HazMat / WMD Training Department

Avian & Pandemic Influenza
A Unit from the Infectious Diseases Course

Instructor Guide

Developed by
International Association of Fire Fighters®

Harold A. Schaitberger
General President

Vincent J. Bollon
General Secretary-Treasurer

Funded By
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International Association of Fire Fighters
1750 New York Avenue, NW
Washington, DC 20006
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Preparing for the Course

Using the Instructor Guide

The Instructor Guide includes all the information included in the Student Manual as well as guidance on conducting activities and leading discussions. Each module provides approximately two hours of instruction. When used consecutively, the four modules comprise an 8-hour day. Class size of 20 –25 students with two instructors is recommended.

The Instructor Guide pages are always on the left side of this book; the information the students receive is always on the right. The Instructor Guide pages include activities to conduct, questions to ask and discussions to hold throughout the course. Appendices of relevant references and supplemental materials are also included.

Before You Begin

Prepare the learning environment well before training begins. To ensure that the course progresses smoothly:

- Review any previous correspondence with the department (e.g., contract letters, pre-training surveys).

- Obtain the department’s Exposure Control Plan, Exposure Report Form, Sharps Injury Log, applicable SOG/SOP, etc. to use as reference items throughout the course. You should check with the local union office or the state/provincial association to make sure that you have the appropriate legislation for the state in which you are teaching. If you need additional resources, check out the National Conference of State Legislatures web site at www.ncsl.org/public/leglinks.cfm. Also check: www.fisenate.gov/statutes/index.cfm

Tips for Effective Facilitation

- As soon as one team completes the team activity, bring the class back together to begin the report-backs. Avoid allowing the students to begin chatting among themselves.

- When one team is reporting back from an activity, keep the students in the other teams involved. Ask for comments and questions from the other teams. Compare and contrast one team’s answers with those from the other teams.

- When students respond or ask questions, you should repeat their comments loudly enough that all students can stay involved in the discussion.
Course Overview

Course Structure

This training for Infectious Diseases includes four mandatory units:

- Unit 1: Staying Well
- Unit 2: Pathogens
- Unit 3: Prevention
- Unit 4: Post-Exposure
- Unit 5: Avian & Pandemic Influenza

The Students’ Roles

This course is designed for students to be active learners, rather than passive recipients of information. Interactive activities encourage students to share knowledge about exposures to infectious diseases, which adds meaningful context to the instruction.

This edition of the course requires the students to interact in:

- Problem-solving activities
- Written exercises
- Case studies
- Current event discussions
- Performance demonstrations

The Instructors’ Roles

This course is usually led by two instructors. Sometimes one instructor leads the first two units and the other instructor leads the last two. In other cases, the instructors take turns teaching within each unit.

Regardless of who is lead instructor at the time, both instructors play a continuing, active role in the learning process as coach, rather than lecturer. In tandem, they create a dynamic learning environment by encouraging discussion and collaboration among all.
Before You Begin (Continued)

- Ensure the assigned training space will comfortably accommodate all participants. Much of the work in the course takes place while the students are in small groups. It is therefore necessary that there be adequate room to organize the students in four small teams. You may have to move chairs and/or other furniture to ensure that these teams can meet.

- Secure, set up and test the necessary equipment. The materials needed for each unit are listed at the beginning of that unit.

- Ensure an adequate number of Student Manuals were delivered. Shortly before the training event, distribute one to each participant's seat.

- Obtain materials needed:
  - Computer, external speakers and CD with PowerPoint presentations and videos
  - Projection unit and screen (or white wall)
  - Sufficient easel pad paper for teams to complete activities
  - Four different (dark) colored markers
  - Tape
  - Local Department’s Exposure Control Plan or Model Exposure Control Plan found in the Appendices (used in Unit 3)
  - Appropriate legislation for the state in which you are teaching (used in Unit 4)

- Thoroughly review the material in the Instructor Guide and Student Manual. You may want to conduct a dry run in advance of training to estimate your time.

