



INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS

Influenza Pandemic

Informational Bulletin for Emergency Responders

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About this document

The following information is provided to assist fire fighters and emergency medical personnel to prepare for a potential Influenza Pandemic and to advise all first responders with potential Influenza exposure to use proper infection control precautions to protect their own health and that of the public. Regardless of an influenza pandemic event, all first responders should receive influenza vaccine each year to protect themselves, their families and the public they serve from the annual influenza outbreak.

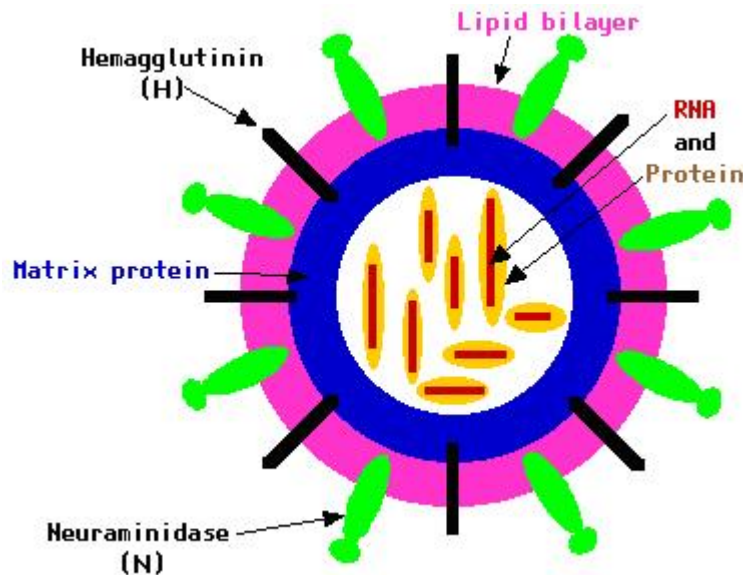
An Influenza Pandemic could potentially result in widespread illness and deaths around the world. Because all disasters and emergencies are dealt with locally, each local fire and emergency medical department must collaborate with its local government, public health department, and community stakeholders to devise a plan of action. A lesson learned from the recent Katrina/Rita disasters is that preparation for emergencies requires advanced planning if the response is to be effective and efficient.

The latest updates on an Influenza Pandemic may be found on: <http://www.pandemicflu.gov/>.

What is an Influenza Pandemic?

About Influenza

Influenza (the “flu”) is a seasonal respiratory illness caused by a virus and is characterized by fever, chills, sore throat, nasal congestion, cough, exhaustion, and severe muscle aches. The flu season typically starts in late November and lasts through early spring. It affects about 30-50 million Americans each year. The flu differs from the common cold in that it lasts longer (about two weeks) and can be temporarily debilitating even in healthy individuals. There are three types of Influenza viruses – A, B, and C. **Influenza A** is further categorized into subtypes based on the type of two surface proteins – hemagglutinin (H) and neuraminidase (N).



Source: <http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/I/Influenza.html>

While types A and B cause an outbreak in most years (seasonal flu), type C causes mild to no disease. Minor genetic changes called **antigenic drift** may give rise to new Influenza A subtypes and Influenza B viruses. The circulation of these viruses causes an outbreak each year, and thus the need for a new flu vaccine each year. After an infection with an influenza virus or inoculation with an influenza vaccine, the body develops immunity to that specific type of influenza virus. However, due to the viral ability to mutate, new vaccines for potential new types of viruses must be developed and given each year to those most susceptible for infection (i.e. first responders, healthcare workers, the elderly, etc).

Influenza A can also undergo a major genetic change called **antigenic shift** resulting in a novel influenza A with a new H or H+N protein combination for which there is little or no immunity among the majority of people. If this new strain of Influenza A easily spreads from person to person and causes serious illness, then a pandemic is likely to occur.

About Influenza Epidemic and Pandemic

Pandemic refers to the global spread of a disease, while an **epidemic** is localized to a geographic region. An influenza pandemic occurs when there is a worldwide spread of a new strain of influenza A virus that causes serious illness and is easily spread from person to person. Pandemic flu has the potential to kill people regardless of age or health status.

One way for a new pandemic flu strain to arise is through the mixing of different types of influenza A viruses. For instance, the influenza viruses that caused the Asian Flu and the Hong Kong Flu Pandemics are believed to have come from the mixing of human influenza and avian (bird) influenza viruses in another animal such as a pig. The new strain was then able to cause a much more severe illness in humans. The Spanish Flu Pandemic on the other hand is thought to have started from an avian flu that directly infected humans, and the mixing of the avian influenza with the human influenza within a human led to the new deadly strain of influenza A virus.

