Avian Influenza A(H7N9) 20 March 2014 Surveillance Update

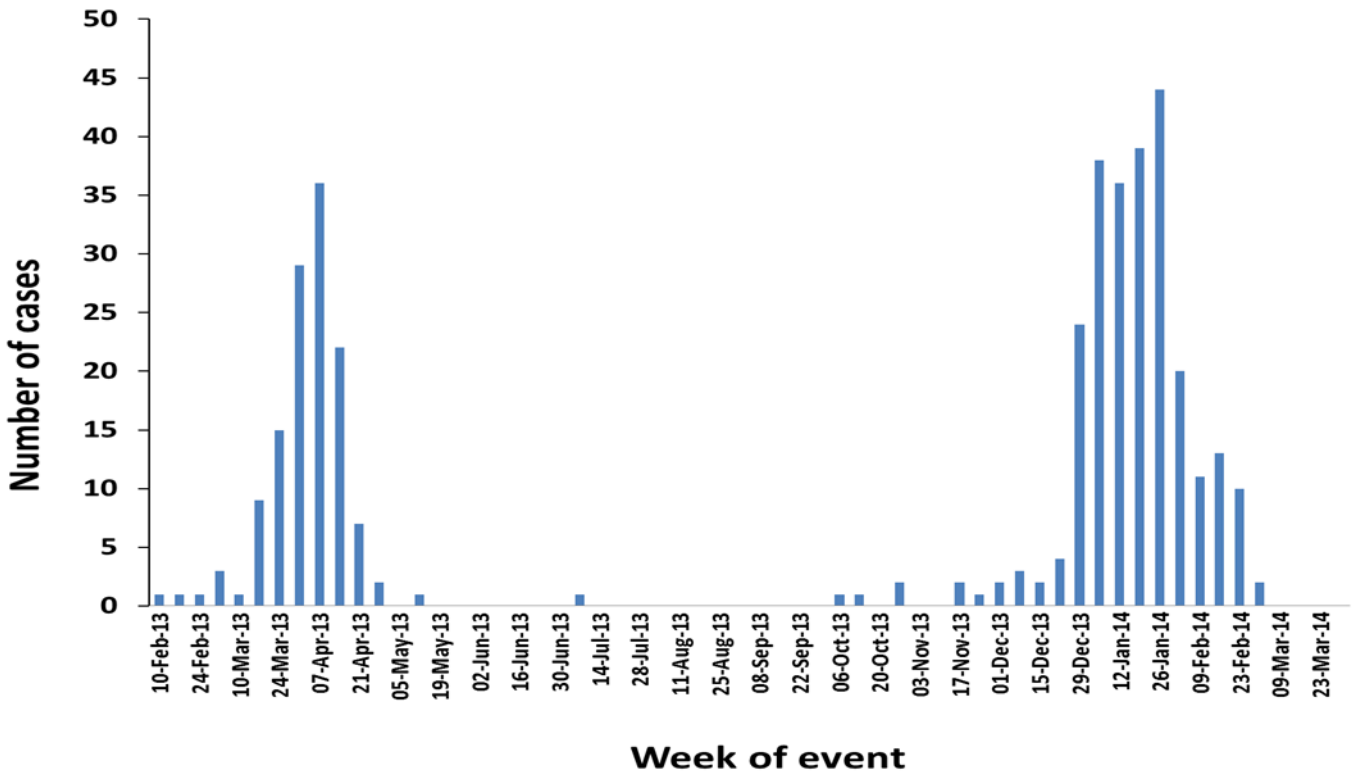
Summary

The WHO has reported 390 human infections including 121 deaths with onset since February 2013. There are still no signs of ongoing, efficient, or sustained human transmission of this virus.

Key Points

- The rate of new case reporting in China has slowed further with six cases reported to the WHO since 6 March. Of the cases reported since 6 March, four were from Guangdong province and one each from Fujian and Anhui provinces (Figure 1).

- **Figure 1 Epi-curve of avian influenza A(H7N9) cases and deaths by *Date of Symptom Onset*, as of 20 March 2014**



Note: Six confirmed cases are missing from the graph due incomplete data. Outbreak case numbers include the asymptomatic child detected through contact surveillance during the first wave which is not included in WHO case totals.

