Armed Forces Health Surveillance
H7N9 Surveillance Summary
(13 NOV 2015)

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For questions or comments, please contact:
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DEPARTMENT OF DEFENSE (AFHS)

Avian Influenza A (H7N9) Surveillance Summary #52

13 NOV 2015 (next Summary as needed)

CASE REPORT: As of 13 NOV 2015, 728 (+35) human cases of avian influenza A (H7N9) including 259 (+15) deaths have been reported in China, Hong Kong, Taiwan, Malaysia, and Canada. Fourteen of the cases identified over the last seven months were reported without demographic or geographic data; however the majority of cases with geographic data were reported out of Zhejiang Province. FAO reports that a "fourth wave" of the outbreak has already begun and notes this follows the trend set in previous years of an uptick in human cases each winter. FAO expects human cases to "rise sharply in the coming weeks or months" as a result of virus seasonality and critical gaps in biosecurity commonly found in the poultry industry, such as the mixing of species, lack of flock identification and movement control, and close contact between birds at live bird markets. AFHS notes that it is possible only the most severe cases and/or fatalities are being reported by China. It is unknown how many mild or asymptomatic cases have occurred and how many cases have occurred without laboratory testing.

TRANSMISSION: In a study published in CDC's APR 2015 EID Journal, H7N9 antibodies were found among 6.7% of case contacts identified between MAR 2013 and MAY 2014 in China, suggesting that human-to-human transmission does occur and could cause mild or asymptomatic infections.

DIAGNOSTICS AND TREATMENT: As of 28 APR 2015, updated H7N9 testing and reporting guidelines and a list of DoD laboratories can be found at the AFHS website. On 19 APR 2013, FDA issued an Emergency Use Authorization for the CDC Human Influenza Virus Real-Time RT-PCR diagnostic panel – Influenza A/H7 assay; this was made available on 26 APR 2013. WHO confirms oseltamivir (Tamiflu) and zanamivir (Relenza) are recommended treatments for H7N9.

SURVEILLANCE: Reagents to be used for surveillance testing purposes are available via the CDC website. NMRC has produced amplicon H7N9 positive testing control material using the published WHO primers/probes. Kits have been sent to AFRIMS, NAMRU-3, NAMRU-6, NAMRU-2 Phnom Penh, NMRC-A and NHRC for surveillance purposes. Nineteen DoD laboratories have been sent diagnostic kits, as have all 50 states, DC, Puerto Rico, and more than 60 international labs.

BACKGROUND: On 1 APR 2013, WHO reported three human cases of infection with a novel influenza A (H7N9) virus in China. This was the first time human infection with H7N9 had been detected. Seasonality has been observed since the beginning of this outbreak with a consistent pattern of declining incidence through the summer months followed by a spike in cases in the winter months. According to a study published in the Journal of Infection in Developing Countries (JIDC), the ongoing H7N9 outbreak can be characterized by three major waves of transmission. **Page 4** illustrates these ongoing seasonal trends for H7N9 cases.

The overall case-fatality proportion among known cases is 36%, the average age of those affected is 53 years, and at least 149 of the cases reported have been female. The most recent known date of onset was 21 SEP 2015, although most cases have been reported without such detailed information. Cases have been reported in 14 provinces of China: Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hunan, Jiangsu, Jiangxi, Jilin, Shandong, Zhejiang, and Xinjiang; and two municipalities, Beijing and Shanghai. Four cases identified in Taiwan are presumed to have become infected while traveling in Jiangsu. Additionally, cases in Hong Kong (13), Malaysia (1), and Canada (2) are thought to have been imported, most likely from Guangdong, China.

