2013-08-16-064 Avian influenza, human (102): China, susp.human-to-human infection
To: (01) Public health and One Health Initiative; (06) Virology, general; (07) Zoonoses, general; (08) Emergency diseases and risk of bioterrorism; (12) Scientific Information, research and education;
****

AVIAN INFLUENZA, HUMAN (102): CHINA, SUSPECTED HUMAN-TO-HUMAN INFECTION
****

A ProMED-mail post
ProMED-mail is a program of theInternational Society for Infectious Diseases <http://www.isid.org>

Date: Tue 6 Aug 2013
Source: British Medical Journal, press release [edited]
http://www.bmj.com/press-releases/2013/08/06/first-probable-person-person-transmission-new-bird-flu-virus-china

Avian influenza A (H7N9) virus was recently identified in Eastern China. As of 30 Jun 2013, 133 cases have been reported, resulting in 43 deaths. Most cases appear to have visited live poultry markets or had close contact with live poultry 7-10 days before illness onset.
Currently, no definite evidence indicates sustained human-to-human transmission of the H7N9 virus.

A new study reports a family cluster of 2 patients (father and daughter) with H7N9 virus infection in Eastern China in March 2013.
The 1st (index) patient -- a 60 year old man -- regularly visited a live poultry market and became ill 5-6 days after his last exposure to poultry. He was admitted to hospital on 11 Mar 2013. When his symptoms became worse, he was transferred to the hospital's intensive care unit (ICU) on 15 Mar 2013. He was transferred to another ICU on 18 Mar 2013 and died of multi-organ failure on 4 May 2013.

The 2nd patient, his healthy 32-year-old daughter, had no known exposure to live poultry before becoming sick. However, she provided direct and unprotected bedside care for her father in the hospital before his admission to intensive care. She developed symptoms 6 days after her last contact with her father and was admitted to hospital on 24 Mar 2013. She was transferred to the ICU on 28 Mar 2013 and died of multi-organ failure on 24 Apr 2013.
Two almost genetically identical virus strains were isolated from each patient, suggesting transmission from father to daughter.

43 close contacts of both cases were interviewed by public health officials and tested for influenza virus. Of these, one (a son-in-law who helped care for the father) had mild illness, but all contacts tested negative for H7N9 infection. Environmental samples from poultry cages, water at 2 local poultry markets, and swans from the residential area were also tested. One strain was isolated but was genetically different from the 2 strains isolated from the patients.

The researchers acknowledge some study limitations but say that the most likely explanation for this family cluster of 2 cases with H7N9 infection is that the virus "transmitted directly from the index patient to his daughter." But they stress that "the virus has not gained the ability to transmit itself sustained from person to person efficiently." They believe that the most likely source of infection for the index case was the live poultry market and conclude: "To our best knowledge, this is the 1st report of probable transmissibility of the novel virus person-to-person with detailed epidemiological, clinical, and virological data. Our findings reinforce that the novel virus possesses the potential for pandemic spread."

So does this imply that H7N9 has come one step closer towards adapting fully to humans, asks James Rudge and Richard Coker from the London School of Hygiene and Tropical Medicine, based in Bangkok, in an accompanying editorial? Probably not, they say. Limited transmission between humans "is not surprising, and does not necessarily indicate that the virus is on course to develop sustained transmission among humans." Nevertheless, they point to several traits of H7N9 that are of

particular concern and conclude that while this study might not suggest that H7N9 is any closer to delivering the next pandemic, "it does provide a timely reminder of the need to remain extremely vigilant: the threat posed by H7N9 has by no means passed."

The authors also summarise their findings in a video abstract. Dr Zhou says that the reason for carrying out this study was because there was "no definite evidence to show that the novel virus can transmit person-to-person," plus she and her co-authors wanted to find out whether the novel avian influenza virus possesses the capability to transmit person-to-person. She concludes that: "The infection of the daughter is likely to have resulted from her father during unprotected exposure," and suggest that the virus possesses the ability to transmit person-to-person in this cluster. She does add, however, that the infection was "limited and non-sustainable, as there is no outbreak following the 2 cases."