During the 20th Century, new strains of Influenza A viruses have resulted in three influenza pandemics:

- **Spanish Flu (1918-1919)** – Influenza H1N1 caused an estimated 50 million deaths worldwide and 500,000 deaths in U.S. alone. Healthy people, as well as those in frail condition, were equally affected, and many died within the first few days after infection.
- **Asian Flu (1957-58)** – Influenza H2N2 started in China in February 1957, by June 1957 it spread to U.S. and caused 70,000 deaths in U.S.
- **Hong Kong Flu (1968-1969)** – Influenza H3N2 started in Hong Kong in early 1968. Later in the year, it spread to the U.S. and caused 34,000 deaths.

The U.S. Centers for Disease Control and Prevention (CDC), the Public Health Agency of Canada (PHAC) and the World Health Organization (WHO) have a large surveillance system for detecting possible pandemic flu strains around the world.

Tests for Influenza (Diagnosis)

The most common method for diagnosing influenza is the **Rapid Flu Test**. Depending on the type of test used, it can identify influenza A and/or B.

Proper sample collection is critical for testing. Because the tests rely on detecting the virus being shed in the respiratory secretions of the infected person, the test must be done during the first few days of illness when there is viral shedding. The best sample is a nasal aspirate, but nasopharyngeal swabs are most frequently used. With the patient's head tilted back, a dacron swab (like a very long Q-tip) is inserted into a nostril until there's resistance (~1-2 inches in) and then rotated several times.

The major advantages of the Rapid Flu Test are that it can be done in an outpatient setting and the results return within 30 min to 2 hours. The major disadvantages are that true influenza cases will be missed up to 30% of the time (false negative result) and some people without influenza will be misdiagnosed as having influenza (false positive result).

The gold standard for diagnosing influenza is a viral culture. The virus from the nasal secretion is grown and identified in the laboratory. The advantage of a viral culture is that the specific viral strain and type can be identified. Such detailed information would be critical in detecting influenza outbreaks (including surveillance for the pandemic strain) and for developing vaccines. The major disadvantages are that the results take about 3 to 10 days and not all labs are equipped to perform a viral culture.

Transmission

Influenza is spread from person to person by contact with respiratory secretions from an infected person. When an infected person coughs or sneezes, the viruses are carried in large droplets which settle on the surfaces of the upper respiratory tracts of persons who are nearby (i.e. within 3 feet of the infected person).

The viruses can also spread by direct or indirect contact with respiratory secretions – touching contaminated surfaces and then touching the eyes, nose or mouth.

Influenza is more infectious than SARS. Infected adults can spread the virus from the day before exhibiting symptoms to 5 days after symptoms start (2 days on average); whereas, the transmission timeline for SARS is 6 to 8 days. Infected children can spread the virus for 10 days or longer. Due to the highly contagious nature of influenza virus, first responders who may be exposed to or are taking care of persons suspected of influenza should wear appropriate protection (discussed later in this article).

Treatment and Prevention

Treatment. Four antiviral medications are approved by the U.S. Food and Drug Administration (FDA) for treatment and or prevention of influenza – Tamiflu (oseltamivir), Relenza (zanamivir), Symmetrel (amantadine), and Flumadine (rimantadine). While antivirals taken at the onset of the illness may decrease the severity and duration of the illness, there is no definitive treatment for influenza. If antiviral treatment is given within 48 hours, it may reduce the severity of symptoms and the duration of illness. Treatment of infected persons does not prevent further spread of infection, but it may reduce the viral shedding and thus the degree of contagion.

The antivirals do not help if given beyond 48 hours of onset and they will not work against other viruses or against bacterial infections that may occur as a complication of influenza.

A patient may develop resistance to one or all antivirals. The bird flu (Influenza A H5N1) identified in humans in Asia in 2004 to 2005 is already resistant to amantadine and rimantadine, and higher doses of oseltamivir must be given for a longer period to be effective. Observational studies indicate that early intervention and an extended regime of oseltamivir may help increase the chance of survival, but results are inconclusive due to limited data.

Prevention. An effective vaccine could potentially thwart an epidemic before it becomes a pandemic. However, once the potential pandemic strain is identified, it takes several months for the vaccine to be developed and mass produced for wide distribution. A vaccine prototype has been developed against Avian Flu H5N1, but there is no guarantee that it would be effective against the mutated pandemic strain.

While the timing of the next pandemic is uncertain, fire fighters must continue to practice preventive measures such as respiratory hygiene, cough etiquette, and annual flu vaccination. As with all biologic hazards, universal precautions should be practiced.

Influenza epidemics result in about 35,000 deaths each year in the U.S. Contributing to the high death rate is the inadequate level of vaccination among health care workers who unknowingly transmit the virus to persons susceptible for a serious illness from influenza. Data from several studies indicate that vaccination of health care workers significantly reduces the influenza death rate among the patients for whom they provide care.

How should I prepare?

