Respiratory Protection for Exposure to Avian (H7N9) Influenza

Frequently Asked Questions

The U.S. Center for Disease Control and Prevention (CDC) and the World Health Organisation (WHO) have recently issued an alert with regards to the recent outbreak of Avian Influenza (H7N9) in China in April 2013.

Australia’s Department of Health & Ageing (DoHA) and New Zealand’s Ministry of Health are monitoring the situation and any updates will be uploaded on their respective websites.

Following are responses to many of the most frequently asked questions (FAQs). It is important to note this FAQ is not a substitute for the guidance of the Australian Government DoHA, New Zealand’s Ministry of Health, CDC (USA & China) and WHO. Please frequently consult their websites for the most current information and infection control procedures regarding Influenza A (H7N9).

Listed below is the website url’s:

- New Zealand: http://health.govt.nz/
- China CDC: http://www.chinacdc.cn/en/
- US. CDC: http://www.cdc.gov/
- WHO: http://www.who.int/en/

Q. What is Influenza A (H7N9)?
A. Influenza A H7 viruses are a group of Influenza viruses that normally circulate among birds. Some H7 viruses have occasionally been found to infect humans. H7N9 virus is a novel or new virus. No human infections with H7N9 viruses have been reported until recent reports from China.

Q. When was Avian Influenza H7N9 first reported?
A. On April 1, 2013, the World Health Organization (WHO) first reported three (3) human infections with a new Influenza A (H7N9) virus in China. Additional cases have since been reported. At this stage, there has been one (1) reported case in Taiwan, outside of China’s mainland. No person-to-person transmission has been reported.

Q. What are the main symptoms of human infection with Influenza A (H7N9) virus?
A. Symptoms include fever, cough and shortness of breath. Most individuals with this infection have had severe pneumonia. Some cases have resulted in death.

Q. Is there treatment for Influenza A (H7N9)?
A. Anti-viral treatments with Oseltamivir or inhaled Zanamivir are effective. Anti-viral treatment is most effective when started as soon has flu symptoms begin.

Q. Why is this virus infecting humans now?
A. At this time, the source of exposure for these human infections is unknown. Analysis of the genes of these viruses suggests that although they have evolved from avian (bird) viruses, they show signs of adaption to growth in mammalian species.

Q. What are the main symptoms of human infection with Influenza A (H7N9) virus?
Q. How did people become infected with the Influenza A (H7N9) virus?
A. Some of the confirmed cases had contact with animals or with an animal environment. The virus has been found in a pigeon in a Shanghai market. It is not yet known how some people became infected. The possibility of animal-to-human transmission and the possibility of person-to-person transmission are being investigated.

Q. How can infection with Influenza A (H7N9) virus be prevented?
A. Although both the source of infection and the mode of transmission are uncertain, however, hand, respiratory hygiene and food safety precautions should be used.

- Wash your hands often.
- If soap and water are not available, clean your hands with hand sanitizer containing at least 60% alcohol.
- Do not touch your eyes, nose or mouth. If you need to touch your face, make sure your hands are clean.
- Cover your mouth and nose with a tissue or your sleeve (not your hands) when coughing or sneezing.
- Try to avoid close contact, such as kissing, hugging or sharing eating utensils or cups, with people who are sick.

Q. Are there travel restrictions to China?
A. No, there are no travel restrictions to China. The following health and safety precautions should be used when travelling to China.

- Do not touch birds, pigs or other animals, and avoid live birds and other markets with live animals.
- Eat food that is properly handled and thoroughly cooked eggs, meat, poultry and game birds.
- Do not eat or drink dishes that include blood from any animal.
- Do not eat food from street vendors.
- Practice respiratory and hand hygiene.

Q. Is there a vaccine for Influenza A (H7N9)?
A. There is no vaccine available for Influenza A (H7N9).

Q. Is there a pandemic threat at this time?
A. There is no pandemic threat at this time. A potential pandemic could occur if the H7N9 virus mutated and easily and sustainably spread from person-to-person. Public health experts are closely monitoring for changes in the virus that could result in person-to-person spread.

Interim Recommendations:

Q. What type of personal protective equipment (PPE) is recommended for community use?
A. Information on the effectiveness of surgical masks and respirators for the control of Influenza in community settings is extremely limited. Thus, it is difficult to assess their potential effectiveness in controlling Influenza A (H7N9) virus transmission in these settings. In the absence of clear scientific data, the interim recommendations below have been developed by US government on the basis of public health judgment and the historical use of surgical masks and respirators in other settings.

When it is absolutely necessary to enter a crowded setting or to have close contact with persons who might be ill, the time spent in that setting should be as short as possible. If used correctly, surgical masks and respirators can help prevent some exposures, but they should be used along with other preventive measures, such as avoiding close contact and maintaining good hand hygiene. When crowded settings or close contact with others cannot be avoided, the use of surgical masks or respirators in areas where transmission of Influenza A (H7N9) virus has been confirmed should be considered as follows:

- Whenever possible, rather than relying on the use of surgical masks or respirators, close contact with people who might be ill and being in crowded settings should be avoided.
Surgical masks should be considered for use by individuals who enter crowded settings, both to protect their nose and mouth from other people's coughs and to reduce the wearers' likelihood of coughing on others; the time spent in crowded settings should be as short as possible.

Respirators should be considered for use by individuals for whom close contact with an infectious person is unavoidable. This can include selected individuals who must care for a sick person (e.g., family member with a respiratory infection) at home. These interim recommendations will be revised as new information about the use of surgical masks and respirators in the current setting becomes available.

