Infectious Disease Surveillance and Monitoring for Animal and Human Health: summary of notable incidents of public health significance. May 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>
</tr>
</tbody>
</table>

**Notable incidents of public health significance**

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

The Ebola outbreak continued with high intensity in May, with 459 cases reported during the month from 16 health zones (compared to 406 in April). Four zones reported more than 67% of the cases; 98 (21%) in Mabalako, and 210 (46%) from Katwa, Butembo and Beni combined. As of **01 June**, there have been 1,900 confirmed and 94 probable cases in 22 health zones. A new health zone in North Kivu, Alimbongo, reported a confirmed case for the first time that was epidemiologically linked to Katwa. An additional 28 probable cases were retrospectively identified across 7 health zones – all community deaths which had occurred between 30 January and mid-May. **Ongoing challenges** include the high proportion of community deaths amongst newly identified cases, persistent pockets of poor community acceptance and resistance, and ongoing insecurity preventing response activities. **Small improvements** in the proportion of newly diagnosed cases registered as contacts were seen in the last week of May. The outbreak has thus far been contained within known affected areas in Ituri and North Kivu Provinces [map].

Security incidents included multiple attacks on safe burial teams, and **response activities in Butembo and neighbouring areas were suspended** between 4 and 9 May. Since the onset of the outbreak, 174 attacks against health centres resulted in 51 injuries and 5 deaths among health workers and patients. Due to the threats of violence against health care workers, there has been a worrying trend in refusal to wear PPE. The overall situation remains highly unpredictable with ongoing threats against response teams, and continuing presence of and activities by armed groups.

On **07 May**, the WHO Strategic Advisory Group of Experts (SAGE) recommended adaptations to the Ebola vaccination strategy to address insecurity and community feedback, including “pop-up” temporary vaccination sites and adjusting vaccine doses. They also proposed using an additional experimental vaccine manufactured by Johnson & Johnson, as an alternative option for lower risk individuals. However, **DRC officials expressed resistance** and called for expansion of current vaccine use rather than introduction of a new vaccine which could pose operational and communication challenges. On 23 May, the DRC **Ethics Committee in Kinshasa** agreed to expand
vaccination to pregnant women after the first trimester and lactating women identified as contacts.

### Other incidents of interest

- The chikungunya outbreak reported in the southwest of the Republic of Congo in April is ongoing, with increasing incidence and wider geographical spread. As of 5 May, 7,811 cases have been reported in rural areas with high density of *Aedes albopictus*. Molecular analysis of the outbreak strain indicated a close relationship with *Ae. aegypti*-associated Central Africa strains, and presence of a gene mutation (A226V) known to facilitate vector switching (*Ae. aegypti* to *Ae. albopictus*).

- The longstanding cholera outbreak in Yemen saw a decline in cases over the past month, from 118,868 cases in April to 78,281 suspected cases in May. This decrease may be the result of a scale-up of WHO and partners’ response, and enhanced control efforts including community engagement and WaSH activities. A second round of an oral cholera vaccine campaign is planned for June/July.

- The dengue outbreak in Reunion Island has begun to decrease, but the intensity of the outbreak remains high with over 5,000 cases reported in May. Over 13,000 cases have been confirmed since the beginning of 2019. The upsurge in cases since 2018 is unprecedented, and as the island is a popular tourist destination, there is an ongoing risk of exportation.

- The US Food and Drug Administration has approved the use of Dengvaxia, the first dengue vaccine approved for the prevention of all dengue virus serotypes (1, 2, 3 and 4), in children aged 9-16 with laboratory evidence of prior dengue infection and who live in endemic areas. The vaccine is also authorised for use in the EU. Controversy surrounds the vaccine and it is banned in the Philippines, where early roll-out revealed severe adverse events, including fatalities, in children who had not previously been infected with dengue.

- A large HIV outbreak has been reported in Larkana city, Sindh Province, Pakistan, thought to be linked to widespread unsafe medical practices including reuse of syringes. As of May 20, 113 adults and 494 children have tested HIV-positive. Investigations by WHO are ongoing.

- Algeria and Argentina have been certified malaria-free by WHO. The countries reported their last indigenous cases in 2013 and 2010, respectively.

- Laboratory-confirmed monkeypox was reported in Singapore. The patient, a Nigerian citizen, had recently attended a wedding in Nigeria, where he may have consumed bushmeat. WHO assessed the risk of onward spread to be low. The patient recovered and all 22 close contacts in Singapore completed quarantine (21 days) without developing disease. Nigeria has reported far fewer cases during 2019 than in 2017 and 2018.

- Two deaths from plague, linked to consumption of raw marmot meat, led to a six-day quarantine of a district in western Mongolia. While uncommon, food-borne transmission of plague has been documented.

### Polioviruses

- After reviewing the global situation, the IHR Emergency Committee recommended that poliovirus remains a Public Health Emergency of International Concern (PHEIC) and extended the Temporary Recommendations for a further three months.

- In Pakistan, wild poliovirus transmission remains widespread (21 cases in 2019 by the end of May), with increased rate of infection even during the low season. The risk of further spread remains high, as evidenced by the positive environmental sample.
Publications of interest

- the first therapeutic use of phage therapy for a mycobacterial infection was reported in a 15-year-old patient with cystic fibrosis (CF) in the UK who was chronically infected with *Mycobacterium abscessus*. After receiving a lung transplant, the patient developed widespread mycobacterial infection despite combination antibiotic therapy. A genetically engineered three-phae ‘cocktail’ treatment was then used, and the patient’s lesions improved after 1 month. While researchers cannot rule out that the patient would have improved without phage treatment, this was considered unlikely. This study sets the stage to explore phage therapy more deeply.