Principles of Emergency Preparedness

In preparation for any emergency, organizations should follow the principals of emergency preparedness. These principles include:

- A pre-tested Plan of Action that is developed in advance of the emergency event.

- Defined roles and responsibilities for key organizations and individuals who will be involved in the emergency response.
- Routine communication among key organizations and individuals established as part of the planning process.
- Identification of resources, including financial.
- Dissemination of educational materials to all first responders.

As with any preparation for an emergency, all organizations should plan for the Pandemic Flu. To assist state, provincial and local governments in the planning process, the CDC has developed a checklist which can be found at <http://www.pandemicflu.gov/plan/statelocalchecklist.html>. A planning checklist was also released for use by medical, dental, podiatric, and chiropractic offices, ambulatory surgery centers, hemodialysis centers and outpatient clinics, which can be found at <http://www.pandemicflu.gov/plan/medical.html>. Also, the IAFF has developed a checklist specific to the fire service which is based on NFPA 1500 *Standard on Fire Department Occupational Safety and Health Program*; NFPA 1581 *Standard on Fire Department Infection Control Program*; and NFPA 1600 *Standard on Disaster / Emergency Management and Business Continuity Programs* which can be found at [IAFF Influenza Pandemic Checklist.pdf](http://www.iaff.org/iaff/PDF/IAFF_Influenza_Pandemic_Checklist.pdf).

In addition to simulation exercises, computer models can be utilized to assist in estimating the impact of a Pandemic Flu. To this end, CDC has developed FluAid, software to assist state, provincial and local planners: <http://www2.cdc.gov/od/fluaid/default.htm>.

The World Health Organization also has been developing a pandemic influenza draft protocol for rapid response and containment. Their first report was issued on January 27, 2006 and can be found for review and download at: http://www.who.int/csr/disease/avian_influenza/updates/en/index.html. The WHO expects this project to be completed by May 2006.

The U.S. Department of Health and Human Services (HHS) has issued an updated report in March 2006 that outlines how that U.S. federal funding is being used to help achieve HHS's five primary objectives.

- Monitoring disease spread to support rapid response.
- Developing vaccines and vaccine production capacity.
- Stockpiling antivirals and other countermeasures.
- Coordinating federal, state and local preparation.
- Enhancing outreach and communications planning.

This report can be found at <http://www.pandemicflu.gov/plan/pdf/panflu20060313.pdf>.

Why should we be concerned about Avian Flu?

The Avian Flu H5N1 (or Bird Flu) is a strain of Avian influenza, a virus that primarily infects birds. On rare occasions, avian influenza can infect another species such as humans. When a person is infected with both the Avian and Human influenzas at the same time, there is a risk of genetic exchange between the two influenza viruses and the rise of a deadly viral strain that can easily spread from human to human.

The Avian Flu H5N1 is NOT the same as the seasonal flu for which you get the annual flu vaccine nor is it a pandemic flu. The current fears concerning the new Avian Flu H5N1 are based on its spreading through birds across Asia and parts of Europe and its ability to infect and cause serious harm to humans as demonstrated in 1997 in Hong Kong and 2003 in Southeast Asia.

Of the 120 persons infected in Southeast Asia, more than 60 have died. Also, the deadly Spanish Flu of 1918 is now thought to have originated from an avian flu and the pattern of spread of the current Avian Flu is reminiscent of the Spanish Flu, which came in successive waves. The first wave came in the spring and summer of 1918 and caused a widespread disease but few deaths. Then a second wave in the following fall and winter spread quickly and killed millions of people around the world. Like the Spanish Flu, if the current Avian Flu develops the ability to easily spread from person-to-person, then it will become a serious public health threat (i.e. a pandemic).

No one can predict when the next pandemic will occur. But when it does, according to the WHO, CDC and PHAC, it will have the potential to cause more deaths and illness than any other previous public health threat.