At least 20 small clusters of confirmed illness have been identified since APR 2013, although the majority of human cases have reported exposure to poultry, often via live bird markets. According to health officials, live bird market closures will continue in Shanghai annually for the next five years, pending evaluation of future need. Shanghai did not report cases of H7N9 during the 2013 closures. On 15 OCT, FAO released new guidelines for biosecurity improvements in live bird markets and risk communication regarding H7N9. Confirmed avian H7N9 has been rare and subclinical but has been identified in chickens, ducks, pigeons, and a wild tree sparrow.

INTERAGENCY/GLOBAL ACTIONS: CDC posted interim guidance for H7N9 case definitions in the U.S. and also updated FAQs for H7N9 on 9 SEP 2014. On 6 FEB 2015, CDC issued a travel notice advising travelers to China to avoid contact with poultry (including poultry markets and farms), birds, and their droppings. CDC and WHO advise no special screenings at points of entry, and no trade or travel restrictions. On 23 OCT, WHO released a situation update that says the overall public health risk from H7N9 has not changed since its last Risk Assessment of Human Infections with Avian Influenza A (H7N9) Virus. On 9 NOV, the China Ministry of Agriculture released recommendations for how to improve H7N9 prevention and control efforts for the coming flu season. These include strengthening: monitoring and early warning, live bird market regulations for transporting live poultry, sectorial collaboration, emergency preparedness, advocacy, and information dissemination.

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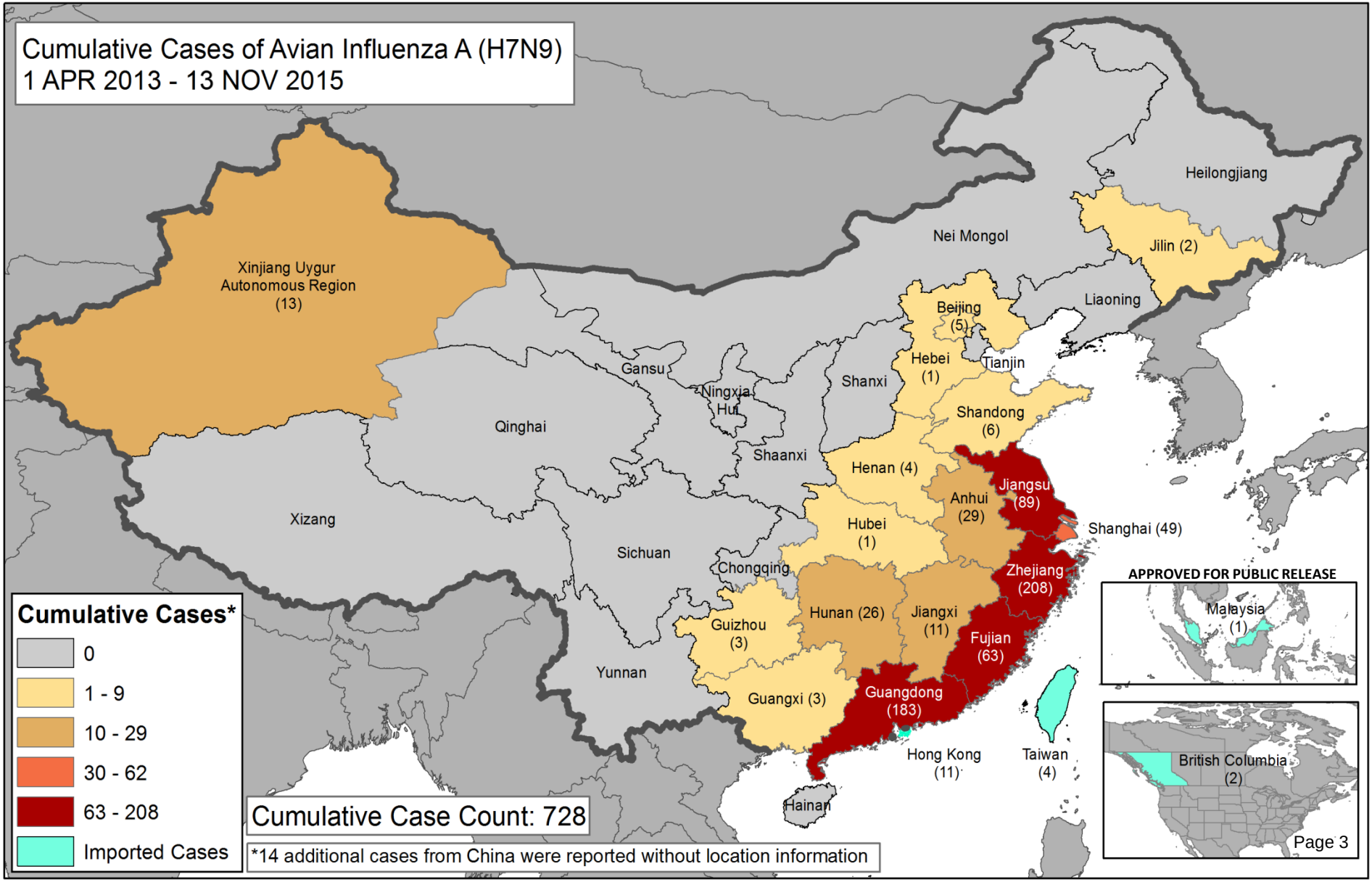