- Review the following web sites:
  - Centers for Disease Control and Prevention (CDC), Division of Bacterial and Mycotic Diseases, Disease Listing, http://www.cdc.gov/ncidod/dbmd/diseaseinfo
  - IAFF, Infectious Diseases, http://www.iaff.org/safe/content/infdis/Infectious_Diseases.htm
### Unit 5: Avian & Pandemic Influenza

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<td>In the Fire House</td>
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**Total Estimated Time**: 1 hour, 30 min.
Unit Objectives

(Slide 5-2) Review the objectives for Unit 5.

Note this module includes one of the exercises developed by the IAFF Education Department for a shift-based training program—Module 1: In My Fire House. The Facilitators Guide to Preparing for a Pandemic Flu: What First Responders Need to Know (see Appendix A) includes two additional exercises that can be used to supplement this course:

- Module 2: Making a Plan (1 hour)
  o Create a personal family plan for a major response
- Module 3: Protecting Myself (30 minutes)
  o Identify the proper personal protective equipment (PPE) and when to don it

If you do not use the additional exercises, refer students to the Facilitators Guide in Appendix A. The Facilitators Guide to Preparing for a Pandemic Flu: What First Responders Need to Know is also available on the Internet at:

- http://www.iaff.org/academy/content/pandemicflu/index.htm
Unit Objectives

After this unit, you will be able to:

- Identify the differences between seasonal, epidemic and pandemic infections.
- Describe the symptoms of Avian flu, how it is spread, the potential for an Avian flu pandemic and the effects of a pandemic.
- Describe how you can help your department prepare for a pandemic.
- Describe the role of the safety/infection control and prevention officer before and after a pandemic.
- Explain how to protect yourself and patients.
- Explain proper decontamination procedures.
- Explain the importance of seasonal flu vaccination.
Avian & Pandemic Influenza Overview
(15 Minutes)

This overview includes the following sections:

- General Information (below)
- Seasonal Flu, Epidemics and Pandemics (pages IG 5-6 and SM 5-7)
- Why Does Avian Flu Have the Potential to Become a Pandemic? (pages IG 5-6 and SM 5-7)
- How Is Avian Flu Spreading? (pages IG 5-8 and SM 5-9)

General Information

(Slide 5-3) Read the objectives for the activity. →

Ask students what they already know about Avian flu.

(Slide 5-4) Possible responses and background information is listed below. After students provide their responses, click on the slide to bring up/review the most important information.

- Health professionals are concerned that the continued spread of a highly pathogenic Avian H5N1 virus across eastern Asia and other countries represents a significant threat to human health.

- The H5N1 virus has raised concerns about a potential human pandemic because:
  - Avian flu is spread from birds to humans.
  - Avian flu is spread from bird-to-bird through migration.
  - Currently, only bird-to-human transmission has been reported, not human-to-human.
  - If human-to-human transmission occurs, this strain of Avian flu could become a pandemic outbreak.
  - There is currently no immunity to Avian flu and developing a vaccine will take time to make and distribute.
  - Like other influenza viruses, it continues to evolve.

- Encourage students to explore the following for more information:
  - [http://www.iaff.org/academy/online/modules/avian/01.htm](http://www.iaff.org/academy/online/modules/avian/01.htm)

Objectives

Students will:
- Identify the differences between seasonal, epidemic and pandemic infections.
- Describe the symptoms of Avian flu, how it is spread and the potential for an Avian flu pandemic.
Avian & Pandemic Influenza Overview

Use the space below for your notes.

For more information, explore the following:

- IAFF Online Module
  http://www.iaff.org/academy/online/modules/avian/01.htm
Seasonal Flu, Epidemics & Pandemics

(Slide 5-5) Click on the slide to bring up each term and then its description and an image.

Ask students:

What is a **seasonal flu**?