- No adaptation to efficient person-to-person transmission has been observed so far.
- The epidemiology and virology of the second wave is similar to the first, with the majority of cases reporting exposure to infected poultry and live market settings.
- To date, all laboratory-confirmed human infections appear to have been acquired in China (Figure 2).

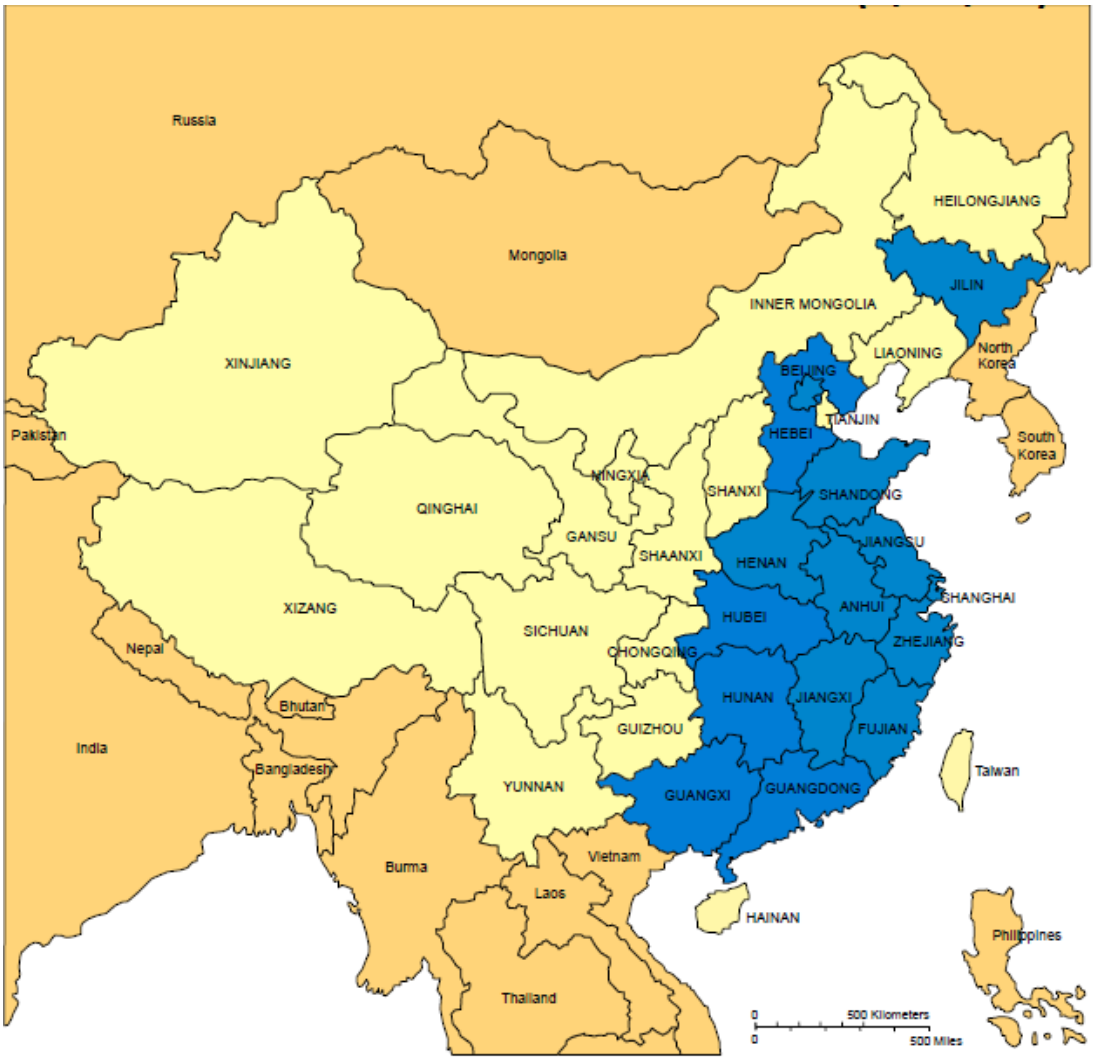
International Activities

- The WHO continues to assess the public health risk posed by avian influenza A(H7N9) to assist rapid and defensible decision-making about acute public health events that pose a risk to human health.
- The WHO Risk Assessment of March 17, 2014 - 11:43 is summarised below:
  - *Does the event have potential to generate a serious public health impact?*
    - *Yes.* Avian Influenza infection with A (H7N9) has caused severe disease in humans in several provinces and municipalities of China. So far, the source and mode of transmission are unknown. Based on the assumption that there is a persistent source and until the source is identified, further

human cases of infection are expected in China. Until the animal source and reservoir is identified, further sporadic human cases of avian influenza A(H7N9) infection are expected in affected and possibly neighbouring areas.

