1 Title

Interim Guidance on Anti-viral Treatment, Chemoprophylaxis and Pneumococcal Vaccination for Human Swine Influenza* (HSI) / Influenza A (H1N1) infection.

[The guidance is jointly developed by the Central Committee on Infectious Diseases and Emerging Responses of Hospital Authority (HA CCIDER) and the Infection Control Branch of the Centre for Health Protection (ICB, CHP)]

2 Susceptibility to Antiviral Drugs

Available information suggested that the current strain of HSI virus is susceptible to neuraminidase inhibitors (oseltamivir and zanamivir) and resistant to adamantanes (amantadine and rimantadine).

3 Management of Patients with Upper Respiratory Tract Infection

3.1 Empirical five-day anti-viral treatment should be given to patients as soon as possible, when they present with Influenza-Like-Illness (ILI) AND one of the followings:
   i. Chronic disease (refer to 8.3.iii)
   ii. Immuno-compromised states (refer to 8.3.ii)
   iii. Live in an institution where there is a HSI outbreak

3.2 Anti-viral treatment should be considered in the following ILI patients:
   i. Current smokers
   ii. Obese patients (Body Mass Index $\geq 30$)
   iii. Patients with no improvement in symptoms 48 hours after symptomatic treatment

3.3 Anti-viral treatment should be considered in ILI patients after laboratory confirmation of HSI, especially:
   i. Pregnant patients
   ii. Children aged $<12$ month
   iii. Staff working in the HA

4 Management of Patients with CAP during pandemics

4.1 The beneficial effect of the anti-viral therapy could be maximized if it is started within 48 hours after the onset of disease. However patients presented after 48 hours should also be given anti-viral treatment if indicated.

* The Human Swine Influenza (HSI) refers to the new influenza virus causing the outbreak first reported in Mexico and subsequently spread to other countries. The virus was renamed by WHO as Influenza A (H1N1) on 30 April 2009.
4.2 In mild CAP, nasopharyngeal aspirate is preferred for RT-PCR testing. Empirical anti-viral treatment should be given if patients:

i. Have preceding ILI

ii. Have positive close contact history of HSI

iii. Fail to have symptoms improvement in 48 hours after medical treatment.

4.3 In severe CAP, nasopharyngeal aspirate or bronchial aspirate lavage should be sent for RT-PCR. Empirical anti-viral treatment and antibiotics for typical and atypical pneumonia are to be given. Empirical antibiotics for community associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) should be considered in patients at risk (Table 1).

4.4 For intubated patients, tracheal aspirate should be sent for RT-PCR and viral culture. Relenza inhalation could be considered.

4.5 Clinicians should exercise their clinical judgement to adjust the dose and/or the duration of the therapy, if indicated.

5 Chemoprophylaxis

The following recommendations are based on the current epidemiological information and risk assessment. It will be reviewed regularly and subject to change as the epidemiological picture of the disease evolves.

5.1 Recommendation

A 10-day prophylaxis should be started as soon as possible, within seven days after the last unprotected exposure, i.e. did not or inappropriately use physical protective equipment (PPE) during close contact (within 1 metre to) with a HSI confirmed case during his / her infectious period.

5.2 Consideration

Prophylaxis is considered for health care workers working in high risk areas where HSI patients are being taken care of.

5.3 When WHO declares a pandemic CCIDER will decide on use of prophylaxis for all HA healthcare workers.

* The *Human Swine Influenza (HSI)* refers to the new influenza virus causing the outbreak first reported in Mexico and subsequently spread to other countries. The virus was renamed by WHO as *Influenza A (H1N1)* on 30 April 2009.
6 Summary of Antiviral Regimes for Treatment and Prophylaxis for HSI:

<table>
<thead>
<tr>
<th>Agent, group</th>
<th>Treatment</th>
<th>Chemoprophylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oseltamivir</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adults</td>
<td>75mg BD</td>
<td>75mg daily</td>
</tr>
<tr>
<td>Children (aged 12 months or older), weight:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 15 kg</td>
<td>30mg BD</td>
<td>30mg daily</td>
</tr>
<tr>
<td>15 – 23 kg</td>
<td>45mg BD</td>
<td>45mg daily</td>
</tr>
<tr>
<td>24 – 40 kg</td>
<td>60mg BD</td>
<td>60mg daily</td>
</tr>
<tr>
<td>&gt; 40 kg</td>
<td>75mg BD</td>
<td>75mg daily</td>
</tr>
<tr>
<td><strong>Zanamivir</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adults</td>
<td>Two 5mg inhalations BD</td>
<td>Two 5mg inhalations (10 mg in total) once per day</td>
</tr>
<tr>
<td>Children (aged ≥ 7 yrs)</td>
<td>Two 5mg inhalations BD</td>
<td>Two 5mg inhalations (10 mg in total) once per day (aged ≥ 5 yrs)</td>
</tr>
</tbody>
</table>

*FDA has notified healthcare professionals and hospital risk managers in the Safety Information issued on 9 Oct 09 that Relenza (zanamivir) Inhalation Powder is not intended to be reconstituted in any liquid formulation and is not recommended for use in any nebulizer or mechanical ventilator. Relenza or zanamivir for nebulization have not been approved by the FDA. The safety, effectiveness, and stability of zanamivir use by nebulization have not been established. Relenza Inhalation Powder should only be used as directed in the prescribing information by using the Diskhaler device provided with the drug product. (FDA website updated on 9 Oct 2009. http://www.fda.gov/Safety/MedWatch/SafetyInformation/SafetyAlertsforHumanMedicalProducts/ucm186081.htm)

7 Special Issues

7.1 Pregnant women
Both oseltamivir and zanamivir are FDA Pregnancy Category C medications for use in pregnant women. To date, no adverse effect has been reported among women who received oseltamivir or zanamivir during pregnancy or among infants born to women who have received oseltamivir or zanamivir. Antivirals should be used only if potential benefit justifies the potential risk to the embryo or fetus, and proper counseling before commencement of therapy is necessary. Zanamivir is an inhaled medication and has less systemic absorption, it is preferred over oseltamivir for treatment unless there is evidence of lower respiratory infection or systemic complication. It is also a preferred agent for prophylaxis unless contraindicated.

* The Human Swine Influenza (HSI) refers to the new influenza virus causing the outbreak first reported in Mexico and subsequently spread to other countries. The virus was renamed by WHO as Influenza A (H1N1) on 30 April 2009.
7.2 Women who are breastfeeding
The benefit of using antiviral drugs outweighs the risk for both treatment and prophylaxis. For both treatment and prophylaxis, the preferred medicine is oseltamivir. However, if a woman’s baby is born and breastfeeding is started while the woman is taking zanamivir, she should complete the course and it is not necessary to switch to oseltamivir.

7.3 Children under 1 year of age
The US Food and Drug Administration (FDA) has just issued Emergency Use Authorizations (EUAs) on use of oseltamivir for children under one year of age. Since this indication is not licensed in Hong Kong, informed consent should be obtained before commencement of treatment. Clinicians are advised to take reference to the document from US CDC on a detailed description of the management of HSI virus infections in young children (available at http://www.cdc.gov/swineflu/childrentreatment.htm).

Regimes are summarized in the following table:

<table>
<thead>
<tr>
<th>Age</th>
<th>Treatment</th>
<th>Prophylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 3 months</td>
<td>12mg BD</td>
<td>Not recommended unless situation judged critical due to limited data on use in this age group</td>
</tr>
<tr>
<td>3 – 5 months</td>
<td>20mg BD</td>
<td>20mg daily</td>
</tr>
<tr>
<td>6 – 11 months</td>
<td>25mg BD</td>
<td>25mg daily</td>
</tr>
</tbody>
</table>

8 Pneumococcal Vaccination

8.1 The main purpose of pneumococcal vaccination is prevention of invasive pneumococcal diseases, namely meningitis, bacteraemia, and bacteraemic pneumonia.

