). This is up from 266 cases reported over the same period in 2020. In Uttar Pradesh, [Ghaziabad](#), during September 2021, 252 cases of dengue (the highest since 2016) were recorded with an estimated hospitalisation rate of 73.8%. Cases of dengue have increased in 2021 compared to 2020 by 192% in Mumbai and 445% in [Ahmedabad](#). The increase in dengue cases is partly attributed to testing and surveillance programmes returning to normal levels, heavy rainfall and diversion of resources to the COVID-19 response.
- In Bangladesh during 2021, [20,336 patients](#) were admitted to hospital with dengue, with 78 deaths recorded. This is the second highest number of cases reported in a year since the first reported cases in 2000 (2019 had [101,000 cases reported](#)).

## Hepatitis E

- The [hepatitis E outbreak](#) in the Bentiu internally displaced persons camp, South Sudan is ongoing. Since the beginning of the outbreak in 2018, 1,086 cases (104 confirmed) and 9 deaths have been reported (case fatality rate of 0.8%). Between 25 August and 5 September 2021, there were 85 new cases and no deaths. An upsurge in cases in 2021 is thought to be driven by declines in health, water and sanitation services.
- There have been [10 new suspected cases](#) of hepatitis E in Namibia between 21 June and 15 August 2021 (latest available data). There is an ongoing outbreak in the country that began in 2017 with [8,090 cases and 66 deaths](#) so far.
- In Sudan, outbreaks of hepatitis E have been reported in [refugee camps](#), affecting people who have fled the Tigray crisis in neighbouring Ethiopia. Between June and 4 September, [1,156](#) suspected cases of hepatitis E were reported. Of these, 907 were in Gedaref, which is close to the Ethiopian border. The last hepatitis E outbreak in Sudan was in [2004](#), with 625 cases and 22 deaths.

## Hantavirus, Chile

One [case of hantavirus infection](#) was reported by media in Carahue, Chile, on 30 August 2021. Andes orthohantavirus is [endemic](#) to Chile. However, in this case, the hantavirus species was not specified.

## Lassa fever, Guinea

As of 19 September 2021, [8 confirmed](#) cases of Lassa fever have been reported in Guinea, including 7 deaths (case fatality rate of 87.5%). Three cases and 3 deaths were reported in the last month in Yomou, Beyla and N'zérékoré prefectures. Of these latest cases, 220 contacts are being followed up. Lassa fever is endemic in Guinea and surrounding countries, so cases are not unexpected.

### **Marburg virus disease (MVD), Guinea**

On 16 September 2021, the [end of the MVD outbreak](#) in Guéckédou prefecture, N'zérékoré Region, Guinea was declared 42 days after the safe and dignified burial of the only confirmed patient. Only one confirmed case was reported between 3 August and 6 September 2021. The case had symptom onset on 25 July and died on 2 August. This is the first known case of MVD in Guinea and in West Africa.

### **Measles**

- Mali continues to see much higher numbers of measles cases in comparison with 2020. As of 19 September, [1,289 suspected cases](#) including 2 deaths have been identified. In 2020, [682 suspected cases](#) of measles were reported between 1 January and 27 September.
- Between 1 January and 8 September 2021, Central African Republic reported 2,066 suspected measles cases. Although this is a reduction compared to the previous year (28,633 suspected cases in 2020), the [situation remains concerning](#), particularly in the Vakaga health district. As of June 2021, national vaccination coverage was less than 70%.
- Nigeria has reported [10,106 suspected](#) cases of measles between 1 January and 31 August 2021 (latest available data). In 2020, there was a total of 15,099 suspected cases.
- In September, media reported a [suspected case](#) of measles in Asunción, Paraguay. If confirmed, the case would be the first in the country since 1998.

### **Middle East Respiratory Syndrome (MERS), Saudi Arabia**

Cases of MERS continue to be reported sporadically in the Middle East. On 29 September, a [case of MERS](#) was reported in Saudi Arabia, which was since reported to be [fatal](#). The case was a resident of Riyadh city who had contact with camels. This brings the total number of MERS cases reported globally in 2021 to 14 ([13](#) in Saudi Arabia and [one](#) in United Arab Emirates).

### **Monkeypox**

- Cases of monkeypox continue to be reported in Nigeria. In 2021, [79 suspected and 23 confirmed cases](#) have been identified, as of 30 September. No deaths have been reported. This compares to a total of 8 confirmed cases for the whole of 2020.
- In 2021, up to 13 September, [2,592 cases of monkeypox](#) have been reported in the DRC with 69 deaths. In 2020, a total of 6,257 suspected cases including 229 deaths (case fatality rate of 3.7%) were reported.

### **Plague**

- In Ituri province, DRC, [118 suspected plague](#) cases and 13 deaths have been reported in 2021, as of 12 September. In 2020, 461 suspected and 31 deaths were reported in the province.



- Between 29 August 2021 and 16 September 2021, a total of [38 suspected cases](#) of pneumonic plague, including 19 confirmed cases and 6 deaths (case fatality rate of 15.8%) have been reported in the Itasy region, Madagascar. Plague is endemic in Madagascar. A large outbreak in [2017](#) resulted in 2,417 probable and suspected cases and 209 deaths.
- In the United States of America (USA), a case of pneumonic plague was reported in [Wyoming](#) in September 2021.

### **Q fever, Germany**

In September, an outbreak of Q fever occurred in a group of researchers. [Twenty cases](#) were reported in Berlin, Germany following exposure during an animal experiment on pregnant sheep.

