**Infectious Disease Surveillance and Monitoring for Animal and Human Health: summary of notable incidents of public health significance. March 2019**

*Incident assessment:*

<table>
<thead>
<tr>
<th>Deteriorating</th>
<th>No Change</th>
<th>Improving</th>
<th>Undetermined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incident is deteriorating with increased implications for public health</td>
<td>Update does not alter current assessment of public health implications</td>
<td>Incident is improving with decreasing implications for public health</td>
<td>Insufficient information available to determine potential public health implications</td>
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</tbody>
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**Notable incidents of public health significance**

**Ebola virus disease (EVD), Democratic Republic of Congo**

After several weeks of overall decline, Ebola cases significantly increased again towards the end of March, with the total number of confirmed and probable cases now exceeding 1,000. An increase had been expected following the disruption to response activities at the end of February, but weekly case numbers reached the highest seen to date during this outbreak. However, cases do remain localised to North Kivu and Ituri provinces [map]. As of 31 March, a total of 1,089 confirmed and probable cases have been reported across 21 health zones. This is an increase of 199 confirmed cases in the past month, compared to 110 in February. Less than half (45%) were known contacts. Two new health zones, Lubero and Bunia, reported confirmed cases linked to chains of transmission in previously affected areas. One new probable case was identified, bringing the total number of probable cases to 66. Overall, 80 health workers have been infected. Butembo and Katwa are the main hot spots of the outbreak, however Mandima, Masereka and Vuhovi reported increasing numbers of cases. The Katwa Ebola Treatment Centre (ETC) officially reopened on 30 March to increase capacity to respond in that area.

Response efforts are still being met with strong community resistance and reluctance to participate. The newly rebuilt ETC in Butembo was attacked again at the beginning of the month, however authorities quickly responded and damage was minimised. A Transit Centre for suspected cases in Biena health zone was also attacked. In response, WHO requested further support from UN and local police forces for protection. There are growing calls for greater engagement and partnering with communities in order to both respond to their needs and stem the outbreak. Despite the ongoing resistance, attitudes towards vaccination and uptake has improved. According to WHO, more than 90% of people eligible for vaccination accept it and agree to post-vaccination follow-up visits. Independent analyses have also shown that the vaccine is protecting at least 95% of those who receive it in a timely manner.

**Other incidents of interest**

- an outbreak of carbapenem-resistant *Pseudomonas aeruginosa* surgical site infections associated with invasive procedures, mostly for weight loss, performed in Tijuana,
Mexico has been reported. Twenty cases were identified in 9 US states. A medical
tourism agency in the US also referred patients from other countries to the implicated
hospital. ECDC assessed the risk of introduction to the EU/EEA as low, but highlighted
the ongoing high risk of importation of multidrug resistant organisms through
hospitalisation abroad

- falsified Mencevax ACWY vaccines against meningococcal meningitis were identified
  in Niger, with a supply chain route that includes other countries in West Africa. WHO
  also announced the detection of falsified Dukoral oral cholera vaccines in
  Bangladesh. In both cases, the manufacturers indicated on the labels confirmed that
  they did not manufacture the vaccines. Investigations are ongoing to determine the
  contents and assess the potential risks to public health

- a suspected food-borne illness outbreak, linked to distributions of a fortified food
  by the UN World Food Program, was reported in the Karamoja region of Uganda.
  More than 260 people presented with mental confusion, vomiting, headache, high
  fever and abdominal pain. Laboratory tests are ongoing and one food sample
  reportedly tested positive for aflatoxin

- a second confirmed human case of dracunculiasis (Guinea worm disease) was
  reported in Angola in March, marking another setback for the Guinea worm
  eradication programme. The country reported its first ever case in April 2018, but the
two cases are unconnected. As of 2 March, 4 cases have been reported from 2
countries this year; Angola (1) and Chad (3)

- a cross-border outbreak of suspected pneumonic plague was detected in the West
  Nile sub-region of Uganda (2 cases, 1 death), and Ituri Province, DRC (4 fatal cases).
  All cases were epidemiologically linked. The index case became ill in DRC, was taken
to Uganda for treatment and subsequently died. One case in Uganda tested positive
  for plague by rapid diagnostic test. Plague is endemic in DRC

- equine outbreaks of western equine encephalomyelitis (WEE) were reported in
  Mexico for the first time, in Nayarit state. WEE is an uncommon viral disease that can
  be transmitted to humans by infected mosquitoes. Control measures have been
  implemented and no human cases have been detected thus far

- the outbreak of Rift Valley fever in Mayotte is ongoing with 32 cases reported in the
  past month. As of 29 March, there had been 114 human cases, mostly localised in the
  centre and north-west of the island

- Mozambique, Zimbabwe and Malawi were hit by Cyclone Idai in mid-March, causing
  large scale flooding and damage, increasing the risk for disease outbreaks. As of 01
  April, 1,052 cases of cholera, including 1 death, have been reported in Mozambique.
  A vaccination campaign began on 3 April and cholera treatment centres were set up in
  the affected areas. Increases in malaria and acute watery diarrhoea have also been
  reported, although it is not yet clear what pathogens are responsible for the latter

- Sweden reported its first case of chronic wasting disease (CWD) in a European elk
  (Alces alces). There are similarities to the atypical CWD detected in Norway in 2018,
  but further testing is awaited

- consistent with the past 2 years, Yemen has again seen a surge in suspected cholera
  cases in recent weeks, possibly linked to early rains and increased awareness.
  Between 1 and 28 March, 76,152 suspected cases were reported, bringing the total
  since January 2019 to 147,927 suspected cases and 291 associated deaths

Publications of interest

- the new Ebola species, Bombali virus, recently identified in bats in Sierra Leone, has
  been detected by PCR in a single Angolan free-tailed bat in Kenya. Viral RNA was
  present in many tissues but isolation was not attempted. No evidence of Bombali virus
infection was found in febrile patients who reported contact with bats in the same area. This bat species is found throughout Africa.