8.2 According to the USA Centers for Disease Control and Prevention (CDC), Health care workers are not at greater risk for pneumococcal disease than the general population.

8.3 The Scientific Committee on Vaccine Preventable Diseases of the Centre for Health Protection (CHP) reviewed the use of the pneumococcal vaccination in 2007 and the latest version was issued in 2009. Taking into account the local and overseas recommendations, adults at risk in which pneumococcal vaccination are recommended for personal protection, include:

i. History of invasive pneumococcal disease
ii. Immuno-compromised states
   - Asplenia or splenic dysfunction (e.g. sickle cell anaemia)
   - HIV infections

* The Human Swine Influenza (HSI) refers to the new influenza virus causing the outbreak first reported in Mexico and subsequently spread to other countries. The virus was renamed by WHO as Influenza A (H1N1) on 30 April 2009.
HA Central Committee on Infectious Disease and Emergency Responses (CCIDER)

Interim Guideline on Anti-viral Treatment, Chemoprophylaxis and Pneumococcal Vaccination for Human Swine Influenza (HSI) / Influenza A (H1N1) Infection

Effective date: 21 October 2009
Version: 6.2

- Primary immunodeficiency
- Immunodeficiencies related to malignancies and transplantation
- Immunodeficiencies related to use of immunosuppressive drugs / systemic steroid

iii. Chronic disease
- Chronic liver diseases (cirrhosis, chronic hepatitis, biliary atresia)
- Chronic renal diseases (nephrotic syndrome, chronic renal failure)
- Diabetes mellitus (exclude the diabetes that is diet controlled)
- Chronic cardiac diseases that require regular medications and/ or follow-up (ischaemic heart disease, congenital heart disease, hypertension with cardiac complications, chronic heart failure)
- Chronic pulmonary disease (COPD, bronchiectasis, cystic fibrosis, interstitial lung fibrosis, pneumoconiosis, bronchopulmonary dysplasia, neuromuscular diseases that lead to impaired respiratory function or aspiration risk like cerebral palsy or myasthenia gravis, asthma that requires continuous or frequently repeated use of systemic steroids)

iv. CSF leakage

v. With Cochlear implants

8.4 With the current threat of influenza pandemic, pneumococcal vaccinations may confer benefit in reducing the complication of secondary bacterial infections, especially among the “at risk” people as listed in bullet 7.3.

8.5 HA recommends for the following actions on the vaccination against pneumococcus for healthcare workers:

i. Staff in the risk groups who have concerns are advised for medical consultation at staff clinics.

ii. Vaccination against pneumococcus will be given to staff with informed consent.

* The Human Swine Influenza (HSI) refers to the new influenza virus causing the outbreak first reported in Mexico and subsequently spread to other countries. The virus was renamed by WHO as Influenza A (H1N1) on 30 April 2009.
Table-1 Empirical Antibiotics Coverage for Community Associated Methicillin-Resistant
Staphylococcus Aureus

Empirical Antibiotics should be considered in the following groups. Intravenous linezolid is preferred and vancomycin is the alternative.

i. Non-Chinese ethnicity (e.g. Filipinos, Caucasian)
ii. Patients presented with haemoptysis
iii. Patients with concurrent skin infection (e.g. abscess)
iv. Patients with known exposure to CA-MRSA (self or contacts)
v. Patients with chest X-ray suggestive of staphylococcal infection (e.g. cavitatory, pneumatoceles)
vi. Patients whose pleural fluid or bronchial aspirate lavage show clusters of gram positive cocci

* The Human Swine Influenza (HSI) refers to the new influenza virus causing the outbreak first reported in Mexico and subsequently spread to other countries. The virus was renamed by WHO as Influenza A (H1N1) on 30 April 2009.
Key References


* The Human Swine Influenza (HSI) refers to the new influenza virus causing the outbreak first reported in Mexico and subsequently spread to other countries. The virus was renamed by WHO as Influenza A (H1N1) on 30 April 2009.