

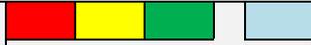


Infectious Disease Surveillance and Monitoring for Animal and Human Health: summary of notable incidents of public health significance. November 2015

*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*
Ebola virus disease, West Africa	
<p>During November, only three confirmed cases of Ebola virus disease (EVD) were reported from West Africa, all from Liberia. These were the first cases to be reported in the country since it was declared EVD transmission free for the second time on 3 September 2015. The three cases originated within one family from Paynesville, a suburb of Monrovia. The first case, a 15-year-old boy, was reported to have confirmed EVD on 19 November. His father and eight-year-old brother were subsequently confirmed as EVD-positive a day later while in quarantine. The 15-year-old died on 23 November. His father and brother were discharged from hospital on 3 December following two negative blood tests. Investigations are ongoing into the source of infection for this familial cluster. The mother of the first case was asymptomatic and PCR negative but had antibody evidence of a recent EVD recovery. Her two-month-old child also had antibodies to Ebola virus, presumed to have been acquired from the mother and not as a result of recent infection. To date, no further cases have been diagnosed outside this family cluster. While vaccination has been offered to those identified as at risk of exposure (including 165 contacts), uptake has been very low.</p> <p>See the PHE Epidemiological Updates for further information and recent publications.</p>	
Migrant health, Europe	
<p>Europe continues to experience a large influx of refugees with more than 906,000 refugees reported to have arrived by sea thus far in 2015. It is acknowledged that although refugees do not currently represent a threat to Europe regarding infectious diseases (although there are strains on public health systems in frontline receiving countries), they are themselves vulnerable to a number of communicable diseases. To date, there have been reports of louseborne relapsing fever, cutaneous diphtheria, influenza, scabies, measles, shigellosis, tuberculosis and malaria among refugees. A recent statement by WHO also describes the potential risk for international spread of polio virus given the large population movements across the Middle East and from Afghanistan and Pakistan. The health condition of refugees may worsen during winter due to low temperatures and overcrowding in shelters. This situation will be closely monitored.</p>	

Polio, global update	 ▲
<p>During November, nine new cases of wild poliovirus type 1 (WPV1) were reported, all in endemic countries (five in Pakistan, four in Afghanistan). So far in 2015, a total of 60 WPV1 cases have been reported, a significant decrease on the 315 cases reported to this date in 2014. In Lao People's Democratic Republic, further cases of circulating vaccine-derived poliovirus type 1 were reported in November, raising the 2015 total to five. An emergency outbreak response continues in the country. Following the seventh IHR Emergency Committee meeting regarding the international spread of poliovirus, the committee unanimously agreed that the current situation still constitutes a public health emergency of international concern.</p>	
West Nile virus, end of transmission season, Europe	 ▲
<p>At the close of the 2015 West Nile virus (WNV) transmission season, a total of 108 cases of WNV infection have been reported in humans in Europe (60 in Italy, 18 in Hungary, 19 in Romania, seven in Austria, two in Bulgaria, one in France and one in Portugal), a slight increase on the 2014 total of 74 cases. For the first year since 2010, no human cases were reported in Greece.</p>	
Undiagnosed morbidity and mortality, Sudan	 ▲
<p>Suspected cases of viral haemorrhagic fever (VHF) continue to be reported in Darfur, Sudan. As of 27 November, case totals had reached 469, including 120 deaths, with the majority (296 cases, 90 deaths) reported in West Darfur. Although diagnostic capacity is limited in these areas, samples sent to Germany have confirmed dengue virus in a number of samples. Cases of malaria, West Nile fever and hepatitis E have also been reported among suspected cases in addition to concurrent outbreaks of measles, pertussis and leishmaniasis. <i>It appears likely that this outbreak of suspected VHF has multiple aetiologies. The situation will be monitored closely.</i></p>	
Zika virus, epidemiology – South and Central America	 ▲
<p>The outbreak of Zika virus in Central and South America continues to spread geographically. First reported in Easter Island, Chile in February 2014, autochthonous cases have also been reported in Brazil, Colombia, El Salvador, Guatemala, Mexico, Panama, Paraguay, Suriname and Venezuela. Although generally regarded as a mild illness, a small number of deaths have been reported where Zika virus infection is thought to be a contributing factor. Further cases are expected in other countries in the Americas in coming weeks and months. While imported cases of Zika virus would be expected in the UK, no further transmission would occur.</p>	
Zika virus, potential association with microcephaly	 ▲
<p>In October 2015, the Brazilian Ministry of Health reported an unusual increase in the number of babies born with microcephaly. As of 30 November 1,248 (99.7/100,000 live births) cases of microcephaly including seven deaths have been reported across 14 states in Brazil compared to the expected 150-200 cases per year that were reported from 2010 to 2014 (5.7/100,000 live births in 2010). This led to the declaration of a public health emergency. The Ministry of Health of Brazil has suggested a possible relationship between the increase in microcephaly and the ongoing Zika virus outbreak. There is currently some evidence to support an association with Zika virus infection. The virus has recently been</p>	

demonstrated to cross the placental barrier being detected in blood and tissues of an affected foetus, and the increase in microcephaly cases was noted within nine months of the virus' emergence in northern Brazil. While such an association is plausible, further evidence is required to definitively prove or disprove causality.