- Respiratory illness
- Transmitted person to person
- Vaccine is available

What is an **epidemic**?

- An epidemic is an illness contained in a specific geographic area

What is a **pandemic**?

- A pandemic is a global disease outbreak.
  - A flu pandemic occurs when a new influenza virus emerges for which people have little or no immunity and for which there is no vaccine.
  - The disease spreads easily person-to-person, causes serious illness and can sweep across the country and around the world in very short time.

**Why Does Avian Flu Have the Potential to Become a Pandemic?**

(Slide 5-6) Lead the class in a discussion on why Avian flu has the potential to become a pandemic. After students provide their responses, click on the slide to bring up/review the most important reasons.

- It’s being spread by migratory birds.
- It can be transmitted from birds to mammals (including humans).
- There is no human immunity.
- It’s resistant to two antiviral medications that are commonly used for influenza (amantadine and rimantadine).
- The virus continues to mutate.
Seasonal Flu, Epidemics & Pandemics

Seasonal Flu

Seasonal flu, also called common flu, is a respiratory illness that is transmitted person to person. A vaccine is available and most people have some immunity.

Epidemic

An epidemic is an illness that is contained in a specific geographic area.

Pandemic

A pandemic is a global disease outbreak. A flu pandemic occurs when a new virus emerges for which people have little or no immunity and for which there is no vaccine. The disease spreads easily from person to person, sweeping across a country and around the world.

In 1918, the Spanish flu pandemic hit the world. It is estimated that approximately 20 to 40 percent of the world’s population became ill and that over 50 million people died, with 500,000 deaths in the U.S. alone. During the Spanish flu, healthy people, as well as those who were frail, fell ill and died. Flu pandemics have occurred in 1957, 1968 and 1977.

Many health experts believe that the next outbreak of a pandemic flu isn’t a question of if, but when. If not Avian flu, it will be a different flu, so being prepared is essential.
How Is Avian Flu Spreading?

(Slide 5-7) The slide begins with a map of the world with the confirmed cases since 2003. Click to show the confirmed cases for 2006. Click again to show the confirmed cases since January 2007.

(Slide 5-8) Show the chart of numbers of cases and deaths reported to the World Health Organization (WHO) between 2003 and 2007.

What Are the Symptoms of Avian Flu?

(Slide 5-9) Ask students to list the symptoms of Avian flu. After students provide their responses, click on the slide to bring up/review the correct symptoms:

- Persistent fever
- Chills
- Productive or dry cough
- Shortness of breath
- Fatigue
- Muscle aches
- Low white blood count (lymphophemia)
- Progression to pneumonia or Acute Respiratory Distress Syndrome (ARDS) within five to seven days
How Is Avian Flu Spreading?

The new strand of Avian flu is one of the few avian influenza viruses to have crossed the species barrier to infect humans, and is the most deadly of those that have crossed the barrier. In the current outbreaks in Asia, Europe and Africa, more than half of those infected with Avian flu have died.

Those who have contracted the virus have handled birds or surfaces contaminated with secretions or excretions from infected birds. As of now, there are no reported cases of human to human contact.

Scientists are finding that the virus must attack the lungs to take hold. It cannot be spread easily through coughing or sneezing.

What Are the Symptoms of Avian Flu?

Use this space to list the symptoms of Avian flu.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
In the Fire House*

*(15 minutes)*

(Slide 5-10) Read the objective for the activity

Draw a fire house in the center of a white board or easel pad.

Around it, draw a fire fighter, a family, a fire department and a group of buildings (blocks) to represent a town/city.

Ask participants to predict the effects of a pandemic on each of these. Write answers near or under the drawing, or have students go up to the board and write responses.