### **West Nile virus**

- In Europe, [123 human cases](#) of West Nile virus have been reported in 2021, as of 30 September. Greece (53), Italy (45) and Serbia (15) have reported the highest numbers of cases. In 2020, a total of [336 locally-acquired human cases](#) of West Nile virus were reported in Europe.
- Cases of West Nile virus have continued to be reported in the USA during September. As of 21 September, [479 cases](#) have been reported across 34 states in 2021, including confirmed and probable cases. In 2020, [664 cases](#) were reported across 39 states.

### **Yellow fever, Cameroon**

[Nineteen confirmed cases](#) of yellow fever have been reported in Cameroon in 2021, as of 5 September 2021 (up from [11 confirmed cases](#) in 2020). Between 1 January to 4 July 2021, [905 suspected cases](#) and 13 deaths were reported.

## **Publications of interest**

### **Andes virus**

There are currently no approved treatments for Andes virus infection, an orthohantavirus endemic to South America. A recent [study](#) in animals found that treatment with 2 monoclonal antibodies provided partial or complete protection against the disease.

### **Avian influenza A(H5N6)**

Avian influenza A(H5N6) has replaced A(H5N1) as a dominant subtype in southern China. Genetic characterisation of 2 human cases of avian influenza A(H5N6) from Guangxi, China was [published](#) in September 2021, which indicated that the evolutionary origins of the internal genes were different.

### **Chikungunya**

A phase 1 clinical vaccine trial in 24 adult volunteers found that a single dose of [ChAdOx1 Chik vaccine](#) induced neutralizing antibodies against 4 chikungunya virus

lineages. ChAdOx1 Chik showed excellent safety, tolerability and 100% PRNT50 seroconversion after a single dose.

## **COVID-19**

Administration of a third dose of BNT162b2 (Pfizer–BioNTech) COVID-19 vaccine was approved in Israel in July for those 60 years and over. A [study](#) using data from the Israeli Ministry of Health database found that the rate of confirmed infection was lower in patients that had a booster than in those who had not by a factor of 11.3.

## **Ebola virus disease (EVD)**

- [Next-generation sequencing](#) results of samples from 12 EVD patients from the 2021 outbreak in Guinea (14 February to 19 June) indicate that the outbreak was not the result of a new spillover event from an animal reservoir. The results suggest a persistent infection with reduced replication or a period of latency.
- A [study](#) published in September found that 25% of EVD survivors had undetectable antibodies, a finding which suggests possible decreasing population immunity in areas that have previously experienced outbreaks.
- A [randomised, double-blind trial](#) in children 1 to 17 years in Sierra Leone found that the Ad26.ZEBOV and MVA-BN-Filo Ebola vaccine regimen induced an immune response in 98% of cases. The vaccine regimen was well tolerated in this cohort, with no safety concerns, and induced robust humoral immune responses, suggesting suitability of this regimen for Ebola virus disease prophylaxis in children.

## **Lyme disease**

In September, further positive results were [announced](#) for phase 2 trials of Lyme disease vaccine candidate VLA15. The candidate met the primary endpoint of being immunogenic across all groups tested. VLA15 is the only active Lyme disease vaccine candidate in clinical development.

## **Malaria**

A [phase 2b study](#) of ganaplacide/lumefantrine combination in children with malaria has met its primary objective of adequate clinical and parasitological response at day 29. The positive Phase 2b results support continued development of the combination treatment.

## **Meningitis**

An [analysis](#) of meningitis cases in Africa between 1928 and 2018 found that the disease now extends beyond the previously characterised meningitis belt (Sub-Saharan and Sudanian regions) and is now an issue in more forested regions in the centre of the continent. With global environmental changes and mass vaccination targeting a unique serogroup, an epidemiological transition of bacterial meningitis is ongoing.



## Plague

A [study](#) in Madagascar compared *Yersinia pestis* isolates from a human plague case in Ankazobe in 2016 with those isolated from a rat (*Rattus rattus*) captured nearby, finding that the 2 isolates were from distinct subtypes. Additionally, a high prevalence of *Y. pestis* in *R. rattus* suggests that a portion of the local murine population may have acquired resistance to disease.

## Zika virus disease

There are currently no approved vaccines against Zika virus disease. A [phase 1 trial](#) recently found that a DNA vaccine (GLS-5700) elicited an immune response against Zika virus in all 20 participants. Further studies are needed to better evaluate the safety and efficacy of the vaccine.

## Other publications of interest

- A [review](#) of studies that analysed early warning systems for chikungunya, dengue, malaria, yellow fever, and Zika outbreaks found that almost all studies focused on meteorological indicators with limited analysis of entomological, epidemiological, and social media indicators in the literature.
- A [report](#) from the Convention on Migratory Species found strong evidence that zoonotic disease outbreaks are linked to human activities, for example the consumption of wild meat.
- Tick-borne encephalitis and Lyme borreliosis have the same tick vector and rodent reservoir. A [study](#) comparing human incidence of the 2 diseases found that annual fluctuations were not geographically concordant, suggesting the influence of factors beyond availability of vectors and human outdoor activity.

## Novel agents, rare pathogens and disorders

On 9 September 2021, media reported the discovery of a new virus called [Manych virus](#) which caused fever in several people in Rostov region, Russia. According to the reports, the virus is transmitted through tick bites and is similar to [Jingmen virus](#), identified in China in 2014.

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