- *Dirofilaria repens* is mostly found in Europe, Africa and Asia and commonly manifests as cutaneous lesions in the form of nodules and oedema. A case of elbow bursitis caused by *D. repens* was reported in Poland. The patient presented with pain and swelling of the left elbow. Diagnostic aspiration revealed a worm subsequently identified as *D. repens*. Symptoms resolved a week after aspiration and a combination of antibacterial and antiparasitic therapy.

- *myasthenia gravis associated with leptospirosis* was reported for the first time. The patient presented with generalised weakness, malaise, double vision and fever after a recent holiday in Vietnam and Thailand. He progressively deteriorated until dependent on a wheelchair and unable to raise his arms. Neurological examination suggested myasthenia gravis which was supported by nerve conduction studies. A new sequence type of *Leptospira interrogans* was detected in blood samples via PCR. The patient made a good recovery.

- epidemics of *Neisseria meningitidis* serogroup A (NmA) have been largely eliminated from the African meningitis belt following the successful roll-out of serogroup A conjugate vaccine in 2010. Consequently, other serogroups have become important causes of meningitis in the region. Phylogenetic analyses on samples collected between 2011 and 2016 indicate circulation of geographically distinct strains as well as inter-country transmission events. Clonal complexes of NmX, NmW and NmC contributed the greatest burden, with NmW CC11 isolates representing 60% of the isolates collected, and was found in 9 of 11 countries.

- in early 2018, the first Nipah virus outbreak in Kerala, India was reported, with a total of 18 confirmed cases, including 17 deaths. Phylogenetic analysis demonstrated that the human strains from this outbreak were most similar to those found in *Pteropus* species fruit bats in the area, indicating that bats were the most likely source of infection. Among 155 healthcare workers and 124 household contacts with close contact to the 18 cases, 2 subclinical infections were detected. Risk of subclinical infection was higher among people with bodily fluid exposures. After initial spillover into humans, significant person to person spread occurred among close contacts, including healthcare workers. Ribavirin was administered to 8 exposed healthcare workers (HCW) for the first time as post-exposure prophylaxis (PEP). None developed Nipah virus infection. Minor side effects were reported, including a fall in haemoglobin levels in all recipients and increased bilirubin in 7 of the 8. Further studies are needed to determine the true utility and efficacy of ribavirin as PEP for Nipah virus exposure.

- canine pneumonic plague in the USA resulted in large numbers of potential human and animal exposures after many factors resulted in a delayed diagnosis. Despite the sick dog’s exposure to a dead prairie dog and respiratory signs, plague was considered unlikely as a diagnosis because of the season (December), non-typical clinical findings, and because it was a dog. After surgery, a swab of the lung grew bacteria initially identified as *Yersinia pseudotuberculosis* on MALDI-TOF. After subsequent confirmation of *Y. pestis*, risk assessment of contacts resulted in 68/116 people (hospital and laboratory staff, and students) and all 46 animals having prophylactic antibiotics. No secondary cases were detected.

- *rabies acquired through mucosal exposure (China)*: a man presented with a 2-day history including malaise, sleep disturbance, irritability to air, choking when drinking, and in a highly agitated state. Saliva was PCR positive for rabies virus, and he died 3 days after onset. A month before, his son had been bitten on the leg by a stray dog. Concerned about rabies, man washed the wounds and sucked blood from them. The son received full rabies post-exposure prophylaxis, but although it was offered at the
time, the father declined as it was expensive and he thought he was not at risk

- **hepatitis rebound after yellow fever**: in 2018, France reported 2 cases of yellow fever in unvaccinated travellers from Brazil. Both were previously healthy and had relatively mild disease, being discharged after 2-3 days. Each patient then experienced subclinical persistent hepatitis for over 6 months, with liver enzymes increased 2 months after onset. During this rebound period, PCR remained negative but yellow fever virus neutralising and inhibitory activities were detected in plasma and serum, suggesting the rebound could be attributed to host immune responses

- **severe fever with thrombocytopenia syndrome (SFTS)** is a tickborne infection found in China, Japan, and South Korea. Sera from 80 patients with acute febrile illnesses in Vietnam were tested for SFTS viral RNA, and two were PCR positive. Neither had history of travel to known endemic countries, suggesting a wider geographic distribution of SFTS than previously thought

### Novel agents, rare pathogens and disorders

- **Mycobacterium obuense** is a rapidly growing mycobacterium that is generally considered non-pathogenic and has been investigated in clinical trials for cancer immunotherapy. *M. obuense* bacteraemia *was reported in a person with community acquired pneumonia and comorbidities in Mexico*. Commercial nucleic acid probe assays were unable to correctly identify the organism. Isolation of *M. obuense* from blood cultures suggests potential virulence. Use of inactivation protocols will be essential if *M. obuense* becomes an adjuvant in cancer therapy

- **neurobartonellosis and psychosis**: in 2015, a previously healthy 14-year old boy had an acute onset of psychosis that progressively became more severe over 18 months requiring multiple investigations and psychiatric hospitalisation. Cutaneous “stretch mark-like” lesions were noted on his thighs and armpit, and a differential diagnosis of neurobartonellosis was suggested. Blood samples taken after doxycycline therapy was started were PCR positive for *Bartonella henselae*. A full recovery was gradually achieved. Confirmation of *B. henselae* infection in combination with improvement of symptoms during antibiotic treatment suggests neurobartonellosis played a role in the boy’s neuropsychiatric illness

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