**Fire station** - Ask what would happen to their fire station if a pandemic outbreak were to happen.

Suggested responses:

- More calls because people are sick
- Experts predict one third of the workforce would be out sick
- Continuous restocking of equipment
- Potential for limited supplies
- Death of a coworker
- Quarantine or isolation

**Department** - Ask what would happen to their department if a pandemic outbreak were to happen.

Suggested responses:

- Staffing issues - people out sick or quarantined, mandatory staffing, reduced/altered staffing, overtime, etc.
- Administrative duties such as budgeting, payroll
- Call volume affects dispatch
- Equipment stocking or shortages of protective gear
- Need for Critical Incident Stress Management (CISM) and Family Assistance Support Teams

*Note this exercise is taken from the IAFF Education department's *Facilitators Guide to Preparing for a Pandemic Flu: What First Responders Need to Know* (see Appendix A, Module 1: In My Fire House).
In the Fire House

Use this space to respond to the questions.

What would happen to this fire station if a pandemic outbreak were to happen?

What would happen to the department if a pandemic outbreak were to happen?
**Family** - Ask what would happen to their families if a pandemic outbreak were to happen.

Suggested responses:

- Family members sick
- Shift changes
- Schools closed, children at home
- Child care unavailable
- Deaths in family
- Quarantine or isolation

**Town/ city** - Ask what would happen to the wider community if a pandemic outbreak were to happen.

Suggested responses:

- Grocery or other stores understaffed and with limited supplies
- Banks close
- Transportation system issues
- Lack of available medical care
- Lack of care for people with special needs
- Quarantine or isolation

**Nation** - Ask students to name any other areas that might be affected across the nation if a pandemic outbreak were to happen. Write these answers around the outside of the others.

Suggested responses:

- Banking/financial system
- Economy
- Transportation system (airlines, subways, buses, roads)
- Communications systems (telephones, cell phones, Internet)
- Quarantine or isolation
Use this space to respond to the questions.

What would happen to your family if a pandemic outbreak were to happen?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

What would happen to the wider community if a pandemic outbreak were to happen?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

What would happen to other areas in the nation if a pandemic outbreak were to happen?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Is Your Department Ready?

(10 Minutes)

Ask the students if they think their department is ready for a pandemic.

If available, review the department’s plan for Avian flu/pandemic flu response. Look at the department’s planning checklist and/or SOPs for flu or outbreak response.

Ask the students if someone in their department has met with their health department, local hospital or other agencies (e.g., risk management, police and other applicable agencies) about a potential pandemic.

If not, discuss how a department should set up a meeting in order to plan for a pandemic.

• Meetings should include the health department, a risk management agency and hospitals.
• During meetings, participants should discuss the challenges that will be encountered if a pandemic hits.

Ask students what factors their department will need to consider when planning for a pandemic:

• Logistics
• Infection control
• Inventory
• Staff impact
• Resource allocation

(Slide 5-11) Click on the IAFF Influenza Pandemic Checklist on the slide to open the Adobe Acrobat ® file. (To open the file, you must have Adobe Acrobat Reader ® 5.0+ installed on the computer. It's available at: http://www.adobe.com/products/acrobat/readstep2.html.)

Discuss the items on the IAFF Influenza Pandemic Checklist on pages SM-15, SM-17 and SM-19. If time permits, ask students to determine if their department has done, is doing, or has started working on each item in the checklist. If time does not permit, suggest students make the determination after the class.

Objective

Students will describe how they can help make their department ready for a pandemic.
# Is Your Department Ready?