--
Communicated by:
ProMED-mail
<promed@promedmail.org>

[The presumptive case of human-to-human transmission described above occurred under the specific circumstances of a daughter caring for a severely ill father. No other persons, medical staff or other close contacts, contracted H7N9 virus infection.

There is not yet sufficient evidence to infer that the H7N9 virus may evolve to become transmissible between human patients. - Mod.CP

A HealthMap/ProMED-mail map can be accessed at:
<http://healthmap.org/r/1zaU>.]

[see also:
Avian influenza, human (101): China (HB) H7N9, RFI 20130721.1837415 Avian influenza, human (100): China (BJ) H7N9, new case, RFI
20130720.1836376
Avian influenza, human (99): Canada ex China, H7, NOT
20130716.1828405
Avian influenza, human (98): Canada ex China, H7 20130716.1828022 Avian influenza, human (97): (H7N9) animal studies 20130714.1824448 Avian influenza, human (96): China: (SH) role of immune response
20130714.1824349
Avian influenza, human (94): H7N9 transmissibility characteristics
20130711.1820245
Avian influenza, human (93): China (JS) H3N2/H7N9 coinfection, WHO
20130705.1808666
Avian influenza, human (92): Cambodia (KP) H5N1, fatal
20130702.1803875
Avian influenza, human (91): China, H7N9, adverse outcome & antiviral resistance
20130630.1799984 Avian influenza, human (90): China (JS) H7N9 risk factors
20130627.1796109
Avian influenza, human (89): China (SH) H7N9, 20130626.1793657 Avian influenza, human (88): China, H7N9, relative severity
20130624.1789634
Avian influenza, human (85): China H7N9 20130531.1748328 Avian influenza, human (83): China, H7N9 transmissibility in ferrets & pigs 20130524.1735447 Avian influenza, human (82): China H7N9 update 20130521.1729018 Avian influenza, human (81): China CDC/WHO H7N9 Mission Report
20130518.1722238
Avian influenza, human (80): China H7N9 update 20130517.1720465 Avian influenza, human (79): China H7N9 update 20130515.1715990 Avian influenza, human (78): China H7N9 update 20130514.1713423 Avian influenza, human (77): China H7N9 update 20130512.1708336 Avian influenza, human (76): China H7N9 update 20130511.1706511 Avian influenza, human (75): WHO risk assess. disease profile

20130510.1704795
Avian influenza, human (74): China H7N9 update 20130509.1702261 Avian influenza, human (73): China H7N9 update 20130508.1699902 Avian influenza, human (72): China H7N9 update 20130506.1695656 Avian influenza, human (71): China H7N9 update 20130505.1693136 Avian influenza, human (70): China H7N9 severity hypothesis
20130503.1689393
Avian influenza, human (69): China H7N9, WHO update 20130502.168762 Avian influenza, human (68): H7N9, US view 20130502.1686919 Avian influenza, human (67): H7N9, age distribution 20130501.1679295 Avian influenza, human (66): H7N9 update 20130501.1683390 Avian influenza, human (64): China H7N9 update 20130430.1680704 Avian influenza, human (63): China H7N9 update 20130428.1678573 Avian influenza, human (62): China H7N9 update 20130427.1676859 Avian influenza, human (61): China H7N9 update 20130426.1674993 Avian influenza, human (60): China H7N9 update 20130425.1672341 Avian influenza, human (50): China H7N9 update 20130417.1653194 Avian influenza, human (40): China H7N9 update 20130411.1638767 Avian influenza, human (20): China (JS) H7N9 patient details
20130403.1617279
Avian influenza, human (14): China (Shanghai, Anhui) H7N9, fatal 20130331.1612370]

****