

## OVERSEAS BRIEF

### Reporting period 1 July to 30 September 2007

The Overseas brief highlights disease outbreaks during the quarter that were of major public health significance world-wide or those that may have important implications for Australia.

#### Chikungunya

Between 1 July and 21 September 2007, the World Health Organization (WHO) reported 292 suspected cases of chikungunya (125 of them laboratory-confirmed) in the Ravenna region in north-eastern Italy.<sup>1</sup> This is the first ever recorded local vectorborne transmission of chikungunya in Europe. Cases of returned travellers with chikungunya viraemia have previously been reported in Europe, usually during the European winter, when seasonal outbreaks of chikungunya in the Southern Hemisphere are at their peak, reducing the risk of local transmission from these imported cases.

The probable index case returned from travel to Kerala State in India in early June 2007, with onset of symptoms on 15 June 2007. The outbreak peaked in the third week of August 2007.<sup>2</sup> The majority of cases were reported from the villages of Castiglione di Cervia and Castiglione di Ravenna, at first involving cases with epidemiological links to the index case. However, after the end of August 2007, cases were reported that had no epidemiological links to the first cases, or exposure in the villages of Castiglione di Cervia and Castiglione di Ravenna,<sup>1</sup> suggesting that indigenous transmission was likely to have occurred in five separate localities all in north-eastern Italy.<sup>1,2</sup>

The two villages of Castiglione di Cervia and Castiglione di Ravenna are known to have established populations of the tiger mosquito, *Aedes albopictus*, which is a competent vector for chikungunya.<sup>1</sup> This vector is present in a number of areas of Europe including some areas of southern France, Spain, the Netherlands and some areas around the Adriatic seas.<sup>3</sup> From 18 August 2007, vector control measures were implemented in the two villages, including the removal of breeding sites and the use of insecticides.<sup>1</sup> There is a possibility that transmission of the virus may resume in 2008 when mosquito eggs laid in the 2007 season hatch in the northern spring and summer (research has shown that these larvae could be infected with the chikungunya virus).<sup>1</sup>

#### Cholera

Between 14 August and 7 October 2007, the WHO reported 3,857 laboratory-confirmed cases (case-fatality rate, [CFR] 0.5%) of *Vibrio cholerae* in Iraq. The outbreak was first reported from Kirkuk Province in northern Iraq, and subsequently from 9 of 18 provinces (mostly northern and some central provinces) in the country, including cases in the capital, Bagdad. The WHO estimates that 30,000 people became ill with acute watery diarrhoea during the outbreak. The number of new confirmed cholera cases peaked between 2 and 9 September 2007, but the number of new cases of diarrhoea continued to climb until the end of September 2007.<sup>4</sup>

The outbreak presented a significant risk to neighbouring countries and a cholera outbreak in neighbouring Iran (with 43 cases between 19 September and 6 October 2007, most in the western Kurdistan province, bordering Iraq<sup>5</sup>) was thought to have been related to movement of people or goods across the border from Iraq.<sup>6</sup> It is not clear whether the infection was spread by Iraqi refugees or local Iranians.<sup>6</sup> The WHO did not recommend restrictions to travel or trade between Iraq and neighbouring countries, but recommended the strengthening of surveillance and response systems.<sup>7</sup>

#### Dengue fever

##### South East Asia

Outbreaks of dengue were reported across South East Asia during the reporting period, coinciding with the rainy season that occurs between June and August. A seasonal rise in incidence is to be expected during the rainy season, but there were indications that the 2007 outbreaks could be more severe than usual. The Western Pacific Regional Office of the WHO warned that South East Asia was heading for a major dengue outbreak following an early start to the dengue season.<sup>8</sup>

The extent and range of dengue fever worldwide has expanded markedly over the last 30 years. Factors leading to the expansion are thought to be rapid urbanisation (water supplies are inadequate leading people to store water in open containers where mosquitoes can breed), increased population mobility (leading to increased transmission in new areas) and population explosion (putting a strain on health care services). Information on the extent of dengue fever in South East Asia is unreliable, with many cases and outbreaks not reported. The WHO has called for improved surveillance and reporting of dengue fever to enable better planning of control efforts.