Cases and Deaths

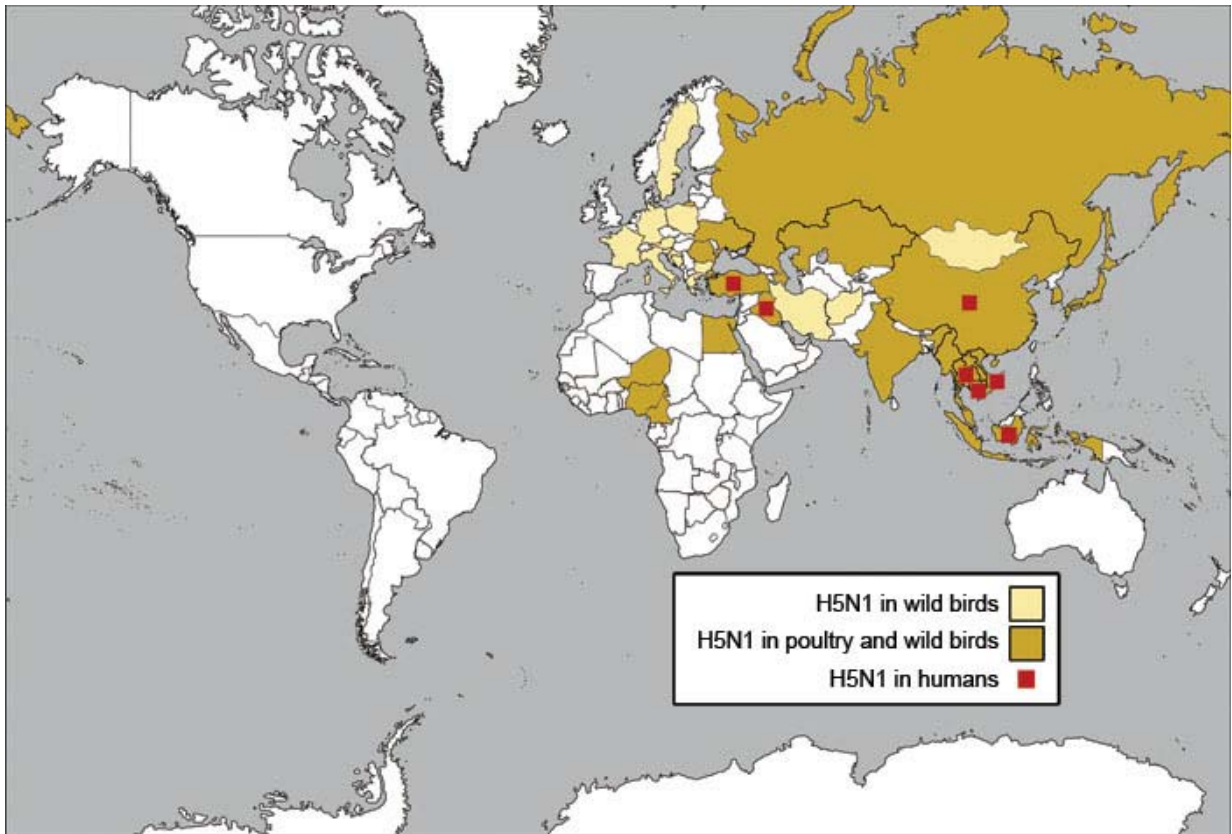
As of March 13, 2006, a total of 152 confirmed cases and 83 deaths have been reported from 6 countries. The following chart presents the cumulative number of confirmed cases of Avian Flu reported to the World Health Organization.

Date of onset	Cambodia		China		Indonesia		Iraq		Thailand		Turkey		Viet Nam		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
2003	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3
2004	0	0	0	0	0	0	0	0	17	12	0	0	29	20	46	32
2005	4	4	8	5	17	11	0	0	5	2	0	0	61	19	95	41
2006	0	0	7	5	12	11	2	2	0	0	12	4	0	0	33	32
Total	4	4	15	10	29	22	2	2	22	14	12	4	93	42	177	98

As of March 13, 2006, there have been no cases detected in North America. Updates of this chart can be found at: http://www.who.int/csr/disease/avian_influenza/en/.

From January 2004 through October 2005, active outbreaks among birds have been confirmed in Vietnam, Thailand, Indonesia, China, Cambodia, Russia, Kazakhstan, Mongolia, Turkey, Romania, and Croatia.

Map of Avian Flu H5N1 Outbreak



For the latest Avian flu outbreak maps go to U.S. Department of Health and Human Services the website at:
<http://www.pandemicflu.gov/>

When should I worry about a Pandemic?

Stages of a Pandemic

Interpandemic Period

- **Phase 1:** No new influenza subtypes detected in humans, but may be present in animals. Risk of human infection is low.
- **Phase 2:** No new influenza subtypes detected in humans, but a circulating animal influenza subtype poses a risk of human disease.

Pandemic Alert Period

- **Phase 3:** New influenza subtypes infecting humans but minimal to no human-to-human spread.
- **Phase 4:** Small clusters of limited human-to-human spread (i.e. the virus is not well adapted to humans).

- **Phase 5:** Larger clusters of geographically localized human-to-human spread (i.e. the virus is adapting to humans but still not easily spread from person to person).

Pandemic Period

- **Phase 6:** Increased and sustained spread of virus in the general population.

The current media coverage on the Bird Flu is likely to continue. Real time mass media, such as the radio or television, will likely be your best source for an impending pandemic. As of January 25, 2006, CDC has declared the United States to be in Pandemic Alert Phase 3.

How Avian Flu H5N1 presents?

