



Infectious Disease Surveillance and Monitoring for Animal and Human Health: summary of notable incidents of public health significance - January/February 2020

***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*
COVID-19, Global summary	<div style="display: flex; justify-content: space-around; width: 100px;"> <div style="width: 20px; height: 20px; background-color: red;"></div> <div style="width: 20px; height: 20px; background-color: yellow;"></div> <div style="width: 20px; height: 20px; background-color: green;"></div> <div style="width: 20px; height: 20px; background-color: lightblue;"></div> </div> <p style="text-align: center;">▲</p>

Due to the rapidly changing nature of this event, we summarise our current understanding of COVID-19 encompassing information from December 2019 to 10 March 2020.

Early stages

On [9 January 2020](#), WHO announced that a novel coronavirus was responsible for the outbreak of viral pneumonia first reported on 31 December 2019 in Wuhan City ([Hubei Province](#)), central China. Whilst initially cases were [thought to be associated with a wet market in Wuhan](#), by the end of January it transpired that [human-to-human transmission was occurring](#) outside those directly or indirectly linked to the market. Cases began to be diagnosed outside of Hubei province spreading to all 31 provinces/regions by 30 January. The first case outside of mainland China was reported on [13 January in Thailand](#), in an individual who had recently been in Wuhan.

On [30 January](#), the International Health Regulations (2005) Emergency Committee agreed that the outbreak meet the criteria for a Public Health Emergency of International Concern. On 11 February, WHO named the syndrome caused by this novel coronavirus as [COVID-19](#), named using WHO [naming best practices](#). On the same day, the [Coronavirus Study Group \(CSG\) of the International Committee on Taxonomy of Viruses](#) designated the aetiological agent ‘severe acute respiratory syndrome coronavirus 2’ (SARS-CoV-2).

Current epidemiology

[As of 10 March 2020](#), nearly 81,000 confirmed cases and more than 3,100 deaths have been reported in mainland China, the vast majority in Hubei Province. In recent weeks the outbreak has moved taken a more global focus with nearly 33,000 cases and 900 deaths reported in 109 countries or areas, [including the UK](#). The number of countries reporting sustained community transmission is increasing on a weekly basis.

Of note, in early February a large outbreak occurred on an international cruise liner, the [Diamond Princess](#), currently docked in Yokohama, Japan. [As of 10 March](#), 696 confirmed cases and 7 fatalities have been reported amongst the 3,711 passengers and crew on board. The majority of confirmed cases were/are being treated in hospitals in Japan, although a small proportion have tested positive for SARS-CoV-2 following repatriation to

their home countries. Subsequently, further incidents of transmission on cruise ships have been reported, portraying SARS-CoV-2's ability to spread widely in populations at close quarters.

Transmission dynamics

Current estimates suggest a median incubation period of 5-6 days, with a range of 1 to 14 days, which is agreement with other coronavirus diseases, such as MERS and SARS. Modelling studies have also attempted to approximate a value for R_0 with estimates varying from 1.4 to ~4 (for example; [WHO](#), [Imai et al.](#), [Riou & Althaus](#), [Read et al.](#), [Liu et al.](#), [Yang et al.](#)), indicating the wide variability in our understanding of SARS-CoV-2 transmission parameters. These estimates will be revised as more data become available.

Zoonotic risk

The source of SARS-CoV-2 has yet to be determined but, like MERS-CoV and SARS-CoV, it is likely to be of bat origin. It is probable that an intermediate animal host was responsible for its introduction into the human population, but the zoonotic source has not yet been definitively identified. In late February, [Hong Kong officials](#) reported the detection of low level positivity in nasal and oral cavity samples from a dog with no clinical signs. The animal had shared accommodation with two confirmed COVID-19 human cases and human-to-animal transmission was hypothesised in this instance. No outcome report is yet available.

Clinical picture

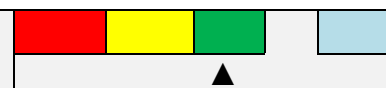
The full spectrum of clinical manifestations associated with SARS-CoV-2 infections in humans remains to be determined. Initial case series described common symptoms being fever, cough, myalgia or fatigue. (Eg [JAMA paper](#) 138 cases, [Lancet paper](#) 99 cases [NEJM paper](#) 1099),

The largest series from China to date ([China CDC report 17 February](#)) describes 44,672 confirmed cases. Amongst these, the clinical picture was mostly (~80%) categorised as mild, with ~14% severe and ~5% critical. This latter group included respiratory failure, septic shock and/or multi-organ failure, and was associated with the highest mortality at 49%. Overall, 77.8% of cases were aged 30-69, with 81% of fatalities occurring in individuals >60yrs. Few cases have been reported in children <10yrs or between 1 and 19 yrs. Within this case series, 1,716 infections in healthcare workers were captured. The authors stated there is currently no evidence of nosocomial super-spreader events.

Further sources of information

For latest epidemiological data see WHO's [dashboard](#) and [situation reports](#)
PHE [guidance for health professionals](#)
UK [dashboard of cases](#)
ECDC [COVID-19 collection](#)
CIDRAP [COVID-19 Resource Center](#)

Ebola virus disease (EVD), Democratic Republic of Congo

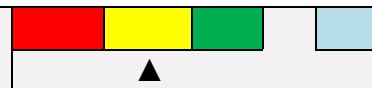


In January 2020, 42 newly confirmed cases of EVD were reported, a decrease from December's total of 67. As of [31 January 2020](#), 3,304 confirmed and 123 probable cases of EVD had been reported, including 2,205 fatalities. Five health zones reported cases in January, with the majority (48%) recorded in Beni, the recurrent transmission hotspot. In February, only 6 new confirmed cases were reported, raising the total as of [29 February](#)

[2020](#) to 3,310 confirmed and 134 probable cases. The most recent case was confirmed on 16 February.

