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CDC HEALTH UPDATE

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Human Infections with Avian Influenza A (H7N9) Viruses

This health advisory provides an **update** on the avian influenza A (H7N9) virus [H7N9] situation and includes new recommendations on who should be tested for H7N9 in the United States. This document replaces guidance published on April 5, 2013, in CDC Health Advisory 344 "Human Infections with Novel Influenza A (H7N9) Viruses," found at http://emergency.cdc.gov/HAN/han00344.asp. The updated guidance reflects the most current epidemiology of H7N9 cases, which indicates that almost all H7N9 human infections have resulted in severe respiratory illness; H7N9 has been found rarely among those with milder disease. For that reason, CDC is changing its recommendations for H7N9 testing: **The primary changes from previous guidance are (i) a new recommendation to test only patients with an appropriate exposure history and severe respiratory illness requiring hospitalization and (ii) a request that only confirmed and probable cases of human infection with H7N9 be reported to CDC**. In the previous guidance issued on April 5, CDC recommended that all persons with relevant exposure history and illness compatible with influenza, regardless of severity be tested. CDC will continue to update these recommendations as more information becomes available. The current guidance is consistent with interim surveillance recommendations by the World Health Organization for H7N9 found at http://www.who.int/influenza/human_animal_interface/influenza_h7n9/InterimSurveillanceRecH7N9_10May13.pdf

Summary and Background
As of June 3, 2013, Chinese public health officials have reported >130 cases of human infection with H7N9 from 10 provinces and municipalities in mainland China and Taiwan [1, 2]. Most patients were hospitalized with severe respiratory illness and reported poultry contact prior to illness onset [2, 3]. Preliminary results from influenza-like illness surveillance suggest that H7N9 has not caused widespread mild illness in China [4].

Although several clusters of human infection with H7N9 have been identified in China, **sustained person-to-person transmission of the virus has not been demonstrated. At this time, no cases of human infection with H7N9 have been detected in the United States**, despite testing of >60 persons with respiratory illness who reported recent travel to China.

Clinicians should consider the possibility of H7N9 infection in persons presenting with respiratory illness requiring hospitalization and an appropriate travel or exposure history. Influenza diagnostic testing in patients with severe respiratory illness for whom an etiology has not been confirmed may identify human cases of H7N9.

Confirmed and **probable** cases of human infection with H7N9 in the United States should be reported to CDC within 24 hours of initial detection. See http://www.cdc.gov/flu/avianflu/h7n9/case-definitions.htm. However, state health departments are encouraged to investigate all potential cases of H7N9 infection as described below in order to determine case status.

Interim Recommendations for Clinicians and State and Local Health Departments
CDC recommends the following testing practices based on the current epidemiology of H7N9 cases.

Case Investigation and Testing

- Patients who meet both the clinical and exposure criteria described below should be considered for H7N9 testing by reverse-transcription polymerase chain reaction (RT-PCR) methods. Decisions on diagnostic testing for influenza using RT-PCR should be made using available clinical and epidemiologic information, and additional persons in whom clinicians suspect H7N9 infection should also be tested.

  Clinical Illness Criteria

  i. Patients with new-onset severe acute respiratory infection **requiring hospitalization** (i.e., illness of suspected infectious etiology that is severe enough to require inpatient medical care in the judgment of the treating clinician).

  AND

  ii. Patients for whom no alternative infectious etiology is identified.

  Exposure Criteria

  i. Patients with recent travel (within 10 days of illness onset) to areas where human cases of H7N9 have become infected or to areas where avian influenza A (H7N9) viruses are known to be circulating in animals [1].

  OR

  ii. Patients who have had recent close contact (within 10 days of illness onset) with confirmed cases of human infection with H7N9[2]. Close contact may be regarded as coming within about 6 feet (2 meters) of a confirmed case while the case was ill (beginning 1 day prior to illness onset and continuing until resolution of illness). Close contact includes healthcare personnel providing care for a confirmed case, family members of a confirmed case, persons who lived with or stayed overnight with a confirmed case, and others who have had similar close physical contact.

