Risk assessment of avian influenza A(H5N6) – Second Update

Background

In April 2014, the World Health Organisation first reported a case of human infection with avian influenza A(H5N6) from China. Since 2014, a total of 17 human cases of infection with avian influenza A(H5N6) have been reported from seven different provinces across mainland China (1). Two of these cases were in children, one of whom had only mild illness. Of the remaining 15 adult cases, all had a severe illness and at least ten were fatal.

Since 2014, avian influenza A(H5N6) has been responsible for widespread outbreaks in birds across China, Japan and South East Asia, and in 2017 significant outbreaks have been reported from Mainland China, Japan, Taiwan, Hong Kong, Myanmar and Vietnam (2). The virus is highly pathogenic in birds, and has been isolated from both poultry and wild birds.

The majority of human cases of avian influenza A(H5N6) are known to have had contact with birds or their environments prior to becoming ill and there is currently no evidence of human-to-human transmission. WHO considers that the H5 avian influenza viruses have not acquired the ability to transmit easily among humans, and therefore the risk of sustained human-to-human transmission is low at present (3).

On 3 March, Greece reported the first detection of avian influenza A(H5N6) outside of Asia in a backyard flock. Genetic analysis of this virus by the European Reference Laboratory for avian influenza (EURL) concluded that that this virus appears to be distinct from the strain currently circulating in Asia that has been associated with cases in both poultry and humans. Very preliminary analyses based on limited genetic sequence suggests this is as a result of further reassortment involving H5N8 HPAI and endemic Eurasian viruses (4).

Virological risk assessment

The potential risk to human health from influenza A(H5N6) relates to:
• Lack of population immunity to H5 haemagglutinin (HA). The emergence of this virus involved the evolution of the H5 HA of highly pathogenic avian influenza (HPAI) A(H5N1) viruses, for which it is known that there is little population immunity to the HA.
• Neuraminidase immunity may contribute to protection but there is likely to be little population immunity to the N6 neuraminidase subtype.
• The internal genes of this virus are derived from the progenitor of the A(H5N1) virus, and include sequence correlates of mammalian adaptation and virulence. Furthermore, the internal genes of A(H5N1) viruses have frequently become re-assorted with other subtypes of avian influenza viruses since the emergence of A(H5N1), and the internal gene cassette of influenza A(H5N6) has the potential to support recombination events to produce viruses which are even more suited to adaptation and transmission in humans.

Risk Assessment

Affected areas include China, Japan, Taiwan, Hong Kong, Myanmar, Vietnam and Greece, plus any additional countries with current avian influenza A(H5N6) outbreaks, as listed at: http://www.oie.int/animal-health-in-the-world/update-on-avian-influenza/2017/

The risk of influenza A(H5N6) infection to UK residents within the UK is very low.

The risk of influenza A(H5N6) infection to UK residents who are travelling to China or affected areas is very low.

The level of risk of influenza A(H5N6) infection in those who arrive in the UK from China or affected areas and meet the case definition for novel avian influenza infection is low but warrants testing.

The probability that a cluster of cases of severe respiratory illness in the UK is due to influenza A(H5N6) is very low, but warrants testing. A history of travel to China or other affected areas and close contact with either avian species or a confirmed human case would increase the likelihood of influenza A(H5N6).

If there is good compliance with guidance on infection control measures, the risk to healthcare workers caring for cases of influenza A(H5N6) in the UK is very low. However, severe respiratory illness in healthcare workers caring for cases of influenza A(H5N6) warrants testing.

The risk to contacts of confirmed cases of influenza A(H5N6) infection is low but warrants follow up in the ten days following exposure and urgent investigation of any new febrile or respiratory illness.
Advice for travellers

No specific restrictions to travel are advised. However, to help reduce the risk of infection NaTHNaC advise that travellers:

- avoid close or direct contact with live poultry
- avoid visiting live bird and animal markets (including ‘wet’ markets) and poultry farms
- avoid contact with surfaces contaminated with animal faeces
- avoid untreated bird feathers and other animal and bird waste
- do not eat or handle undercooked or raw poultry, egg or duck dishes
- do not pick up or touch dead or dying birds
- do not attempt to bring any poultry products back to the UK
- maintain good personal hygiene with regular hand washing with soap and use of alcohol-based hand rubs

Travellers to China or affected areas should be alert to the development of signs and symptoms of influenza for ten days following their return. It is most likely that anyone developing a mild respiratory tract illness during this time is suffering from seasonal influenza or other commonly circulating respiratory infection. However, if they become concerned about the severity of their symptoms, they should seek appropriate medical advice and inform the treating clinician of their travel history.

Advice for clinicians and health professionals

Clinicians should retain a high level of suspicion of influenza A(H5N6) when managing patients with:

- suspected influenza or confirmed Influenza A (unsubtyped) OR

- confirmed influenza A (unsubtypable as seasonal H3 or H1N1 pdm09)

AND one of the following:

- a history of travel to China or one of the affected areas AND contact with avian species in the ten days before symptom onset, OR

- a history of travel to China or one of the affected areas AND contact with a confirmed human case of influenza A(H5N6) or a human case of severe unexplained respiratory illness resulting in death, in the ten days before symptom onset.

Clinicians should also remember to consider testing for influenza A(H5N1) and influenza A(H7N9) in patients with an appropriate similar travel history.
Guidance on the public health management of possible cases of novel avian influenza, and their contacts, is available on the PHE website: https://www.gov.uk/government/publications/avian-influenza-guidance-and-algorithms-for-managing-human-cases. Contact the local health protection team to discuss possible cases and testing criteria.

The local PHE Public Health Laboratory can provide advice on arranging testing for possible cases of influenza A due to H5/H7: https://www.gov.uk/government/collections/public-health-laboratories


---

**Case Definition for possible cases of avian influenza A(H5N6)**

**Clinical:**

a. Fever ≥ 38°C AND lower respiratory tract symptoms (cough or shortness of breath) OR CXR findings of consolidation OR ARDS

   OR

b. Other severe illness suggestive of an infectious process.

**AND**

Exposure within 10 days of the onset of symptoms, consisting of:-

a. Close contact (within 1 metre) with live, dying or dead domestic poultry or wild birds, including live bird markets, in an area of the world affected by avian influenza A(H5N6), or with any confirmed A(H5N6) infected animal.*

b. Close contact (providing care/touching/speaking distance within 1 metre) with human case(s) of: - severe unexplained respiratory illness resulting in death from listed areas or confirmed Influenza A (H5N6).*

*Affected areas include China, Japan, Taiwan, Hong Kong, Myanmar, Vietnam and Greece, plus any additional countries with current avian influenza A(H5N6) outbreaks, as listed at: http://www.oie.int/animal-health-in-the-world/update-on-avian-influenza/2017/

---

**Further reading**

1. Hong Kong Centre for Health Protection Avian Influenza Report, Published 28 March 2017

2. OIE Update on avian influenza H5 and H7 in animals