## IAFF Influenza Pandemic Checklist

<table>
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<tr>
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<th>I. Planning Logistics</th>
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<tr>
<td></td>
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<td></td>
<td>Establish an Incident Management System that meets NFPA 1561, Standard on Emergency Services Incident Management System, including written Standard Operating Procedures (SOP) and Mitigation Plan.</td>
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<td>Identify and define roles and responsibilities of Incident Commander who will coordinate the emergency response and the response teams (NFPA 1500, chapter 8.1).</td>
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<td>Inter-Agency Cooperation: Establish relationships with community public health department and other emergency management groups. Define functional roles and responsibilities of internal and external agencies, organizations, departments and individuals, and establish lines of authority.</td>
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<td>Communications Plan: Establish systems and procedures (how, how often, when, what and to whom the information will be disseminated) and articulate resource requirements.</td>
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<td>Set up authorities, triggers and procedures for activating and terminating response plan.</td>
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<td>Develop and plan for scenarios likely to result in an increase or decrease in demand for your services during a pandemic (e.g. search and rescue, assist with quarantine, etc). Define potential roles outside of usual duties (i.e. assisting healthcare facilities in mobilizing patients from one location to a quarantine location or other unusual activities).</td>
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<td>Determine training and define needs for training (NFPA 1600, 5.12).</td>
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<td>Implement an exercise/drill to test your plan and revise periodically.</td>
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<td>Develop a disaster recovery plan.</td>
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## II. Infection Control

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<tr>
<td></td>
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<td>Ensure adoption of an infection control program that meets the requirements of NFPA 1581, <em>Standard on Fire Department Infection Control Program</em>.</td>
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|      |             |             | Ensure fire department has a written infection control policy statement defining the department’s mission in limiting the exposure of members to infectious diseases during the performance of their assigned duties and while in the fire station living environment. |

|      |             |             | Ensure fire department has an experienced individual within the department designated as the infection control officer. |

|      |             |             | Ensure availability of all flu vaccines. |

|      |             |             | Ensure training and education is a component of the infection control program and includes proper selection and use of personal protective equipment, standard operating procedures for safe work practices in infection control, proper methods of disposal of contaminated articles and medical waste, cleaning and decontamination, exposure management and medical follow-up. |

|      |             |             | Ensure fire department implements and enforces hand and skin washing practices and decontamination procedures. |

|      |             |             | Establish fit-testing and skill training on all respirator types used to prevent exposures. |

## III. Inventory Checklist

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<th>III. Inventory Checklist</th>
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<td></td>
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<td>Community: Develop an understanding of the local community dynamics, available resources and how they may shift during a pandemic – size and distribution of population, number and location of health facilities, quarantine sites, transportation issues, large spaces that could be transformed into healthcare or shelter facility, etc.</td>
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</table>

|      |             |             | Resources: Identify requirements during surge capacity (i.e. during a pandemic) – PPE, medical gloves, P-100 respirators, vaccines, emergency supplies for potential shelter-in-place at worksite, etc. |

|      |             |             | Establish funding sources for planning process and for surge capacity. |
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## IV. Impact on Staff

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<td>Determine impact on staff – absenteeism due to illness or attending to ill family member or afraid to come into work and develop Contingency Plan for such an event.</td>
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<td>Determine potential safety issues and plan for prevention.</td>
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<td>Train and prepare ancillary workforce (e.g. contractors, non-first responders, support staff).</td>
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<td>Encourage and track vaccination history (annual influenza, Hepatitis B, Hepatitis A, TB, etc.).</td>
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<td>Evaluate staff access to, and availability of, healthcare services during a pandemic. Services should include mental health and social services.</td>
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<td>Establish policies for restricting travel and preventing influenza spread at the worksite. Encourage proper hygiene practice and universal precautions.</td>
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## V. Resource Allocation

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<td>Education: Disseminate Influenza Pandemic Information.</td>
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<td>Utilize information developed by IAFF and other materials on pandemic.</td>
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<td>Communication Channel: Establish two-way information flow.</td>
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<td>Disseminate information frequently to all staff to prevent misinformation or fears based on rumors. Establish a dedicated staff member who is responsible for disseminating information. Staff must also be able to easily provide feedback to designated staff member on what they are facing, including those issues experienced in the field.</td>
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<td>Establish funding for training sessions.</td>
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The Role of the Safety/Infection Control & Prevention Officer

(Slide 5-12) Read the objective for the activity. →

(Slide 5-13) Discuss the role of the safety/infection control and prevention officer before a pandemic. After students provide their responses, click on the slide to bring up/review the correct responses.