Currently, there are no patients being treated in EVD facilities with the [last patient discharged](#) on 3 March 2020. This is an important milestone in this protracted outbreak which was initially confirmed on 1 August 2018. A 42-day countdown to declaring the end of this outbreak has begun, but continuous vigilance for further possible cases is vital to ensure complete interruption to all chains of transmission.

Polio viruses: 2019 summary and 2020 to date



In the past year, a significant increase in both wild poliovirus (WPV1) and vaccine-derived polio (cVDPV) cases were noted. In 2019, [a total of 173 WPV1 cases](#) were reported in the endemic countries of [Pakistan](#) (144 cases) and [Afghanistan](#) (29 cases), compared to a total of 33 cases reported in 2018. A global total of 329 cVDPV cases were reported in 2019 across 19 countries, the majority in Angola (114 cases) and DRC (84 cases), compared to a global total of 105 cases in 2018.

The risk of international spread of poliovirus remains a [Public Health Emergency of International Concern](#).

[No polio cases were reported in Europe](#) in 2019, but the risk of re-introduction remains especially with Romania, Bosnia and Herzegovina, and Ukraine considered at high risk of a sustained polio outbreak due to poor vaccination coverage.

[Poliomyelitis cases with onset in 2020:](#)

- 23 cases of wild poliovirus type 1 - Pakistan (21), Afghanistan (2)
- 18 cases due to circulating vaccine derived viruses, all in countries previously reporting cVDPV: Pakistan (9), Ethiopia (3), Ghana (2), and 1 each for DRC, Nigeria, Togo and the Philippines

Other incidents of interest

- in January an imported case of [Junin virus](#), the aetiological agent of Argentine haemorrhagic fever, was diagnosed in Belgium. The case, a citizen of Argentina, had recently travelled from Sante Fe province, an endemic area in north-east Argentina. Although endemic in four regions in Argentina (Santa Fe, Córdoba, Buenos Aires and La Pampa) cases of Argentina haemorrhagic fever are rarely exported
- in late January, Brazil [reported the first confirmed case of Brazilian haemorrhagic fever in 20 years](#). The fatal case was from São Paulo, an area where previous naturally acquired infections have been documented. The source of infection for this recent case is yet to be determined. Phylogenetic analysis suggested a 90% similarity with Sabiá virus. Prior to this incident, only five human cases of Sabiá virus have been recorded, two of which resulted from laboratory exposure
- [Lassa fever in Nigeria](#): the expected season started with a more rapid increase in confirmed cases than usual, reaching a peak in week 7 with 115 confirmed cases. In weeks 8 & 9 incidence declined slightly, but comparison with 2019 shows case numbers during January and February to be almost twice as high this year – 750 confirmed cases vs 420
- [rabies in France](#): on 15 February, rabies was confirmed in an imported puppy. It had developed signs of rabies on the Ile de Re, an island off the west coast of France. The animal appeared to have been rescued and imported from Morocco, as [sequencing showed the virus to be type Africa 1](#), closest to viruses isolated in northern Morocco

Publications of interest

- **Marburg virus** has been [detected in fruit bats](#) across three health districts in Sierra Leone, marking the first time the virus has been found in West Africa. Although no human cases have been recorded to date in West Africa, this research allows for Marburg virus infection to be considered in the differential diagnosis of haemorrhagic fever here, and sanctions the establishment of preventative programs
- the zoonotic potential of **Borna disease virus 1** (BoDV-1), an infectious neurological syndrome of horses, sheep and other mammals, has been a contentious subject for decades. In 2018/19, BoDV-1 was detected in five cases of encephalitis in organ recipients in Germany. A [retrospective study](#) has identified eight further cases of human BoDV-1 infection between 1999 and 2019 in two immunocompromised and six individuals with no record of immunosuppression all residing in known BoDV-1 endemic areas in Germany. This study provides further evidence of the role of BoDV-1 as a severe and potentially fatal zoonosis in BoDV-1 endemic areas. The recognised natural host of the virus, the bicolour white-toothed shrew, is not present in the UK
- a [retrospective study](#) of 257 patients admitted to two Ebola treatment units in Eastern DRC in 2019 concluded that vaccination with recombinant Vesicular Stomatitis Virus – Zaire Ebolavirus (**rVSV-ZEBOV**) candidate vaccine was associated with reduced viral load, reduced severity of infection and improved survival among patients with confirmed EVD
- in October 2018, human-to-human transmission of **monkeypox virus** from an imported case to a healthcare worker (HCW) was [recorded in England](#). The source of infection for the HCW was probably contact with contaminated bedding. Although monkeypox is rare outside disease-endemic countries in Africa, the authors emphasise the importance of awareness of monkeypox as a re-emerging and travel-associated infection
- a [prospective study](#) of confirmed human cases of **avian influenza A(H7N9)** in mainland China between 2013 and 2018 has identified long term sequelae for survivors; 38.5% had persistent pulmonary dysfunction and 78.2% had chest CT abnormalities at the end of the follow up period
- an [unusual case presentation](#) of **Crimean-Congo haemorrhagic fever** (CCHF) has been reported from the UAE. The case presented to hospital with disseminated intravascular coagulation (which normally occurs in late stage CCHF infections) and acute compartment syndrome in the right forearm, requiring urgent orthopaedic intervention. The diagnosis of CCHF was delayed due to no clear risk factors of exposure and unusual presentation of symptoms

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