## Latin America and the Caribbean

The Pan American Health Organization (PAHO) reported 643,123 cases of dengue fever across Latin America and the Caribbean between 1 January and 13 October 2007, 13,087 of which have developed into dengue haemorrhagic fever (including 183 deaths). The PAHO reported that, with the current wet conditions caused by the La Niña climatic condition, the total number of cases across the region this year could exceed one million.

Central and Andean America (which includes the countries of Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Bolivia, Colombia, Ecuador, Peru and Venezuela) has been particularly badly affected, with a high proportion of haemorrhagic fever cases. While only 24% of the cases of classical dengue fever in 2007 between 1 January and 13 October 2007 were reported from Central and Andean America, 91.4% of the haemorrhagic fever cases were from this region.

## Ebola haemorrhagic fever

Between 8 June and 2 October 2007, the WHO reported 76 suspected cases (25 of them laboratory confirmed) of Ebola haemorrhagic fever from the Democratic Republic of the Congo.<sup>9</sup> All of the confirmed cases were located in the Mweka and Luebo health zones in one small area of Kasai Occidental Province. Concurrent outbreaks of typhoid and *Shigella dysenteriae* type 1 were occurring in the same areas during this outbreak, which may have inflated suspected case numbers. The WHO had earlier reported suspected cases as 372 (including 166 deaths) as of 11 September 2007,<sup>10</sup> but this was later revised downwards following epidemiological investigations (see above).

On 29 August 2007, African media reported an outbreak of an unknown disease in the Mweka area of the Kasai Occidental Province of the Democratic Republic of the Congo.<sup>11</sup> The Ministry of Health confirmed an outbreak of Ebola haemorrhagic fever following laboratory confirmation from the Centers of Disease Control and Prevention (CDC), Atlanta and the Centre International de Recherches Médicales de Franceville. The first suspected cases became ill on 8 June 2007 following the funeral of a village chief, which all of the early cases attended. The most recent case was confirmed on 30 September 2007.

The Ministry of Health and members of WHO Global Outbreak Alert and Response Network and other networks worked in partnership during this outbreak to investigate cases; establish field isolation and testing units; mobilise resources; and improve local infrastructure and infection control proce-

dures.<sup>9,10</sup> The effective response to this outbreak highlights the importance of international networks in supporting the control efforts of ministries of health during major disease outbreaks.

## Influenza (avian)

### Global update

The WHO confirmed nine human cases of H5N1 with dates of onset between 1 July and 30 September 2007.<sup>12</sup> Seven of the nine cases were fatal, (CFR 78%).<sup>12</sup> The WHO reported 16 cases including 12 deaths (CFR 75%) with dates of onset during the same period of 2006.<sup>13</sup>

Indonesia continues to report the most cases, with six of the nine cases during the quarter.<sup>12</sup> Vietnam reported two cases (one of them fatal) and Egypt reported one non-fatal case.<sup>12</sup>

The source of infection for four of these nine cases was established as exposure to sick and dead poultry, while the source for five others was not reported, but there was no evidence of human-to-human transmission in any of these cases.<sup>12</sup>

On 31 August 2007, the WHO introduced an External Quality Assessment Project for national reference laboratories for the detection of subtype influenza A viruses. The WHO has therefore amended the criteria for accepting confirmed cases of A (H5) infection. Based on the amended criteria, the Ministry of Health of Vietnam confirmed three additional cases of human infection with H5N1 avian influenza, including two deaths with dates of onset between 1 May and 30 June 2007.<sup>14</sup>

## Marburg haemorrhagic fever

On 30 July 2007, the Ministry of Health in Uganda reported a fatal case of Marburg haemorrhagic fever (following laboratory confirmation by the CDC, Atlanta) in a 29-year-old man from the Kamwenge district.<sup>15</sup> The man had onset of symptoms on 4 July 2007 and died on 14 July 2007.<sup>15</sup> This fatal case had close contact with two earlier probable cases (non-fatal), one of whom became ill in early June and the other on 27 June 2007. Both subsequently tested positive for anti-Marburg virus IgG. These three cases were co-workers at a mine in western Uganda (that mine had recently been re-opened after 50 years of closure).