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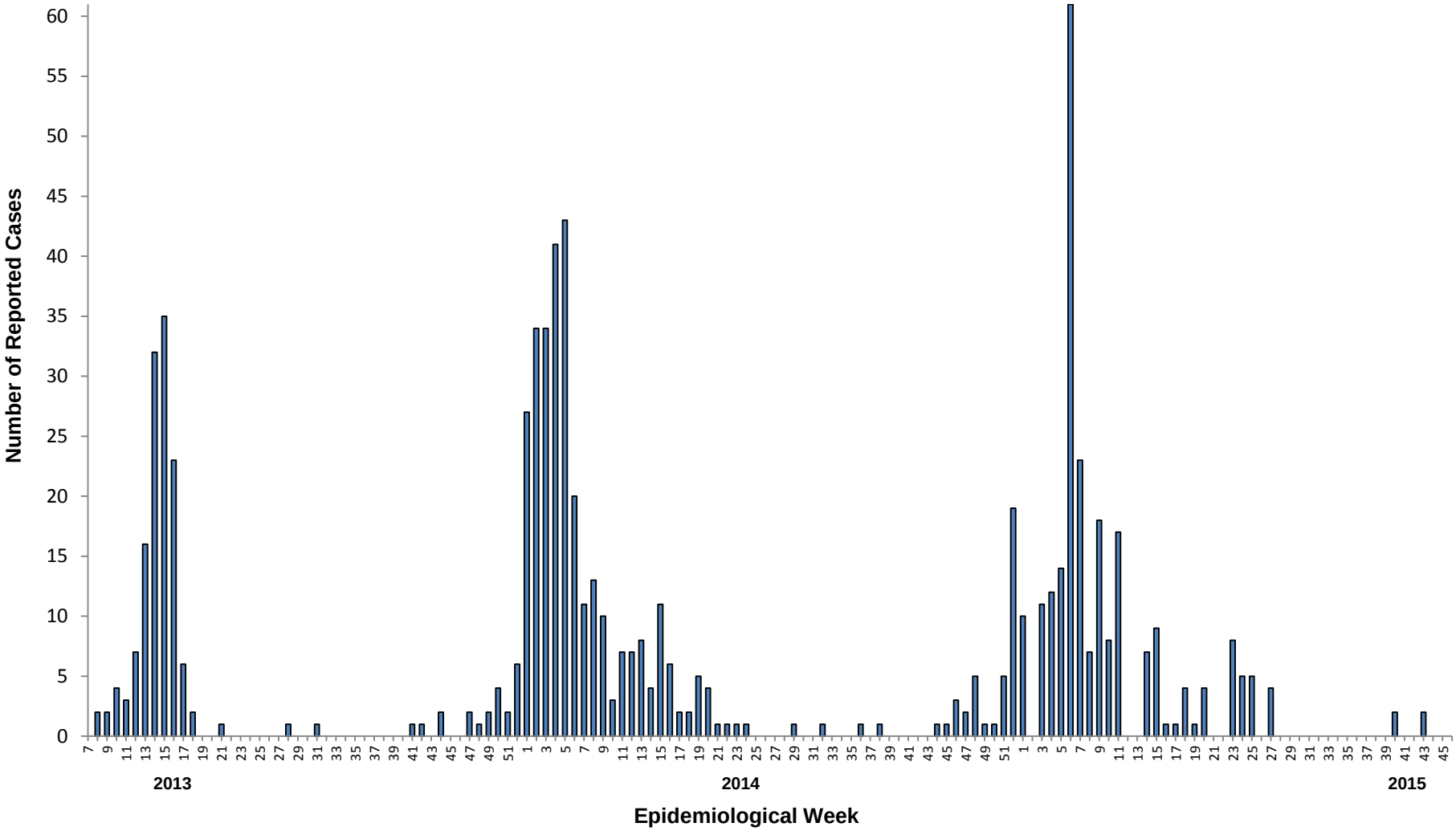
Avian Influenza A (H7N9) Cases by Estimated Week of Onset
As of 13 NOV 2015 (N=728)