Clinical Features

- Best case scenario: signs and symptoms will be similar but more severe than the seasonal influenza with near complete resolution in few weeks.
- Characteristic Signs and Symptoms:
 - Persistent fever
 - Lymphopenia (low white blood cell count)
- Other Signs and Symptoms:
 - chills
 - productive or dry cough
 - shortness of breath
 - fatigue
 - muscle aches
- Complication: Progression to pneumonia or Acute Respiratory Distress Syndrome (ARDS) within 5 to 7 days.
- Case fatality: Over 50% (i.e. more than half of all persons infected with Avian Flu H5N1 have died).

Risk Factors

- Exposure to sick poultry – e.g. touched sick or dead poultry with bare hands.
- Exposure to affected areas (SE Asia or Eastern Europe) or persons from these areas.

How can I protect myself?

Overall Care during a Pandemic Alert

The best protection against an Avian Flu H5N1 outbreak in North America is strict adherence to infection control procedures. Follow universal precautions and the latest updates issued by the CDC, PHAC and WHO.

Additionally, fire departments should have an Infection Control program that meets the minimum requirements of NFPA 1581 (chapters 5 and 6), *Standard on Fire Department Infection Control Program* (<http://www.nfpa.org>).

Because the exact nature of the pandemic flu is unknown, the best preparation for now is to be aware of the guidelines for handling highly contagious respiratory infectious agents.

The following guidelines were adopted in part from documents developed by the IAFF from both Smallpox and SARS preparation and experience.

Respirators

Only use a P-100 disposable respirator as a **minimum** respiratory protection or a respirator with a higher level of respiratory protection, including a full or half facepiece air purifying respirator (APR) or powered air purifying respirator (PAPR) with a HEPA filter/canister.

When properly fitted, maintained and used, a P-100 respirator (or an APR or PAPR with a HEPA filter) provides protection from inhalation of infectious airborne droplets. The P-100 respirator provides the highest levels of aerosol protection as compared to respirators rated only for particulate (aerosol) protection. However, there are NO safe exposure levels (i.e. the amount you can inhale without adverse health effects) for biological aerosols. Respirators can reduce inhalation exposures but cannot eliminate the risk of contracting infection or developing illness or disease. Additionally, the type of respirator facepiece and filter class required varies depending upon one's activities and risk of exposure. For public and hospital use, many have suggested that N-95 respirators. The IAFF does not believe that this type of respirator will afford fire fighter and emergency medical personnel proper protection. Accordingly, the IAFF recommends that emergency responders use, at a minimum, a P-100 respirator.

The IAFF's P-100 filter efficiency recommendation is consistent with NIOSH recommendations for emergency response to biological agent incidents. <http://www.cdc.gov/niosh/unp-intrecppe.htm>. Additionally the IAFF recommendation is consistent with federal OSHA regulations that state "where workers are exposed to a hazard that would require the use of a respirator with HEPA filtration, the appropriate class of respirator under the 42 CFR Part 84 certification is the Type 100 (N-100, R-100, or P-100)." The IAFF recommendation is also consistent with the specifications contained in the World Health Organization's *Hospital Infection Control Guidance for SARS* (<http://www.who.int/csr/sars/infectioncontrol/en>).

Additionally, disposable respirators must have seal enhancing elastomeric components (e.g. rubber or plastic respirator to face seals) and must be equipped with two or more adjustable suspension straps. The IAFF believes, and research has demonstrated, that without these components it is difficult to obtain and maintain a seal in the workplace.

All disposable respirators, as well as APRs and PAPRs, must also be certified by the National Institute for Occupational Safety and Health (NIOSH). NIOSH-approved disposable respirators are marked with the manufacturer's name, the part number (P/N), the level of protection provided by the filter (e.g., P-100), and "NIOSH." This information is printed on the facepiece, exhalation valve cover, or head straps. If a NIOSH marking is not on the respirator, it is not certified by NIOSH and should not be used.

A P-100 respirator is one of nine types of disposable particulate respirators. Particulate respirators are also known as "air-purifying respirators" because they protect by filtering particles out of the air as you breathe. These respirators protect *only* against particles—not gases or vapors. Since airborne biological agents such as bacteria or viruses are particles, they can be filtered by particulate respirators.

Respirators that filter out at least 95% of airborne particles during "worse case" testing using a "most-penetrating" sized particle are given a "95" rating. Those that filter out at least 99% receive a "99" rating. And those that filter at least 99.97% (essentially 100%) receive a "100" rating.

Respirators in this family are rated as N, R, or P for protection against oils. This rating is important because some industrial oils can degrade the filter performance so it does not filter

properly.* Respirators are rated “N,” if they are *not* resistant to oil, “R” if somewhat *resistant* to oil, and “P” if strongly resistant (*oil proof*) or **if conditions unknown**. The IAFF basis it's recommendation for "P" rated disposable due to the fact that emergency response is usually to "unknown condition" environments. Currently there are no NIOSH approved R-99, P-99 or R-100 disposable particulate respirators.

