OVERSEAS BRIEF

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.

Reporting period 1 April to 30 June 2007

Avian influenza

The World Health Organization (WHO) confirmed 15 cases of human H5N1 with dates of onset between 1 April and 30 June 2007[1] compared with 33 cases including 23 deaths during the same period of 2006.[2] Nine of the 15 cases were fatal, resulting in a case-fatality rate (CFR) of 60%.[1] The 15 cases were reported from Cambodia, China, Egypt, Indonesia and Vietnam.[1]

Indonesia reported the highest number of cases (7 cases, including 6 deaths), and has reported the highest number of cases since the beginning of the global outbreak in November 2003 (102 cases including 81 deaths to 10 August 2007).[3]

Vietnam reported two non-fatal human cases of H5N1, which were the first cases in the country since November 2005.[4] Between May and August 2007, the Vietnamese Ministry of Health reported an additional five human cases of H5N1 (including 4 deaths), which have not yet been confirmed by the WHO.[5,6,7]

The source of infection for nearly all cases was established as exposure to sick and dead poultry.[1] Only one case, a 19-year-old soldier from China, had no clear source of infection identified and no obvious exposure to sick or dead poultry,[8] but there was no evidence of human-to-human transmission.

Chikungunya

There have been fewer outbreaks of chikungunya world-wide in 2007 than in previous years, but the disease is now common in Indonesia and India.

India

Major outbreaks of chikungunya have continued in India, with widening geographical incidence. Between January and early July 2007, there were approximately 19,000 probable cases of chikungunya fever in Kerala State, with 177 deaths thought to be at least partly due to the infection. An outbreak of chikungunya was also reported from Orissa State in May 2007, with 642 cases, including four deaths. There were also a number of cases reported in the capital, Delhi, but most were imported from areas outside the city.[9,10,11]

Indonesia

Indonesia reported 30 suspected cases (5 confirmed) of chikungunya from Central Jakarta during May 2007, the first in the Indonesian capital since 2004. In Lampung Province on the southern tip of Sumatra, health authorities reported a suspected outbreak of chikungunya fever, with 100 cases between April and May 2007.[12–16]

Dengue fever

Dengue fever is the most common viral illness world-wide and the global burden of disease due to dengue has increased more than fourfold in the last 30 years. Dengue fever is hyper-endemic (an endemic disease that affects a high proportion of the population at risk) in South East Asia and the Western Pacific, which are the regions most seriously affected by the disease.[17] Information on the extent of the disease in the Western Pacific Region is unreliable, with many cases and outbreaks not reported.[18] Outbreaks of dengue fever were reported across South East Asia during the reporting period, with major rises in incidence compared with previous years.

Cambodia has been one of the countries worst affected during the outbreaks, particularly due to the country's lack of resources to properly treat cases and implement control programs. The Cambodian Ministry of Health reported 27,265 cases of dengue fever, including 304 fatal cases (all of them children) between 1 January and 29 July 2007, a 60% increase over the number of cases that were reported for the whole of 2006 and nearly twice as many fatal cases.[19,20]

The outbreak of dengue in Singapore peaked in late June and early July, when 432 cases were reported in one week, crossing the epidemic threshold. The Ministry of Health reported 3,213 cases of dengue fever between 1 January and 30 June 2007.[21] The last epidemic of dengue in the country was in 2005 when 714 cases were reported in a single week.[22]

The Ministry of Health in Myanmar estimates that there were 30 fatal cases of dengue haemorrhagic fever between January and June 2007, a higher mortality rate than seen in 2006. The WHO has stated that the number of cases in the first half of 2007 is a 29% increase over the same period of last year.[23,24]

Other South-East Asian countries severely affected by outbreaks of dengue fever in 2007 include Thailand (a 17% increase in the number of cases between January and May 2007 compared with the same period of 2006),[25] Indonesia (100,000 cases including 1,100 deaths between January and July 2007, similar to 2006),[25,26] Vietnam (a 40% increase in the number of cases between January and June 2007 compared with the same period of 2006) and Malaysia (30,285 cases including 65 deaths between January and July 2007 compared with 20,258 cases including 49 deaths for the whole of 2006).[27]

Measles

Global update

Between 1 April and 30 June 2007, a number of countries reported outbreaks of measles including Canada, the Democratic Republic of the Congo, Japan, Norway, the Russian Federation, Switzerland, Taiwan and the United Kingdom. Cases of measles were also imported into Australia and the United States of America. The outbreak of measles in Japan was of particular concern to Australia because of the large number of people who travel between the two countries for tourism, education and business.