- If infection with H7N9 is suspected based on current clinical and epidemiological screening criteria recommended by public health authorities, respiratory specimens should be collected with appropriate infection control precautions for novel virulent influenza viruses and sent to the state or local health department for testing. Clinicians should obtain a respiratory specimen from these patients, place the swab or aspirate in viral transport medium, and contact their state or local health department to arrange transport and request a timely diagnosis at a state public health laboratory or CDC. **Viral culture should not be attempted in these cases**. For additional guidance on diagnostic testing of patients under investigation for H7N9 infection, please see http://www.cdc.gov/flu/avianflu/h7n9/specimen-collection.htm.

- Commercially available rapid influenza diagnostic tests (RIDTs) may not detect H7N9 viruses in respiratory specimens. Therefore, a negative rapid influenza diagnostic test result does not exclude infection with H7N9. In addition, a positive test result for influenza A cannot confirm avian influenza virus infection because these tests cannot distinguish between influenza A virus subtypes (they do not differentiate between human influenza A viruses and novel[3] influenza viruses). Therefore, when RIDTs are positive for influenza A and there is concern for novel influenza A virus infection, respiratory specimens should be collected and sent for RT-PCR testing at a state public health laboratory. Clinical treatment decisions should not be made on the basis of a negative rapid influenza diagnostic test result since the test has only moderate sensitivity (http://www.cdc.gov/flu/professionals/diagnosis/clinician_guidance_ridt.htm).

Infection Control

Clinicians should be aware of appropriate infection control guidelines for patients under investigation for infection with novel influenza A viruses. For guidance on infection control precautions for H7N9 see http://www.cdc.gov/flu/avianflu/h7n9-infection-control.htm.

Treatment

For guidance on treatment of patients under investigation for H7N9 with antiviral medications, or for guidance on antiviral chemoprophylaxis of exposed contacts, see http://www.cdc.gov/flu/avianflu/h7n9-antiviral-treatment.htm.

For More Information

- CDC avian influenza A (H7N9) virus information is available at http://www.cdc.gov/flu/avianflu/h7n9-virus.htm.
- WHO Situation Updates on avian influenza are available at http://www.who.int/influenza/human_animal_interface/avian_influenza/archive/en/index.html.
- WHO "Frequently Asked Questions on human infection with A (H7N9) virus, China" is available at http://www.who.int/influenza/human_animal_interface/faq_H7N9/en/index.html.
- The Chinese Center for Disease Control and Prevention (China CDC) "Questions and Answers about human infection with A (H7N9) avian influenza virus" is available at http://www.chinacdc.cn/en/research_5311/FAQ/201304/t20130418_80053.html.
- CDC general information about avian influenza viruses and how they spread is available at http://www.cdc.gov/flu/avianflu/avian-in-humans.htm.

End Notes:

[1]As of June 3, 2013, China was the only country where H7N9 viruses were known to be circulating in animals or where human cases have become infected. Patients with direct or close contact with wild birds or poultry, or animal settings, such as live poultry markets while traveling in these areas should be strongly considered for H7N9 testing. For more information on countries affected, please see the CDC avian influenza A (H7N9) information page at http://www.cdc.gov/flu/avianflu/h7n9-virus.htm.

[2]Contact investigation protocols for confirmed cases may supersede the recommendations described here; testing of close contacts with *any level* of respiratory illness may be pursued, if in the judgment of the investigators, this is warranted.

[3]Influenza viruses that do not typically infect humans are called "novel" influenza viruses; this includes influenza viruses that typically infect birds and swine.

References:

1. Centers for Disease Control and Prevention. Emergence of Avian Influenza A(H7N9) Virus Causing Severe Human Illness - China, February-April 2013. MMWR **2013**; 62(18): 366-71. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6218a6.htm?s_cid=mm6218a6_w
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3. Lee SS, Wong NS, Leung CC. Exposure to avian influenza H7N9 in farms and wet markets. Lancet May 25;381(9880):1815. doi: 10.1016/S0140-6736(13)60949-6. Epub **2013** May 10. http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)60949-6/fulltext?rss=yes
4. Xu C, Havers F, Wang L, Chen T, Shi J, Wang D. Monitoring avian influenza A(H7N9) virus through national influenza-like illness surveillance, China. Emerging Infectious Diseases [Internet], **2013** Jul [*June 3, 2013*]. http://dx.doi.org/10.3201/eid1908.130662.

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