Since respirator classes are designated for use in certain environments with the P-100 being the most universal, NIOSH has designated only the P-100 respirator with magenta color coding and markings.

A list of manufacturers/suppliers and model numbers of P-100 disposable respirators is maintained by NIOSH at http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/p100list1.html.

The effectiveness of any respirator is highly dependent on having respirators that are well-fitted to fire fighters' faces. Respirators that leak may offer essentially no respiratory protection. All respirator use must be administered as part of a comprehensive Respiratory Protection Program (RPP), according to the Occupational Safety and Health Administration (OSHA). The RPP contains provisions for training respirator users, selecting and maintaining respirator equipment, conducting fit-checks and conducting fit tests. For additional information, see the Respiratory Protection Standard (29CFR 1910.134), under the Laws and Regulations link at <http://www.osha.gov>.

A respirator is not a guarantee of protection against any disease. However, if a high-filtration respirator is worn with eye protection and medical gloves by a trained individual, a high degree of protection should be conferred.



P-100 Respirator

In the event that an influenza pandemic occurs, the availability of disposable respirators may be severely strained and demand may far exceed current manufacturer production capability. The U.S. Department of Health and Human Services (DHHS) has charged the Institute of Medicine (IOM) of the [National Academies](#) (which provides science-based advice on matters of biomedical science, medicine, and health) with making recommendations on the development of reusable respirators for use during an Influenza pandemic in healthcare settings and for the general public. The IAFF is participating in this process to ensure protection is not compromised and will continue to push for the highest level of protection for first responders. The IOM recommendations are due in the next couple of months. Fire and EMS departments must assess their supply of disposable respirators and determine whether there is a need to stockpile adequate supply before the demand becomes overwhelming for the current production system. For more information on the IOM project, click on the link below <http://www.iom.edu/CMS/3740/32033.aspx>

Hand Care

Remember, one of the easiest ways to transmit a viral infection from one person to another is through a hand-shake, which transfers virus from the hand of one person who may have rubbed his nose to another person's hand. The second individual then touches his/her nose, eyes, or mouth and later develops an infection. In situations where the patient has a high fever and any respiratory signs, take the following precautions:

- Don disposable medical gloves, certified to NFPA 1999, *Standard on Protective Clothing for Emergency Medical Operations*, prior to making any patient contact.
- Use of such disposable gloves should be considered for any direct contact with body fluids of an infected patient. However, these gloves are not intended to replace proper hand hygiene. Immediately after activities involving contact with body fluids, gloves should be removed and discarded and hands should be cleaned. Gloves must never be washed or reused.
- The use of gloves does not eliminate the need for hand hygiene. Likewise, the use of hand hygiene does not eliminate the need for gloves. Gloves reduce hand contamination by 70 percent to 80 percent, prevent cross-contamination and protect both patients and health care personnel from infection. Antiseptic handrubs should be used before and after each patient, just as gloves should be changed before and after each new patient. When soap and water become available, thoroughly wash hands. Avoid touching hands to face until such a thorough washing of hands takes place.
- When using an alcohol-based handrub, apply the product to the palm of one hand and rub your hands together, covering all surfaces of your hands and fingers, until your hands are dry. Note the volume needed to reduce the number of bacteria on hands varies by product.
- Personnel should avoid wearing artificial nails and should keep natural nails less than one quarter of an inch long, particularly if they come in contact with patients at high risk of acquiring infections.

Eye Care

In situations where the patient has a high fever or any respiratory illness symptoms, take the following precautions:

- Don protective eyewear, certified to NFPA 1999, *Standard on Protective Clothing for Emergency Medical Operations*, in situations where bodily fluids may be splashed. Splash-protective eyewear must be worn within 6 feet of the patient. Corrective eyeglasses alone are not appropriate protection.
- Do not rub eyes before or after using eyewear or after handling patients or equipment.

Patient Care

In situations where the patient has a high fever or any respiratory illness symptoms, take the following precautions:

- Apply a disposable surgical mask (or disposable respirator without an exhalation valve if surgical mask is not available) to all persons suspected of having an infection (except for those receiving oxygen therapy through a facemask).
- Each patient with suspected infection should be advised to cover his or her mouth and nose with a facial tissue when coughing or sneezing. If possible, a patient should wear a surgical mask during close contact with uninfected persons to prevent spread of infectious droplets. When an infected patient is unable to wear a surgical mask, household members should wear surgical masks when in close contact with the patient.
- When a patient requires rescue breathing, use a bag-valve-mask -- NEVER use direct mouth-to-mouth or mouth-to-mask resuscitation.