- The fire station is a safe work environment.
- There are adequate equipment and supplies.
- Personal protective equipment (PPE) fits.
- Fire fighters use proper equipment at the proper times.

(Slide 5-14) Discuss the role of the safety/infection control and prevention officer after an incident. After students provide their responses, click on the slide to bring up/review the correct responses.

- Health incidents are reported to health center.
- Fire fighters follow incident-related decontamination guidelines.
- Administrative and PPE controls are followed.

Objective

Students will describe the role of the safety/infection control and prevention officer both before a pandemic and after an incident.
The Role of the Safety/Infection Control & Prevention Officer

Your department may already have safety/infection control and prevention officers - designated first responders who ensure overall safety at the fire house. The safety/infection control and prevention officers will be the first line of defense for policies your department makes for the pandemic.

Here are some examples of what the safety/infection control and prevention officers will ensure.

Before a pandemic:

- The fire station is a safe work environment.
- There are adequate supplies and equipment.
- Equipment fits.
- Fire fighters use proper equipment at the proper times.

After an incident:

- Health incidents are reported to health center.
- Fire fighters follow incident-related decontamination guidelines.
- Administrative and PPE controls are followed.
Staying Safe
(15 Minutes)

(Slide 5-15) Read the objective for the activity.

Objective
Students will describe how to keep the most vulnerable areas—the eyes, nose and mouth—safe from Avian flu.

Respiratory Protection

(Slide 5-16) Show examples of three types of masks—surgical mask, N-95, P-100.

Ask which mask they would choose to wear to help prevent contracting Avian flu virus. Then discuss the key points below.

- A **surgical mask** will not protect you.
  - Surgical masks are intended to protect a patient from the health care provider.
  - They are not NIOSH-approved for worker protection.
  - There is no effective seal with this mask and the flu virus will be easily inhaled.

- The CDC recommends, as a minimum, the **N-95**, which filters 95% of particles.
  - The N-95 disposable mask is only effective if you have been fit-tested to determine size.
  - If you were exposed to the flu virus and your mask does not fit, you may take that virus back to your entire shift.

- The IAFF recommends, as a minimum, the **P-100** with an exhalation valve.
  - The P-100 filters 99.97% of particles and is oil proof.
  - The mask is effective only if it fits correctly.
  - You will need to be fit-tested.

Explain that if the patient requires oxygen therapy, responders should use a non-rebreather on the patient. If the patient does not require oxygen, they can put a surgical or some other type of barrier on the patient to minimize exposure to droplets from the patient.

Explain that another precaution that can be taken is to reduce the number of personnel in the immediate area around the patient. Basically, only the personnel required for treatment should remain near the patient; all others should move to other rooms/locations.
Staying Safe

The most vulnerable areas for being infected with influenza are the eyes, nose and mouth.

Influenza is spread from person to person by contact with respiratory secretions from an infected person. When an infected person coughs or sneezes, large droplets carrying the virus land on the surfaces of the upper respiratory tracts of persons who are within three feet of the infected person. The virus can also spread by direct or indirect contact with respiratory secretions - touching contaminated surfaces and then touching the eyes, nose or mouth.

Respiratory Protection

During the class discussion, use the space below to take notes on respiratory protection.

Surgical mask

N-95

P-100
Fit-testing for Disposable Masks

(Slide 5-17) Step through the steps of fit-testing for disposable masks.

Hand Care

(Slide 5-18) Discuss the key points related to hand and eye care.

- Wash hands properly.
- Wear disposable medical gloves.
- Keep waterless hand cleaner in your EMS bag.
- Discard gloves - do not wash or reuse gloves.

Eye Care

(Slide 5-19) Discuss the key points related to hand and eye care.

- Don protective eyewear.
- Do not rub eyes.
Fit-testing for Disposable Masks

Never reuse a disposable mask.