Q. What type of personal protective equipment (PPE) is recommended for health care workers who are exposed to patients with known or suspected Influenza A (H7N9)?

A. Personnel engaged in aerosol generating activities (e.g., collection of clinical specimens, endotracheal intubation, nebulizer treatment, bronchoscopy, and resuscitation involving emergency intubation or cardiac pulmonary resuscitation) for suspected Influenza A (H7N9) cases should wear a fit-tested disposable P2 respirator.

Pending clarification of transmission patterns for this virus, personnel providing direct patient care for suspected Influenza A (H7N9) cases should wear a fit tested disposable P2 respirator when entering the patient room. Staff should be medically cleared, fit-tested, and trained for respirator use, including: proper fit-testing and use of respirators, safe removal and disposal, and medical contraindications to respirator use.

Q. What particle sizes will a P2 particulate respirator filter?

A. P2 is a rating given to particulate respirators in Australia and New Zealand Standard AS/NZS1716:2012. A particulate respirator is given a rating based on its filtration efficiency when tested against particles that are the most difficult size to filter (approximately 0.3 microns in size mass median aerodynamic diameter). Class P2 respirators are required to be at least 94% efficient when tested against this particle size. The physics of particle capture means that the filtration efficiency improves against particles that are both smaller and larger than this size. The most commonly used respirators in health care settings are disposable P2 rated filtering face pieces.

Q. Should Influenza a (H7N9) patients wear a surgical mask?

A. Persons suspected of having Influenza A (H7N9) should be separated from others and asked to wear a surgical mask. If a surgical mask is not available, patients are to cover their mouth and nose with tissues or their sleeve (not to use hands) when coughing or sneezing.

Q. Can a valved respirator be used for protection from Influenza A (H7N9) virus?

A. A valved respirator is designed to allow for easy exhalation through a one-way exhalation valve. If a person is wearing a respirator to reduce their exposure to contaminated aerosols, a respirator with an exhalation valve would be acceptable.

Q. How do I clean my respirator after use?

A. Disposable respirators should not be cleaned; dispose of the respirator immediately after use according to facility policy. Reusable respirators may be disinfected using a mild bleach and water solution (0.1% sodium hypochlorite).

Q. Can disposable respirators be shared between people?

A. No. Disposable respirators should never be shared.

Q. How long can disposable particulate respirators be used?

A. Disposable particulate respirators may be used until breathing becomes difficult, or they become damaged, dirty, or grossly contaminated with sweat/saliva. If contact transmission is of concern, it may be appropriate to dispose of the respirator immediately after each use. Otherwise, it may be stored and reused according to the facility's infection control policy and procedure.

Q. Can respirators protect you from biological agents such as Bacteria or Viruses?

A. Respirators are designed to reduce exposures of the wearer to airborne hazards. Biological agents, such as viruses, are particles and can be filtered by particulate filters with the same efficiency as non-biological particles having the same physical characteristics (size, shape, etc.). However, unlike many industrial particles there is no exposure limits established for biological agents. Therefore, while respirators will help reduce exposure to Avian Influenza viruses, there is no guarantee that the user will not contract Influenza A (H7N9). Respirators may help reduce exposures...
to airborne biological contaminants, but they do not eliminate the risk of exposure, infection, illness, or death.

Q. What is the difference between a respirator and a surgical mask?
A. Respirators are designed to help reduce the wearer's exposure to airborne particles. The primary purpose of a surgical facemask is to help prevent particles from being expelled by the wearer into the environment. Some surgical masks are also designed to be fluid resistant to splash and splatter of blood and other infectious material. Surgical masks are not necessarily designed to seal tightly to the face and therefore air leakage around the edges is likely. However, some respirators are designed to have the characteristics of both, an approved respirator as well as a surgical mask.

Q. How important is respirator fit?
A. Fit is very important. If a respirator does not seal properly to the wearer’s face, airborne hazards can penetrate or enter underneath the face piece seal and into the breathing zone. It is very important to always follow the donning instructions and do a user seal-check or fit-check before entering the contaminated environment. Some countries, such as USA and UK, also require fit testing. A good fit can only be obtained if the face is clean-shaven in the area where the respirator seals against the face. Beards, long moustaches, and stubble may interfere with a good seal and cause leaks into the respirator. Many medical facemasks, not approved as respirators, do not seal tightly to the face allowing airborne hazards to bypass the mask around the edges and enter the breathing zone. Even those medical facemasks that may appear to seal tightly to the face, may not have been designed and tested to protect the wearer from airborne hazards. Therefore, they should not be considered an equivalent substitute for AS/NZS 1716:2012 compliant respirators.

Q. What 3M Respiratory protection is available in Australia and New Zealand to help protect against Influenza A (H7N9) virus?
A. There are a number of different respirators available. The table below lists some of the suitable 3M P2 disposable respirators:

- 3M™ Flat Fold Respirator 9320 P2
- 3M™ Flat Fold Respirator 9322 P2 with valve
- 3M™ Health Care Particulate Respirator and Surgical Mask 1870
- 3M™ Health Care Particulate Respirator 1860 or 1860S
- 3M™ Cupped Respirator 8210 P2
- 3M™ Cupped Respirator 8822 P2 with valve

For further information about PPE use or fit testing, contact your local 3M Representative or 3M Personal Safety Division TechAssist Helpline:

Australia - 1800 024 464 or techassist@mmm.com
New Zealand - 0800 364 357 or innovation@nz.mmm.com