The Ministry of Health declared that the outbreak was contained on 9 August 2007,<sup>16</sup> but in late September 2007 a further suspected case (subsequently laboratory confirmed by the CDC, Atlanta) was reported in a man who had re-entered the mine (which was closed) where the earlier cases were thought to have contracted the infection.<sup>17,18</sup>

The reservoir of Marburg virus is unclear (possibly non-human primates or bats) and the mode of transmission to humans is not well described.<sup>19,20</sup> Three possible sources of the infection in the current outbreak are being investigated: a Colobus monkey that the probable index case slaughtered in the week prior to becoming ill (there is no laboratory evidence on whether the monkey was infected with the virus); a large bat colony resident in the mine where the men worked (with limited, if any, human contact before the mine was re-opened); and ticks (workers at the mine complained of tick bites).<sup>21</sup>

Between 1967 and 2007, a number of outbreaks of Marburg haemorrhagic fever have occurred in, or been linked to central and southern Africa (including Uganda). The most extensive outbreaks occurred in the Democratic Republic of the Congo (which borders Uganda) in 1998–99, with 103 cases (CFR 67%) and Angola in 2004–05 with 374 cases (CFR 88%).<sup>22</sup>

## Poliomyelitis

### Global update

Between 3 July and 10 October 2007, the Global Polio Eradication Initiative reported 288 cases of wild poliovirus infection from the endemic countries of Afghanistan (8), India (191), Nigeria (83) and Pakistan (6) and 29 cases of wild poliovirus from the re-infected countries of Angola (7) Chad (5), the Democratic Republic of the Congo (15), Myanmar (1) and Niger (1).<sup>23</sup>

Fewer cases of wild poliovirus have been reported between 1 January and 10 October 2007 than during the same period of 2006, with a 41% reduction in the number of cases reported from endemic countries and a 65% reduction in the number reported from re-infected countries.<sup>23</sup> Transmission of wild poliovirus has been interrupted in 10 of the 13 re-infected countries where it had been circulating in 2006.<sup>24</sup> Myanmar and Niger reported new outbreaks in 2007 following importations of the virus.

### Nigeria

The WHO has now reported on a rare outbreak of vaccine-derived polio in Nigeria that occurred between 2006 and August 2007 with 69 children contracting the infection from others who had been immunised.<sup>25,26</sup> The weakened form of live poliovirus used in the oral polio vaccine (OPV) is thought to have mutated and been excreted, infecting the others through faecal-oral contact. Of the 69 children affected, 60 were either not vaccinated or insufficiently vaccinated.<sup>26</sup> Similar OPV-associated outbreaks have occurred in nine countries in the past 10 years, all in communities with low immunisation coverage,

resulting in approximately 200 vaccine associated polio cases, while more than 6.5 million wild polio cases were prevented by the polio vaccine.<sup>26</sup>

## West Nile virus infection

### North America

Canada reported its worst ever West Nile virus (WNV) season in 2007. Between 1 January and 13 October 2007, the Public Health Agency of Canada reported 2,290 cases (including mild infections and asymptomatic cases), of which none were fatal, compared with 123 cases (none fatal) during the same period of 2006.<sup>27</sup> The presence of WNV in Canada was first confirmed in birds in 2001, with the first human cases reported from Quebec in 2002.<sup>27,28</sup>

The United States of America (USA) reported a similar WNV season in 2007 to the previous 3 years.<sup>29</sup> Between 1 January and 16 October 2007, the CDC reported 3,022 human cases of WNV infection including 76 deaths, compared with 3,498 cases including 108 deaths during the same period of 2006.<sup>30</sup> The first outbreaks of WNV in the USA were in New York in 1999, with widening spread across the country since then.

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