Japan

In February 2007, Japan's Infectious Disease Surveillance Centre (IDSC) reported an increase in the number of measles cases from Japan's southern Kanto region, including Tokyo and Saitama Prefecture. The outbreak spread to the nearby Prefectures of Chiba, Saitama and Kanagawa and then to the most northerly prefecture in the country, Hokkaido.[28] Young people were the most affected in the outbreak and a number of schools and universities were closed in an attempt to stop the infection spreading further.[29,30,31]

The outbreak of measles in most areas peaked between 21 and 27 May 2007[28] when the IDSC reported 215 paediatric cases and 387 adult cases from the sentinel surveillance system. The sentinel surveillance system collects data from approximately 3,000 paediatric healthcare facilities and 450 other hospitals across the country, which is only a proportion of all healthcare facilities (including approximately 10% of the paediatric facilities), so the total number of cases during the outbreak is not known. Between 1 January and 24 June 2007, the IDSC reported a total of 2,450 cases from the sentinel surveillance system compared with 545 cases of measles for the whole of 2006. It is estimated that only 10%-20% of cases each year are reported.[32]

One-dose measles immunisation rates in Japan for some of the most affected age groups are estimated to be 97% for 2 to 10-year-olds, 95% for 11 to 20-year-olds, 88.6% for 20 to 29-year-olds and 85% for 30 to 39-year-olds, but a single dose may not be sufficient to ensure strong lifetime immunity. Two-dose coverage in Japan is low (estimated at 40%), because two-dose immunisation was only introduced in 2006 for children starting school.[33,34,35] The Ministry of Health, Welfare and Labour will commence a catch-up measles vaccination campaign in the next academic year for school students. Doses will be administered to students in their first year of primary school and third year of high school commencing in the next academic year.[36,37]

Nipah virus

In early April 2007, six fatal cases of acute neurological syndrome were reported from the Kushtia region of western Bangladesh.[38] Three of the six cases tested positive for Nipah virus at the Institute of Epidemiological Disease Control and Research in Dhaka.[39] The International Centre for Diarrhoeal Disease Research identified a further 12 probable cases during the outbreaks, including five deaths that occurred between 21 January and 4 April 2007.[40] Seven of these probable cases were from the Thakurgaon region in northern Bangladesh.[40]

In mid-April 2007, an outbreak of Nipah was reported from the Nadia district of West Bengal (neighbouring the Kushtia region) with approximately 50 suspected cases, including three deaths, between February and mid-May 2007. Only the three fatal cases (all members of one family) were confirmed by the National Institute of Virology in Pune.[41,42,43] Some media sources reported a further two fatal cases (one was a relative of the earlier three fatal cases and one was a healthcare worker),[44] but there is doubt as to whether the deaths were due to Nipah virus infection or other causes of encephalitis.

Outbreaks of Nipah in south Asia have a strong seasonal pattern and a limited geographical range.[40] In 2005, there were 12 human cases (including 11 fatal) reported from the Tangail district of Bangladesh, most of them related to the consumption of fresh date palm juice contaminated by infected bats (thought to be the natural reservoir of the virus). However, in an outbreak between February and April 2004 with 36 cases (CFR 75%) in the Faridpur district, there was evidence of human-to-human transmission in some of the cases.[45] In particular, two of the fatal cases acquired the disease after having casual contact with a relative who was dying of the infection.[46] The 2004 outbreak was also unique in that six of the cases developed acute respiratory distress syndrome, rather than the neurological symptoms usually observed in Nipah virus cases.[46]

Health authorities were investigating a number of possible sources for the 2007 outbreaks. The probable index case in the Nadia outbreak visited the Kushtia region of Bangladesh in February 2007 and developed a fever within days of his return.[47] The wife of one of the three fatal cases in Nadia said that bats (which could be carrying the virus) are common in her village and even enter homes.[48]

Polio

Global update

There are currently four countries that are considered to have endemic wild polioviruses (India, Afghanistan, Pakistan and Nigeria), while another six countries (Angola, Myanmar, Chad, Democratic Republic of the Congo, Niger and Somalia) are considered to be re-infected, with active transmission of wild polioviruses following imported cases. Between 1 January and 17 July 2007, 239 cases of wild poliovirus have been reported from endemic countries and 55 cases from re-infected countries (each of the six re-infected countries listed above has reported cases in 2007) compared with 669 cases in endemic countries and 72 cases from re-infected countries in the same period of 2006.[49] There are a number of other countries (including Australia) that have had imported cases of polio since 2000, but none have had local transmission since 2003 and all are considered to be polio-free. Countries that have adequate surveillance systems are considered to be polio-free after three consecutive years without local transmission of wild polio viruses.