Patient Transport

- When transporting persons suspected of having a highly contagious respiratory infection, do not allow air to recirculate within the vehicle, especially do not use the recirculation (Maximum Level) control on the vehicle's heating/air conditioning system. When possible, open windows/vents for improved ventilation.
- Respirators may not be removed to eat or drink while in the transport vehicle. Personal activities that require removal of respirators should not be performed in the patient-care cabin.
- The patient may wear a paper surgical mask to reduce droplet production, if one can be tolerated.
- Oxygen delivery with simple and non-rebreather facemasks may be used for patient oxygen support during transport.
- A full facepiece APR or PAPR with a HEPA filter or a P-100 respirator with goggles (or face-shields) must be worn for all patient care within 6 feet of the patient. Corrective eyeglasses alone are not appropriate protection.
- Patient care personnel should not wear leather or other non-medical gloves while transporting patients.
- Eating, drinking, application of cosmetics and handling of contact lenses should not be done in the immediate patient care area.
- Handling or storage of medication or clinical specimens should not be done in areas where food or beverages are stored or prepared.

Decontaminating equipment

- Dispose of disposable respirator, respirator filters, gloves and other disposable equipment/supplies used at the scene as bio-hazardous waste.
- Non-disposable respirators shall be cleaned and disinfected in accordance with manufacture's recommendation.
- For decontamination of non-disposable equipment, follow manufacturer and departmental standard operating procedures.
- If the turnout gear is visibly contaminated by bodily fluid, it should be placed in a biohazard bag at the scene and washed following prescribed laundry procedures. Chlorinated bleach shall not be used with any fire fighter protective clothing.
- Vehicles used to transport persons suspected of having Avian Flu should be cleaned with a disinfectant cleanser by staff wearing protective equipment, using a disinfectant cleanser.

Contacts of suspected Avian Flu patients

- When possible, in advance of a patient evaluation, healthcare providers should be informed that the individual is a close contact of an Avian Flu patient. Patients presenting to health care facilities who require assessment for Avian Flu should be diverted to a room designated for respiratory isolation.
- Sharing of eating utensils, towels, and bedding between Avian Flu patients and others should be avoided, although these items can be used by others after routine cleaning (e.g., washing with soap and hot water). Environmental surfaces soiled by body fluids should be cleaned with a household disinfectant according to manufacturer's instructions; gloves should be worn during this activity.
- Household members or other close contacts of Avian Flu patients who develop fever or respiratory symptoms should seek healthcare evaluation.
- At this time, in the absence of fever or respiratory symptoms, household members or other close contacts of Avian Flu patients need not limit their activities outside the home. Within an affected household, facial tissues and other waste from Avian Flu patients may be discarded as normal household waste.

What travel precautions are being taken?

CDC or PHAC Health Alerts

As of March 15, 2006, neither the CDC nor PHAC are advising against travel to any of the countries with cases of Avian Flu. However, the situation can change at any moment, so check the CDC alert site at <http://www.cdc.gov/travel/diseases.htm> or the PHAC alert site at http://www.phac-aspc.gc.ca/tmp-pmv/2006/h5n1060112_e.html prior to any travel.

Quarantine

As of March 15, 2006, Avian Influenza H5N1 is not among the list of quarantinable communicable diseases under the U.S. Public Health Service Act. As the risk for pandemic flu rises, the list will likely be updated. The most recent U.S. Executive Order on quarantinable diseases can be found at: <http://www.cdc.gov/ncidod/sars/executiveorder040403.htm>. PHAC has not issued any quarantine information under its Quarantine and Migration Health Program (QMHP) which is responsible for implementing the [Canadian Quarantine Act and Regulations](#). Additional information on the QMHP can be found at: http://www.phac-aspc.gc.ca/cepr-cmiu/ophs-bssp/quar_e.html.

Many levels of government (Federal, Provincial, State, and Local) have basic authority to compel isolation of sick persons to protect the public. In the event that it is necessary to compel isolation of a sick passenger, CDC and PHAC will work with appropriate State, Provincial and local officials to ensure that the passenger does not infect others.

Outlook on Pandemic Influenza

There is no Pandemic Flu at the moment and no case of Avian Flu H5N1 has been detected in North America. Health authorities around the world are watching closely so that they may respond promptly in the identification and reporting of suspect cases. The World Health Organization (WHO) will issue a Global Alert should the need arise.

Where can I learn more?

