Interim WHO surveillance recommendations for human infection with avian influenza A(H7N9) virus

As of 10 May 2013

Background

On 31 March 2013, the first human infection with avian influenza A(H7N9) virus was reported to WHO by Chinese authorities. In the past, human infections with influenza A(H7) viruses have been associated with poultry outbreaks and resulted mainly in sporadic and mild human infections\(^1\). Thus far, however, most reported cases with confirmed H7N9 infection have presented with pneumonia, with most of these patients being severely ill. There is currently no evidence of ongoing human-to-human transmission. In contrast to avian influenza A(H5N1), this H7N9 virus has molecular markers suggesting “low pathogenicity” in chickens; the virus appears to cause mild or no clinical disease in poultry. Although this may change over time, it will be difficult to monitor the spread of this infection among poultry, owing to the lack of visible disease.

In general, the interim surveillance guidance for H7N9 is similar to surveillance guidance for highly pathogenic avian influenza A(H5N1): [http://www.who.int/influenza/surveillance_monitoring/global_surveillance_h5_guidelines_06_02_2004/en/index.html](http://www.who.int/influenza/surveillance_monitoring/global_surveillance_h5_guidelines_06_02_2004/en/index.html). Interim guidance for surveillance of H7N9 is summarized below and will be updated as more information becomes available.

Objectives of surveillance

The objectives are:

1. To detect human cases of H7N9 infection.
2. To monitor the incidence of new cases over time and the geographical distribution.
3. To detect sustained human-to-human transmission of the virus early.

Recommendations for surveillance and investigation of human infection with H7N9

For all countries

- Increase awareness among all clinicians and health care workers about the possibility of human infection with H7N9 virus and how to report cases.
- In hospital settings, clinicians should consider testing patients with severe unexplained acute respiratory disease. This should be emphasized especially if: the patient had, within two weeks of the onset of illness, a history of recent travel to an area known to have H7N9 circulating in humans or animals; or had exposure to wild or domestic animals or to environments such as markets or farms where live animals are kept or sold; or had been exposed to other individuals with recent severe respiratory illness.
- Monitor and test all clusters\(^2\) of unexplained severe acute respiratory infections (SARI).
- Test any health care worker who develops SARI and has been caring for patients with SARI.
- Monitor existing surveillance systems for acute respiratory disease for unexpected changes in reporting or other aberrations in the data.

In addition to the above, for currently affected countries and areas bordering affected countries\(^3\)

- In hospital settings, clinicians should strongly consider testing patients with severe unexplained acute respiratory disease.

In addition to all of the above, for currently affected countries\(^3\)

- Monitor influenza-like illness and test selectively based on assessment of risk (i.e. contact with animals or live animal markets or occupational exposure), taking into account available capacity and infrastructure.

Testing and investigation of cases

- All positive but unsubtypable specimens of influenza A should be sent immediately to a WHO Collaborating Centre for further analysis: [http://www.who.int/influenza/gisrs_laboratory/collaborating_centres/en/](http://www.who.int/influenza/gisrs_laboratory/collaborating_centres/en/).
- All H7N9 confirmed cases should be further investigated and close contacts monitored to detect potential human-to-human transmission and to better understand exposure risks. More detailed guidance can be found in the WHO guidelines for investigation of human cases of avian influenza.

\(^2\) A “cluster” is defined as two or more persons with onset of symptoms within the same 14-day period and who are associated with a specific setting, such as a classroom, workplace, household, extended family, hospital, other residential institution, military barracks or recreational camp.

Close collaboration with the animal health sector is essential to understand the extent of the risk of human exposure and to prevent and control the spread of animal influenza.

**Case definitions of confirmed and probable cases**

**Confirmed case**

A person with laboratory confirmation of a recent infection\(^4\) caused by the H7N9 virus.

**Probable case**

A person with an acute respiratory infection and clinical, radiological, or histopathological evidence of pulmonary parenchymal disease (e.g. pneumonia or Acute Respiratory Distress Syndrome [ARDS]); AND a history of close contact\(^5\), in the two weeks before illness, with a laboratory-confirmed case of H7N9 virus infection.

**Reporting of confirmed cases**

Until more is known about this virus, national authorities are requested to report all confirmed cases of H7N9 within 24 hours of identification, as well as any apparent changes in patterns of transmission or severity, through the Regional Contact Point for International Health Regulations at the appropriate WHO Regional Office.

Results of ongoing surveillance activities and special studies should be communicated immediately to WHO to inform global risk assessment and guidance. In addition, national authorities are encouraged to share with WHO additional information, including onset dates, age and sex, outcome, information on the clinical spectrum of illness, underlying conditions, exposure information, travel history and treatment information. A form for the collection of detailed case-based data can be found in the Annex.

**Global surveillance results**


Current information about animal surveillance results can be found at:

- OFFLU: [http://www.offlu.net/](http://www.offlu.net/)

---

\(^4\) Currently, the only available diagnostic test is polymerase chain reaction (PCR). However, in the future other testing, such as serology, may be available. This guidance will be updated at that time.

\(^5\) Close contact includes anyone who provided care for the patient, including a health care worker or family member, or who had other similarly close physical contact; anyone who stayed at the same place (e.g. lived with, visited) as a probable or confirmed case while the case was symptomatic.
## Annex 1. Example of data collection

**WHO Minimum Data Set Report Form:**  
**Human infection with an influenza virus with pandemic potential**

Please complete ALL fields. If data are not available, please write in "no data."