Pakistan

Polio in Pakistan is of particular interest following the case that was imported to Australia on 1 July 2007. Progress has been made towards the eradication of polio in Pakistan, but wild polioviruses continue to circulate in certain areas. The case of polio that was imported to Australia (a WPV 1 case) may have been acquired in the northern transmission zone. The virus typing indicated a genetic similarity to a strain that was circulating in the North West Frontier Province in 2006 and the case was known to have visited the Swat area in the North West Frontier Province.[50]

Between 1 January and 16 July 2007, Pakistan confirmed 10 cases of polio, compared with 40 cases of wild poliovirus in 2006.[51] In 2007, all cases of polio in Pakistan were located in two transmission zones, one of which borders Afghanistan. Cross-border transmission with Afghanistan remains a challenge in the drive to eradicate polio from Pakistan.[52] Four cases of wild poliovirus have been reported from the transmission zone in the North West Frontier Province in 2007. One of these cases (from the Nowshera district) was a WPV 3 case and the other three (1 each from the Kyber, Nowshera and Peshawar districts) were all WPV 1.[51,53] Cases in the other transmission zone, which spans the border of Sindh and Balochistan Provinces, are predominately WPV 3.[53] Only one WPV 1 case was reported (from the Khibaldia district of Sindh Province) from this zone.[51,53] All of the other cases were WPV 3, with cases in the Jocobabad (2 cases) and Khairpur (1 case) districts of Sindh Province and the nearby Nsirabad district (2 cases) of Balochistan Province.[51]

Tuberculosis

Human immunodeficiency virus and tuberculosis co-infection

A close association between human immunodeficiency virus (HIV) and tuberculosis (TB) is seen in a number of Western Pacific Region countries. TB is often asymptomatic, but co-infection with HIV and TB can lead to a large number of clinical cases, and HIV/TB co-infection is also the leading cause of deaths amongst HIV positive people.[54] The association is of most concern in Papua New Guinea (PNG) and Vietnam where the estimated prevalence of HIV among TB patients is 9.7% and 3% respectively (the prevalence of HIV overall in these countries is 1.8% and approximately 0.9%, respectively).[55–57] While the prevalence of HIV amongst TB patients in Cambodia is higher (9.9%), it has decreased from 11.8% in 2003.[57]

Prevalence and mortality rates of TB in PNG have dropped by 75% and 78% respectively between 2000 and 2005, with prevalence dropping to less than 0.5% (475 cases per 100,000 population),[57] while the prevalence of HIV is rising. The case detection rate of TB (the number of cases notified compared with estimated cases) in PNG is above the average for the Western Pacific Region (76% compared with 63%).[57] There are no data on drug susceptibility of TB in cases in PNG because the country does not have laboratories with the capacity for drug susceptibility testing.[57]

Drug resistant strains

In 2006, extensively drug resistant strains of TB (XDR-TB) with resistance to first line antibiotics and to at least one of the three injectable second-line antibiotics (amikacin, capreomycin or kanamycin) were reported from all regions of the world.[58] XDR-TB is a major threat to international public health, especially in areas with a high prevalence of HIV. In 2007, the WHO expects to treat 5,960 patients for XDR-TB, rising to 9,477 in 2008, which are only 25% and 43% respectively of the estimated number of global cases.[58]

United States of America and international travel

On 12 May 2007, a confirmed case of XDR-TB was found to have travelled on international flights between Atlanta, Europe and Canada, despite advice not to travel.[59,60,61] The US Centers for Disease Control and Prevention coordinated extensive contact tracing and investigation and the WHO released detailed information on the case and on the guidelines for the investigation.[61,62]

Thailand

In early June 2007, AID workers reported two cases of XDR-TB from the Thai border town of Mae Sot, both cases were immigrants from Myanmar. These are the first cases of XDR-TB ever reported from the country. Myanmar is unable to treat serious cases of TB, so many people travel across the border to Thailand to obtain treatment.[63]

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