Other incidents of interest

- the cholera outbreak in Iraq has slowed after [affecting more than 2,800 people](#)
- an [outbreak of avian influenza H5N1](#) has been reported in backyard poultry in the Dordogne area of France. The implicated strain is a [mutated H5N1 strain](#) closely related to European low-pathogenic avian flu strains
- an [outbreak of dengue fever](#) was reported in the [Assiut Governorate](#), Egypt in October resulting in 253 suspected cases. Vector control was employed in the affected villages and a significant reduction in densities of both adult and larvae of *Aedes aegypti* is reported
- European bat lyssavirus 2 has been reported for the [first time in Norway](#) in a Daubenton's bat

Noteworthy research of public health significance

Colistin plasmid-mediated resistance, China and Denmark

The global increase in carbapenemase-producing Enterobacteriaceae has resulted in increased use in human medicine of polymyxins (colistin and polymyxin B), a group of antibiotics seen as the last line of defence against many Gram-negative bacilli. In 2011, WHO reclassified [colistin as critically important for human medicine](#). Until recently, the polymyxins remained one of the last classes of antibiotics in which resistance was not known to be plasmid-mediated. [Recent research from China has identified the first plasmid-mediated polymyxin resistance mechanism](#), MCR-1, and shown it to be easily transferred between different Gram negative genera under laboratory conditions. MCR-1 was also found to be present in *E. coli* isolates from slaughter house and retail meat samples and in human isolates from hospitalised patients.

Following the publication of the MCR-1 gene identified in the Chinese study, [Danish researchers reviewed whole genome sequences of 3000 *E. coli* samples](#) and found MCR-1 to be present in six isolates; one from a bacteraemic patient in 2015 ([no travel history](#)) and in five poultry samples imported from Germany between 2012 and 2014.

The detections in China, Malaysia and Denmark in human and animal samples raises serious concerns for the future treatment of multi-resistant Gram-negative bacteria. Further research is required to determine the global distribution of MCR-1. Investigations are ongoing in the UK.

SARS-CoV-like virus, bats, China

Metagenomics research has identified [multiple species of coronaviruses](#) in bats in China that are closely related to the severe acute respiratory syndrome coronavirus (SARS-CoV). [A recent study](#) assessed the potential threat to human health of one of these viruses. After inserting its spike protein into SARS-CoV, the chimeric virus was shown to infect and replicate within human respiratory tract cells and caused pathological changes *in vivo*, but not to the same extent as SARS-CoV. Monoclonal antibodies and vaccines developed for SARS-CoV were ineffective. Further work is required to determine the degree of pathogenic potential for such emergent viruses in order for them to transmit directly from bats to humans.

Novel agents, rare pathogens and disorders

- two cases of [Clostridium celatum infection](#) have been diagnosed in Denmark. These appear to be the first two documented reports of infection associated with this gastrointestinal tract commensal
- a rare [case of disseminated Francisella philomiragia](#) infection was reported in a gardener in northern France in 2014. While the source of infection was not determined, a potential role of the dog tick (*Dermacentor reticulatus*) was hypothesised
- in early 2015, [an outbreak of severe infection](#) in adults caused by [Group B Streptococcus \(GBS\)](#) was reported in Singapore. Also known as *Streptococcus agalactiae*, GBS is a coloniser of the human gut and emerged as a cause of severe infection in neonates during the 1970s. Incidence of both infant and adult disease has been increasing in recent decades. It is also a known pathogen of cattle and fish. During this outbreak, [an association with consumption of raw fish was hypothesised](#) however, further research is required to determine the risk raw fish consumption presents for GBS infection
- a case of [pathogen-associated tumorigenesis](#) caused by the common dwarf tapeworm *Hymenolepis nana* was recently reported in an immunocompromised individual from Colombia. The authors suggest that malignant transformation of *H. nana* may be misdiagnosed as human cancer, particularly in underdeveloped countries where HIV and *H. nana* infections are widespread
- an increase in human cases of [Onchocerca lupi](#) has been recorded in the US since first being reported in 2013
- the first human case of infection with the Gram negative bacillus [Xenophilus feline oral](#) has been reported following a dog bite

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