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Human Infection of H5N1 Avian Influenza: Information for Clinicians

BACKGROUND

Avian influenza viruses commonly circulate among birds worldwide. They are typically spread among birds through contact with contaminated nasal, respiratory, or fecal material. In 1997, a unique, highly pathogenic strain of H5N1 subtype of avian influenza appeared in poultry in Hong Kong and has subsequently spread throughout Asia, Europe, and Africa.

In addition to infecting birds, the H5N1 influenza virus can also infect some mammals, including humans; however, bird-to-human transmission has been uncommon. The main route of human infection is direct contact with infected poultry or surfaces and objects contaminated by their secretions or feces. Despite the infection of tens of millions of poultry over large geographical areas for more than two years, only 206 human cases have been laboratory confirmed worldwide as of May 4, 2006.¹ To date there has only been one report of suspected human-to-human H5N1 transmission.

Currently, the H5N1 virus is of great concern for human health because of the risk that this virus could develop the characteristics required to start another influenza pandemic. The virus has met all prerequisites for the start of a pandemic except one: the ability to spread efficiently among humans.

To date, H5N1 influenza virus has not been identified among humans or birds in North America. The U.S. Centers for Disease Control and Prevention (CDC) recommends enhanced surveillance to identify possible cases of H5N1 influenza in humans.² This *Bulletin* updates earlier recommendations for diagnostic evaluation of patients with suspected H5N1 avian influenza.³

EVALUATION FOR SUSPECTED AVIAN INFLUENZA

Contact the Section of Epidemiology immediately for any suspected cases of human avian influenza. Laboratory testing for avian influenza in humans by reverse-transcriptase polymerase chain reaction (RT-PCR) is available at the Alaska State Virology laboratory through consultation with the Section of Epidemiology. Testing is indicated for hospitalized patients with:

- Radiographically confirmed pneumonia, acute respiratory distress syndrome (ARDS), or other severe respiratory illness for which an alternate diagnosis has not been established, **AND**
- A history of travel within 10 days of symptom onset to a country with documented H5N1 avian influenza in poultry, wild birds, and/or humans. For an updated listing of H5N1-affected countries, see the World Health Organization website.¹

Testing for avian influenza A (H5N1) should be considered on a case-by-case basis, for anyone with:

- Documented temperature of $>38^{\circ}\text{C}$ ($>100.4^{\circ}\text{F}$), **AND**
- One or more of the following: cough, sore throat, shortness of breath, **AND**
- A history of contact with poultry (e.g., visited a poultry farm, visited a bird market, or lived in a household raising poultry) in an H5N1-affected country or exposure to known or suspected human case of influenza A (H5N1) within 10 days of symptom onset.

In addition, testing may be recommended for persons in Alaska who exhibit the symptoms listed above and:

- Own or have had recent contact with a poultry flock; **OR**
- Are waterfowl hunters or subsistence egg gatherers; **OR**
- Work extensively with birds; **OR**
- Have substantial exposure to wild, ill, or dead birds.

SPECIMEN COLLECTION INSTRUCTIONS

1. *Consult Section of Epidemiology staff.* At the time of consultation, healthcare providers will be provided with updated guidance regarding specimen collection, information regarding appropriate personal protective equipment, specimen collection forms, and instructions for shipping clinical specimens.
2. *Collect multiple respiratory sample types* from suspect case-patients, including: sputa, throat swab, nasopharyngeal washes/aspirates, and bronchial lavages (if performed). Because most infected persons have had lower respiratory tract infections, collecting only a nasopharyngeal swab or nasal swab is NOT sufficient.
3. Place swabs in viral transport media.
4. Immediately collect acute-phase serum in a serum separator tube, and collect convalescent-phase serum 2 weeks later.
5. Use full personal protective equipment, including gown, gloves, N-95 mask, tight fitting goggles, booties, and hair covering while collecting specimens from suspect patients.

HEALTHCARE PROVIDER INFECTION CONTROL GUIDELINES

Persons suspected of having avian influenza should be placed in a negative pressure room, if available, with full barrier (standard, contact, and airborne) precautions.⁴

ADDITIONAL RECOMMENDATIONS

The information concerning H5N1 is evolving; for the most current information about influenza in Alaska, please refer to:

- The Section of Epidemiology Influenza website at: <http://www.epi.alaska.gov/id/influenza/fluinfo.htm>, and
- The Alaska Pandemic Flu website at: <http://www.pandemicflu.alaska.gov>.

Contact the Section of Epidemiology immediately for any suspected cases of human avian influenza. Call 907-269-8000 during business hours or 800-478-0084 after hours for assistance.

REFERENCES

1. World Health Organization. http://www.who.int/csr/disease/avian_influenza/en/
2. CDC. Update on avian influenza A (H5N1). <http://www.cdc.gov/flu/avian/professional/han020405.htm>
3. H5N1 Avian Influenza: What Clinicians Need to Know. *Epidemiology Bulletin* No. 25, October 27, 2005. http://www.epi.alaska.gov/bulletins/docs/b2005_25.pdf
4. World Health Organization. http://www.who.int/csr/disease/avian_influenza/guidelines/infectioncontrol1/en/index.html