- *Metarhizium* species are entomopathogenic fungi that parasitise and kill insects. *M. pingshaense* infects adult mosquitoes and was used to create a mosquito-specific delivery system for toxins. In a field trial in a malaria-endemic region of Burkina Faso, the fungus was genetically engineered to produce a lethal spider toxin. Mosquito populations were reduced by more than 99%, suggesting it could be integrated into existing chemical control strategies to tackle insecticide resistance.

- *Pasteurella multocida* is a zoonotic bacterium found in the oral flora of cats and dogs. Transmission to humans commonly occurs through bites, but can also result from contact with saliva, such as licks. *P. multocida* meningitis developed in a neonate that was frequently licked on the face by the family dogs. The 12-day-old infant was admitted to hospital with fever, irritability and poor feeding. CSF and blood were culture positive. Minimising contact between pets and newborn babies can help reduce the risk of spread of these types of infections.

- raw pet food has been linked to a feline outbreak of *Mycobacterium bovis* affecting at least 13 cats in 5 households across the UK. A report of the first 6 cases documented that all the affected cats were exclusively indoor pets and had no contact with wildlife, but they had all eaten a wild venison raw food product.

- for the first time, *Marburg virus was detected in Zambia in Egyptian fruit bats*. Of 71 cave-dwelling bats captured in Lusaka Province in 2018, two were positive by PCR. Genetic sequencing showed high similarity with the viruses that caused Marburg outbreaks in the DRC between 1998 and 2000. They were also closely related to those detected in bats in Uganda, suggesting that Marburg viruses actively circulate in the Egyptian fruit bat population in this region.

- a review of 248 Nipah virus cases from Bangladesh (2001-2014) was conducted to gain new insights into drivers of transmission. Most had respiratory symptoms and 193/248 (78%) died. A third (82/248) of cases were infected through person-to-person transmission. Chains of transmission were as long as 5 generations, and some cases were super-spreaders. R0 increased with age and difficulty breathing in the index case. Highest risk contacts were family care-givers rather than healthcare workers.

- *Nipah virus encephalitis fatality rate and risk factors systematic review*: a systematic review and meta-analysis of 1,961 cases in 20 studies found a pooled case fatality rate of 61%. Infection was significantly associated with exposure to pigs but not any other animals. Exposure to date palm sap, tree climbing, male gender and travel outside their home sub-district were also significantly associated with NiV infection. Although *Pteropus* bats are the main reservoir for NiV, no association was found between exposure to bats and transmission. However, observation of bats near the...
house at night was associated with increased risk, possibly linked to presence of bat secretions in the environment

- **Japanese spotted fever infection after land leech bite**: an 81-year old man was admitted to hospital with 2-day history of fever, staggering, loss of appetite and malaise. A nonpruritic, painless rash on the torso and extremities was present, as was an eschar. There was no evidence of a tick bite. The eschar was at the site where a land leech had been removed 10 days previously. Rickettsial disease was suspected: an eschar sample was positive by PCR, and paired serum antibody titers confirmed *R. japonica* acute infection. Leeches have previously been reported to be a potential vector for human rickettsial infection, though ticks are more usual vectors

- PHE’s tick surveillance scheme (TSS) receives submissions of ticks, including those found on horses and ponies, in order to detect importation events or unusual tick species. One submission associated with a recent history of travel resulted in the importation of *Hyalomma marginatum* – a competent vector for Crimean-Congo haemorrhagic fever virus. Several other tick species were found on untravelled horses, with *Ixodes ricinus*, *Dermacentor reticulatus*, and *H. punctata* being the most common

- *Borrelia miyamotoi* belongs to the relapsing fever clade in the *Borrelia* genus and was first detected in Japan. Increasingly reported from the northern hemisphere, little is known about the true incidence of *B. miyamotoi* human infections. A literature review of *B. miyamotoi* research findings was published in Eurosurveillance

- a themed issue on “modelling infectious disease outbreaks in humans, animals and plants: epidemic forecasting and control” was published in Philosophical Transactions of the Royal Society B

- updated management guidelines for rabies post-exposure treatment in England were published

### Novel agents, rare pathogens and disorders

- a **novel tickborne virus, named Alongshan virus (ALSV), associated with human febrile illness** was reported in China. A 42-year old patient presented to hospital with fever, headache and history of tick bites. Clinical features were similar to those of tickborne encephalitis (TBE), however neither TBE virus nor antibodies were detected. A virus was isolated in tissue culture and shown to be novel on sequencing. The virus belongs to the jingmenvirus group of the family Flaviviridae and clusters most closely with Jingmen tick virus, which was discovered in 2014. A heightened surveillance system was initiated in the same hospital to identify other possible cases. A total of 86 patients identified in this way were PCR positive for ALSV, and four yielded the same virus on culture. ALSV was detected by PCR in Ixodid ticks and mosquitoes in the local area

This document has been produced by Public Health England on behalf of the Human Animal Infections and Risk Surveillance group. For more information or to sign up to the distribution list, please contact EpIntel@phe.gov.uk

© Crown copyright 2019. You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v3.0. To view this licence, visit OGL or email psi@nationalarchives.gsi.gov.uk. Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.