- *Is the event unusual or unexpected?*
  - Yes.
- *Is there evidence for international disease spread?*
  - *No*. At this point in time the risk of international disease spread is considered to be low. To date, preliminary findings of ongoing investigations have not shown that transmission from human to human among contacts have occurred. Nevertheless, investigations into possible family clusters are ongoing.
- *Does the event warrant restrictions to international travel or trade?*
  - *No*. WHO advises against the application of any travel or trade restrictions on China based on the current information available on this event. Should human cases from affected areas travel internationally, their infection may be detected in another country during or after arrival. If this were to occur, community level spread is considered unlikely as the virus does not have the ability to transmit easily among humans. There has been no evidence of sustained human to human transmission, therefore the risk of ongoing international spread of H7N9 virus by travelers is low.

Figure 2 Map of human cases of avian influenza A(H7N9), by province, China, to 20 March 2014.



Province/ City	Number of Cases
Anhui	9
Beijing	5
Fujian	21
Guangdong	93
Guangxi	3
Hebei	1
Henan	4
Hunan	17
Jiangsu	46
Jiangxi	6
Jilin	1
Shandong	2
Shanghai	42
Zhejiang	139

CIDRAP MCEIRS
University of Minnesota

Source: Center for Infectious Disease Research and Policy, University of Minnesota. Note: Chinese provinces with reported cases are shaded in blue. This figure includes cases and deaths confirmed by local authorities; some of these cases have not yet been acknowledged by WHO.

- A mapping study in China that recently predicted the spread of the H7N9 avian flu virus into Guangxi province has flagged northern Vietnam as the next high-risk area [1]. In the study, researchers plotted the locations of H7N9 cases and negative cases from China's flu-like illness surveillance, identified H7N9 risk factors and produced maps that predicted H7N9 risk across Asia. The same method using H7N9 cases reported in the spring wave of cases last year correctly predicted that the virus would spread to Guangxi province, an area that borders northern Vietnam.
- Researchers noted that even though the map was constructed using cases reported during the spring wave, it was able to predict patterns during the second wave.
- In looking at potential spread outside China, the model predicts a high risk of H7N9 infections in humans in northern Vietnam.
- The findings highlight the need for increased surveillance in northern Vietnam for human illnesses and positive samples from live-poultry markets which import 100 tons of hens from China daily to be sold for human consumption.
- Other possible sites in Southeast Asia flagged by the model include northern Laos and eastern Myanmar, but the researchers noted that those nations aren't known to import chickens from areas of China in which H7N9 has been reported.

- H7N9 vaccine development, testing and production is progressing with reports that the first commercial human vaccine may be available as early as May (Global Times from Xinhua).

Animal Health and Control Measures

- Veterinary officials in Macau detected an H7 influenza virus in a batch of live poultry imported from China's mainland (13 March). The chickens originated from a registered farm in Guangdong province that had been quarantined at a poultry wholesale market.
- It should be noted that it's not clear yet if the H7 virus detected in Macau is related to the H7N9 strain infecting mainly poultry and people in China.
- Nevertheless the detection prompted intensive response measures, which included sealing off the market, thoroughly cleaning and sterilizing the facility, and culling 7,500 chickens.
- Further control measures implemented by Macau's government include a suspension of the sale of all live poultry for 21 days.

Research

- Research into the origins, epidemiology and new therapies for H7N9 infection has resulted in 399 articles according to the free search engine, PubMed, which accesses primarily the MEDLINE database of references and abstracts on life sciences and biomedical topics. The United States National Library of Medicine (NLM) at the National Institutes of Health maintains the database.

A report compiled by Dr Rachel de Kluyver, Health Emergency Management Branch, Australian Government - Department of Health. email rachel.de.kluyver@health.gov.au

References

1. **Fuller, T., et al., *Identifying areas with a high risk of human infection with the avian influenza a (H7N9) virus in east asia.* Journal of Infection, 2014. in press.**