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DIVISION OF PUBLIC HEALTH

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February 8, 2017 *(replaces version dated April 8, 2013)*

To: All North Carolina Clinicians
From: Zack Moore, MD, MPH, Acting State Epidemiologist
Re: **Novel Avian Influenza A (H7N9) Detection, Testing, and Treatment in Humans (2 pages)**

This memo is intended to provide information to North Carolina clinicians regarding investigations of human infection with avian influenza A (H7N9) viruses. H7N9 viruses have not been detected in people or birds in the United States. However, the potential exists for travel-associated cases. Clinicians should consider this information when evaluating patients with influenza-like illness who have a history of travel to China in the two weeks before illness onset.

This version has been updated to include new epidemiologic information and guidance.

Summary

China began reporting human infections with avian influenza A (H7N9) virus in 2013. Annual epidemics of human infections with H7N9 viruses in China have been reported since that time. Most of the infections have been severe and approximately 40% have been fatal. There has been no evidence of sustained person-to-person transmission. Some cases of H7N9 have been reported outside of mainland China, but most occurred among people who had traveled to mainland China before becoming ill. Providers should consider H7N9 infection in travelers who develop influenza-like illness within two weeks after travel to China, especially if exposure to poultry is reported.

Case Investigation and Testing

Testing for influenza A (H7N9) should be considered for patients who have an illness compatible with influenza and meet any of the exposure criteria below:

- Recent travel (within <10 days of illness onset) to areas where human cases of avian influenza A (H7N9) virus infection have occurred or to areas where avian influenza A (H7N9) viruses are known to be circulating in animals (poultry).

  OR
- Recent close contact (within <10 days of illness onset) with confirmed or suspected cases of human infection with avian influenza A (H7N9) virus. Close contact may be regarded as within about 6 feet (2 meters) of a confirmed or suspected case while the case was ill. This includes healthcare personnel (HCP) providing care for a confirmed case, family members of a confirmed case, persons who lived with a confirmed or suspected case, and others who have had similar close physical contact.

  OR
- Unprotected exposure to live avian influenza A (H7N9) virus in a laboratory.

For *Interim Guidance on Case Definitions for Investigations of Human Infection with Avian Influenza A (H7N9) Virus in the United States,* please see https://www.cdc.gov/flu/avianflu/h7n9/case-definitions.htm.

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Clinicians caring for patients meeting these criteria should immediately contact their local health department or the state Communicable Disease Branch (919-733-3419; available 24/7) to discuss laboratory testing and control measures. Testing may also be considered for other persons in whom clinicians suspect influenza A (H7N9) virus infection.

If testing for influenza A/H7N9 is approved, clinicians should obtain the following as soon as possible after illness onset: (i) a nasopharyngeal swab, or (ii) a nasal aspirate or wash, or (iii) two swabs combined into one viral transport media vial (e.g., nasal or nasopharyngeal swab combined with an oropharyngeal swab). If these specimens cannot be collected, a single nasal, or oropharyngeal swab is acceptable. For patients with lower respiratory tract illness, a lower respiratory tract specimen (e.g., an endotracheal aspirate or bronchoalveolar lavage fluid) is preferred. Specimens should be placed into sterile viral transport media and immediately placed on refrigerant gel-packs or at 4°C (refrigerator) for transport to the North Carolina State Laboratory of Public Health. If possible, in order to increase the potential for H7N9 or H5N1 virus detection, multiple respiratory specimens from different sites should be obtained from the same patient on at least two consecutive days.

Specimens should be collected with appropriate infection control precautions for novel virulent influenza viruses. Viral culture should not be attempted in these cases.

Commercially available rapid influenza diagnostic tests (RIDTs) may not detect avian or variant influenza A viruses in respiratory specimens. In addition, a positive test result for influenza A cannot confirm variant or avian influenza virus infection because these tests cannot distinguish between influenza A virus subtypes. Therefore, clinical treatment decisions should not be made on the basis of RIDT results.

For additional guidance on diagnostic testing of patients under investigation for novel influenza A (H7N9) virus infection, please see https://www.cdc.gov/flu/avianflu/h7n9/specimen-collection.htm.

Infection Control

Healthcare personnel (HCP) caring for patients under investigation should adhere to standard precautions plus droplet, contact, and airborne precautions, including eye protection, until more is known about transmission characteristics.

Contact your local health department or the state Communicable Disease Branch immediately to report any clusters of respiratory illness in HCP caring for patients with severe acute respiratory illness. For more information, see *Infection Control within Healthcare Settings of Infections with Novel Influenza A Viruses Associated with Severe Disease* (https://www.cdc.gov/flu/avianflu/novel-flu-infection-control.htm).

Treatment

Due to the potential severity of illness associated with H7N9 virus infection, it is recommended that all confirmed cases, probable cases, and H7N9 cases under investigation receive antiviral treatment with a neuraminidase inhibitor as early as possible. Treatment should be initiated even if more than 48 hours have elapsed since onset of illness and regardless of illness severity.

Laboratory testing and initiation of antiviral treatment should occur simultaneously; treatment should not be delayed for laboratory confirmation of influenza or H7N9 infection.

For more information, see *Interim Guidance on the Use of Antiviral Medications for Treatment of Human Infections with Novel Influenza A Viruses Associated with Severe Human Disease* (https://www.cdc.gov/flu/avianflu/novel-av-treatment-guidance.htm).

Additional information is available from the NC Division of Public Health (www.flu.nc.gov), the World Health Organization (http://www.who.int/influenza/human_animal_interface/influenza_h7n9/en/index.html) and the CDC (http://www.cdc.gov/flu/avianflu/h7n9-virus.htm).