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Additional Resources and Media Reports

H7N9 Web Sites

- AFHS Detecting and Reporting DOD Cases of Avian Influenza A (H7N9)
- WHO H7N9 Overview
- WHO Guidelines for H7N9 Post-Exposure Chemoprophylaxis of Close Contacts
- WHO Risk Assessment for Human Infection of H7N9
- CDC H7N9 Overview
- CDC H7N9 Case Definitions
- CDC H7N9 FAQs
- CDC H7N9 Risk Assessment
- CDC Travel Notice
- HHS EUA Declaration

Information and News

- China: Two additional H7N9 avian influenza cases reported in Zhejiang (Outbreak News Today, 11 NOV)
- China's MOA: Preparedness Statement On H7N9 (Avian Flu Diary, 9 NOV)
- Experimental infection of peridomestic mammals with emergent H7N9 (A/Anhui/1/2013) influenza A virus: Implications for biosecurity and wet markets (Journal of Virology, 6 NOV)
- Human Infection with Avian Influenza A (H7N9) Situation Update as of 23 OCT (WHO, 23 OCT)
- Fourth wave of H7N9 avian influenza threatens livelihoods, public health (FAO, 15 OCT)
- A returning migrant worker with avian influenza A (H7N9) virus infection in Guizhou, China: a case report (Journal of Medical Case Reports, 12 MAY)
- Differences in the epidemiology of human cases of avian influenza A(H7N9) and A(H5N1) viruses infection (Journal of Clinical infectious Diseases, 4 MAY)
- Latest WHO DON on H7N9 (WHO, 15 APR)
- Detecting Spread of Avian Influenza A (H7N9) Virus Beyond China (CDC EID Journal, APR 2015)
- Transmission Potential of Influenza A (H7N9) Virus, China 2013-2014 (CDC EID Journal, APR 2015)
- Avian Influenza A (H7N9) Virus Antibodies in Close Contacts of Infected Persons, China, 2013–2014 (CDC EID Journal, APR 2015)
- Co-infection with Avian (H7N9) and Pandemic (H1N1) 2009 Influenza Viruses, China (CDC EID Journal, APR 2015)
- Dissemination, divergence and establishment of H7N9 influenza viruses in China (Nature, 11 MAR)
- Clinical, Virological and Immunological Features from Patients Infected with Re-Emergent Avian-Origin The Third Wave: H7N9 Endemic Reassortment Viruses and Patient Clusters (JIDC, 17 FEB)