*This form is requested for human infections with any influenza virus of a strain not currently circulating widely in humans, including but not limited to:

<table>
<thead>
<tr>
<th>Date form completed:</th>
<th>/ /</th>
</tr>
</thead>
</table>

### Patient Information

<table>
<thead>
<tr>
<th>National patient identification</th>
<th>Sex / Gender</th>
<th>Male □</th>
<th>Female □</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>(years)</td>
<td>(months; please add months only if &lt; 3 years of age)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date of disease onset (dd/mm/yyyy)</th>
<th>Influenza subtype:</th>
<th>H__N__</th>
</tr>
</thead>
</table>

### Pre-existing medical illnesses or co-morbid conditions

Did the patient have any of the following pre-existing medical illnesses or co-morbid conditions?  
- Chronic respiratory disease; Asthma; Diabetes; Chronic cardiac disease; Chronic liver disease; Chronic renal disease; Chronic neurological or neuromuscular disease; Immunodeficiency, including HIV; Obesity.

Please specify ________________________________________________

Pregnant Yes □ No □ Unknown □ If yes, approx. duration (weeks or trimester) ________

*Mark with a circle as appropriate

### Clinical signs

Did the patient show any of the following clinical signs?  
- Fever > 38°C or History of fever; Cough; Conjunctivitis; Gastrointestinal signs; Neurological signs.

Please specify ________________________________________________

Other clinical signs (specify and provide details) ________________________________________________

*Mark with a circle as appropriate

### Clinical course and outcome

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit to health care facility</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Date (dd/mm/yyyy)</td>
<td>/ /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Date (dd/mm/yyyy)</td>
<td>/ /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitalized</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Date admitted (dd/mm/yyyy)</td>
<td>/ /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date released (dd/mm/yyyy)</td>
<td>/ /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admitted to Intensive Care Unit</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Date admitted (dd/mm/yyyy)</td>
<td>/ /</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date released (dd/mm/yyyy)</td>
<td>/ /</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please complete ALL fields. If data are not available, please write in "no data."
<table>
<thead>
<tr>
<th>Mechanical ventilation</th>
<th>Date initiated (dd/mm/yyyy)</th>
<th>/ /</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Date stopped (dd/mm/yyyy)</td>
<td>/ /</td>
</tr>
<tr>
<td>Antiviral treatment</td>
<td>Date initiated (dd/mm/yyyy)</td>
<td>/ /</td>
</tr>
<tr>
<td></td>
<td>Date stopped (dd/mm/yyyy)</td>
<td>/ /</td>
</tr>
<tr>
<td>Outcome</td>
<td>recovered</td>
<td>died</td>
</tr>
</tbody>
</table>

*please put date of first contact with any medical institution including traditional care

**Place of current residence and travel**

<table>
<thead>
<tr>
<th>3rd administrative level (Town/village/municipality)</th>
<th>__________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd administrative level (Region/district)</td>
<td>__________________________</td>
</tr>
<tr>
<td>1st administrative level (Province)</td>
<td>__________________________</td>
</tr>
<tr>
<td>Country</td>
<td>__________________________</td>
</tr>
</tbody>
</table>

Did the patient travel outside the province (1st administrative level) in the 14 days prior to onset of illness? Yes [ ] No [ ] Unknown [ ]

If yes, please indicate destination: __________________________

**Occupation**

Occupation (please describe) __________________________

Health care worker Yes [ ] No [ ]

If yes, please specify: Animal health [ ] Human health [ ]

Laboratory worker Yes [ ] No [ ]

If yes, please specify: Animal health laboratory [ ] Human health laboratory [ ]

Does the patient have contact with live animals or animal products in their occupation? Yes [ ] No [ ]

Does the occupation of the patient include work in a live animal market (a market where live animals are sold)? Yes [ ] No [ ]

**Exposure History**

From the point of view of the investigator (or patient), what is the most probable source of infection for this patient, and the most likely geographical location (second admin level) of exposure?

_________________________________________________________________________
_________________________________________________________________________

In the 14 days before onset of illness, was the patient exposed to a person showing similar signs of illness? Yes [ ] No [ ] Unknown [ ]

If yes, please complete requested information below.

National ID of suspect/case (if available) __________________________

Confirmed influenza? Yes [ ] No [ ]

Relationship to contact __________________________

Blood link: Yes [ ] No [ ]

Are there animals living in the patient's house or workplace, or in the area immediately surrounding the patient's house or workplace? (Note: if patient is a child, please answer for the location(s) where the child spends the majority of the day) Yes [ ] No [ ] Unknown [ ]

If yes, what types of animals: Birds [ ]

Swine [ ] Cattle [ ] dogs/cats [ ] other _____________

If yes to previous question, have any of these animals been sick or died in the 14 days before onset of illness in the patient? Yes [ ] No [ ] Unknown [ ]

If yes, what types of animals: Birds [ ]

Swine [ ] Cattle [ ] dogs/cats [ ] other _____________

Have these animals been diagnosed as being infected with influenza? Yes [ ] No [ ] Unknown [ ]

Have any animals in the wider community been sick or died in the 14 days before onset of illness in the patient? Yes [ ] No [ ] Unknown [ ]

If yes, what types of animals: Birds [ ]

Swine [ ] Cattle [ ] dogs/cats [ ] other _____________
Have these animals been diagnosed as being infected with influenza? Yes ☐ No ☐ Unknown ☐

Did the patient visit a live animal market in the 14 days before onset of illness?  
Yes ☐ No ☐ Unknown ☐

Additional comments
__________________________________________________________________________________
__________________________________________________________________________________