Influenza at the human-animal interface

Summary and assessment as of 7 May 2012

Human infections with avian influenza A(H5N1) virus and associated animal health events

From 2003 through 07 May 2012, 603 laboratory-confirmed human cases with avian influenza A(H5N1) virus infection have been officially reported to WHO, of which 356 died, from 15 countries. Since January 2012, 25 human cases of influenza A(H5N1) virus infection have been reported to the WHO.

Between 2 April and 7 May 2012, 3 new human cases have been reported from Cambodia (1), Egypt (1) and Indonesia (1),

According to FAO, H5N1 viruses are thought to be circulating endemically in poultry in China, Egypt, Indonesia, Viet Nam, Bangladesh and India. In Cambodia, sporadic reintroduction into poultry populations is thought to occur\(^1\). The epidemiologic curve of recent human cases (Figure 1) follows the same pattern seen in previous years, with larger numbers of cases in the winter months, decreasing towards summer in the northern hemisphere. This curve follows the seasonal curve of outbreaks in birds.

Figure 1: Epidemiological curve of avian influenza H5N1 cases in humans by country and month of onset

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\(^1\) Approaches to Controlling, Preventing and Eliminating H5N1 Highly Pathogenic Avian Influenza in Endemic Countries. Rome, United Nations Food and Agriculture Organization, 2011
All new cases were sporadic cases. No further cases linked to the confirmed cases were reported. All have an exposure to sick or dead poultry, contaminated environment or poultry products reported and all cases are reported from countries where H5N1 is circulating in animals. No further virological information regarding these cases is yet available to WHO.

Table 1: laboratory-confirmed human cases of avian influenza A(H5N1) virus infection (5 March -2 April 2012)

<table>
<thead>
<tr>
<th>Country</th>
<th>Province</th>
<th>Age</th>
<th>Sex</th>
<th>Date of onset</th>
<th>Date of Hospitalisation</th>
<th>Oseltamivir treatment Start date</th>
<th>Date of death</th>
<th>Exposure to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>Kampong Chhnang</td>
<td>6</td>
<td>F</td>
<td>22/03/2012</td>
<td>28/03/2012</td>
<td>NA</td>
<td>30/03/2012</td>
<td>Sick/ death poultry</td>
</tr>
<tr>
<td>Egypt</td>
<td>Giza</td>
<td>36</td>
<td>F</td>
<td>01/04/2012</td>
<td>07/04/2012</td>
<td>NA</td>
<td>07/04/2012</td>
<td>Backyard poultry</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Riau</td>
<td>2</td>
<td>M</td>
<td>14/04/2012</td>
<td>21/04/2012</td>
<td>NA</td>
<td>27/04/2012</td>
<td>Contact with quail eggs</td>
</tr>
</tbody>
</table>

NA: not applicable or not available

Overall public health risk assessment: Poultry outbreaks and sporadic human cases and small clusters would be expected at this time of year. These sporadic cases do not appear to have features that would raise concern regarding onward sustained human to human transmission.

Human infections with other animal influenza viruses

A new case of A(H3N2)v human infection in a child in Utah has been reported from the United States of America (USA)\(^2\). The case had onset of disease at 28 March 2012, was treated with oseltamivir on 29 March and recovered at home. Exposure to swine in week before onset has been noted. The case in Utah brings the number of human infections with influenza A(H3N2)v viruses detected in USA to 21 since July 2009. Thirteen of those 21 A(H3N2)v viruses have had the 2009 H1N1 M gene and have occurred since July 2011. Twelve of these 13 cases have occurred in children younger than 18 years old. All patients have recovered from their illness. Recent seroepidemiological studies\(^3,4,5\) have shown a low prevalence of cross-reactive antibodies to this virus in children under 12 years of age but a considerable prevalence especially in young adults, consistent with immunity to related viruses that were circulating in humans during the mid-1990’s. This also explains why the cases were mostly found in children and the lower health impact in adults. Currently available seasonal vaccines are found to provide limited cross-protection to influenza A(H3N2)v in adults and no cross-protection in young children. A vaccine virus specific for A(H3N2) virus has been developed in USA and could be used to produce an H3N2v vaccine, if needed\(^3\). Further sporadic cases are expected as this virus is circulating in the swine population in the USA and given the changing nature of influenza viruses, continued vigilance is required.

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\(^2\) [http://www.cdc.gov/flu/spotlights/h3n2v-variant-utah.htm](http://www.cdc.gov/flu/spotlights/h3n2v-variant-utah.htm)

\(^3\) Antibodies Cross-Reactive to Influenza A(H3N2) Variant Virus and Impact of 2010-11 Seasonal Influenza Vaccine on Cross-Reactive Antibodies-United States, MMWR Vol 61/No 14 April 13, 2012


\(^5\) Waalen et al, Age-dependent prevalence of antibodies cross-reactive to the influenza A(H3N2) variant virus in sera collected in Norway in 2011; Euro Surveillance 2012; 17(19) web link: [http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20170](http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20170)
The finding of 2 human cases of A(H10N7)virus infection has been published\(^6\). In March 2010, an outbreak of low pathogenic avian influenza (LPAI) A(H10N7) occurred in a chicken farm in New South Wales, Australia. The two cases were detected in abattoir workers that processed clinically normal birds from the farm. The two workers, who both developed conjunctivitis and one also with mild upper respiratory symptoms, were tested positive for influenza A(H10N7) virus by PCR. There was no evidence of seroconversion by haemagglutination inhibition or virus neutralization tests in the 2 workers from whom convalescent-phase blood was collected. This and the mild symptoms might indicate limited ability of the virus to multiply and stimulate a detectable immune response.


**Relevant Links:**

- WHO Table: Cumulative Number of Confirmed Human Cases of Avian Influenza A/(H5N1) Reported to WHO: http://www.who.int/influenza/human_animal_interface/EN_GiP_LatestCumulativeNumberH5N1cases.pdf

\(^6\) Arzey et al, Influenza Virus A(H10N7) in chickens and poultry abattoir workers, Australia; Emerging Infectious Diseases 2012. Vol 18, No5, May 2012