Updated information on pandemic flu is available on the following web sites:

International

- World Health Organization (WHO) - http://www.who.int/csr/disease/avian_influenza/updates/en/index.html.
- European Commission - <http://www.eiss.org/index.cgi>

Canada

- Canada - http://www.phac-aspc.gc.ca/influenza/pandemic_e.html

United States

- Official U.S. government website on Pandemic and Avian Influenzas - <http://www.pandemicflu.gov/>
- Centers for Disease Control (CDC) - <http://www.cdc.gov/flu/weekly/fluactivity.htm>

Preparation Checklist

- <http://www.nfpa.org/>
 - NFPA 1600 – *Standard on Disaster/Emergency Management and Business Continuity Programs*
 - NFPA 1500 – *Standard on FD Occupational Safety and Health Program*
 - NFPA 1561 – *Standard on Emergency Services Incident Management System*
 - NFPA 1999 – *Standard on Protective Clothing for Emergency Medical Operations*
- <http://www.pandemicflu.gov/plan/statelocalchecklist.html>
- <http://www.pandemicflu.gov/plan/businesschecklist.html>
- <http://www2.cdc.gov/od/fluaid/default.htm#Sectiona>

Glossary

A

acute: Sudden onset, short course. May also refer to intensity or severity.

aerosolized respiratory secretions: Liquid droplets, suspended in air, that arise from coughing or sneezing. Aerosolized respiratory secretions are responsible for the transmission of tuberculosis, and are one of the major modes of influenza transmission.

Amantadine (Symmetrel): Antiviral medication for treatment and prophylaxis of adults and children >1 year old with influenza type A virus exposure. It is not effective against influenza type B.

antibodies: Proteins produced by the immune system that act against an infecting agent.

antigen: Any substance that elicits an response from the body's immune system, such as release of antibodies.

Antigenic drift: Gradual minor change (mutation) in the genetic makeup of influenza A and B strains that result in changes in the hemagglutinin (H) or neuraminidase (N) proteins found on the viral surface. The ongoing changes of H and N are the causes of annual epidemics and need for new influenza vaccine each year.

Antigenic shift: A reassortment of influenza A genes resulting in a major change in the H and N proteins. Because very few people are immunized against such a novel strain of virus, antigenic shift may be associated with a pandemic.

Avian Flu: A group of influenza viruses that primarily infect birds, but on rare occasion may infect other animals such as pigs or humans.

C

CDC (Centers for Disease Control and Prevention): A United States government agency that seeks to promote health and quality of life by preventing and controlling disease, injury, and disability.

E

Epidemic: An outbreak that spreads widely and affects many persons within a region or population within a defined time period.

F

flu: Infection and illness due to influenza virus. It is often erroneously used to refer to common colds or even gastrointestinal illnesses.

H

Hemagglutinin (H): An agglutinating protein (antigen) on the surface of influenza virus. Differences in the amino acid sequences give rise to the different subtypes of influenza type A viruses.

hypoxia: A deficiency of oxygen reaching the tissues of the body.

I

incubation period: The period of time between the infection of an individual by a disease-causing agent and the manifestation of the disease it causes.

infectious: Capable of transmitting an infectious agent from one person to another

influenza: A highly contagious seasonal respiratory illness caused by the influenza virus. It is characterized by fever, chills, sore throat, nasal congestion, cough, exhaustion, and severe muscle aches.

intubation: The introduction of a tube into the trachea to mechanically maintain oxygen flow to the lungs.

M

morbidity: Departure from a state of well-being (physiologically or psychologically).

mortality: Death

mutation: A relatively permanent change in the genetic material

N

Neuraminidase (N): A hydrolytic enzyme (antigen) on the surface of influenza virus. It dissolves the protective viscosity of cellular mucous lining, allowing release of new viruses into the respiratory tract.

NFPA (National Fire Protection Association): An international nonprofit organization that seeks to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating scientifically-based consensus codes and standards, research, training, and education.

P

pandemic: Widely spread epidemic. Usually refers to the global spread of disease.

prevention: Taking measures for anticipation, prevention, detection, and early treatment of disease

Preventive Medicine: A branch of medical science dealing with methods of preventing the occurrence of disease or illness

Public Health: The art and science of protecting and improving community health by means of prevention, education, disease control, and sanitation.

PHAC (Public Health Agency of Canada): A Canadian government agency that seeks to promote and protect the health of Canadians through leadership, partnership, innovation and action in public health.

Q

quarantine: A restraint on the activities of persons or the transport of goods that is designed to prevent the spread of disease.

R

resistance: The ability of microbial strains or pathogens to withstand effects of antimicrobial agents

rimantadine (Flumadine): Antiviral medication for treatment and prophylaxis of adults with influenza type A virus exposure. It is not effective against influenza type B.

S

subtype: A sub-classification of influenza type A viruses based on the surface proteins – hemagglutinin (H) and neuraminidase (N)

V

vaccination: The administration of vaccine in order to induce an immune response for future protection against the infectious agent of interest

vaccine: A substance that can stimulate the immune system to protect against an infectious organism of interest at a future point in time.

virus: A group of infectious parasites that are typically much smaller than bacteria and characterized by their inability to reproduce outside of a living host cell.

W

WHO (World Health Organization): Specialized health agency of the United Nations that seeks the attainment by all peoples of the highest possible level of health. WHO is governed by 192 Member States through the World Health Assembly.