You will need to be fit-tested to make sure your mask fits properly.

Here are the steps for fit-testing:

1. Don a hood while the test conductor sprays a fit-test agent, either a bitter substance called Bitrex™ (Denatonium Benzoate), or Saccharin,* into the hood for you to taste and smell.

2. Don a disposable mask. The testing agent is then sprayed again. Do you taste or smell the agent?

3. If you taste or smell the agent, you will test another disposable mask size (or type).

4. You will receive a card with your fit-testing results for you to carry on the job.

*While the use of Saccharin is a sanctioned OSHA practice, it has been found to be carcinogenic.

Hand Care

In addition to proper hand washing, wear disposable medical gloves, certified to NFPA 1999, Standard on Protective Clothing for Emergency Medical Operations, prior to making any patient contact. Keep waterless hand cleaner in your EMS bag.

Immediately after activities involving contact with a patient’s body fluids, gloves should be removed and discarded, and hands should be cleaned.

Gloves must never be washed or reused.

Eye Care

Don protective eyewear, certified to NFPA 1999, Standard on Protective Clothing for Emergency Medical Operations, in situations where bodily fluids may be splashed.

Do not rub eyes before or after using eyewear, or after handling patients or equipment.
Patient Care & Transport

(10 Minutes)

(Slide 5-20) Read the objective for the activity. →

Ask students to work in their teams on the case study on page SM-27.

Report-Backs to Class

Ask each team’s Reporter to brief the entire class on how the patient should be cared for and transported.

During the Report-Backs, make sure all students are participating. Plan on asking for questions or comments from other class members during each team’s Report-Back. The entire class should be involved as much as possible.

Case Study Answers

(Slide 5-21) In situations where a patient has a high fever and any respiratory signs, the following precautions should be taken:

- Advise each patient with a suspected infection to cover his/her mouth when coughing or sneezing.
- Apply a disposable surgical mask or a disposable respirator to all suspected cases not requiring oxygen therapy.
- When a patient requires rescue breathing, use a bag-valve-mask. Never use direct mouth-to-mouth or mouth-to-mask resuscitation.

(Slide 5-22) When transporting the patient, work to reduce your risk of contracting the flu:

- Do not allow air to re-circulate within the transport vehicle - in particular DO NOT use the re-circulation control on the vehicle’s heating/air conditioning system.
- Do not remove respirators to eat or drink while in the transport vehicle.
- Have the patient wear a surgical mask to reduce droplet production, if tolerated.
- Use oxygen delivery with simple and non-rebreather face masks may be used for patient oxygen support during transport.
Patient Care & Transport

Work in your assigned teams. Decide how the patient should be cared for and transported.

Case Study 1: Ladder Company 4
Date: August 11
Time: 11 a.m.

You are dispatched as part of Ladder Company 4 to 1881 West Point Drive where a 31-year-old male complains of shortness of breath. He has had a fever for four days, along with chills and fatigue. As you talk to him, he reveals that he works as a consultant to a company that produces down comforters and has spent a great deal of time in factories that house ducks.

What precautions should be taken when caring for this patient?

What precautions should be taken when transporting this patient?
Decontaminating Equipment

(5 Minutes)

(Slide 5-23) Read the objective for the activity. →

Objective

Students will describe how to decontaminate equipment that may have been contaminated with Avian flu.

Vaccinations

(5 Minutes)

(Slide 5-24) Read the objective for the activity. →

Objective

Students will explain why it is important to get a vaccine for seasonal flu.
Decontaminating Equipment

Disposable respirators, gloves and other equipment/supplies used at the scene should be discarded as biohazardous waste.

Decontaminate non-disposable equipment by following 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.

Do not use bleach on PPE. It degrades equipment.

Always refer to your department’s standard operating procedures.

Vaccinations

There is currently no vaccine for Avian flu. If the virus mutates and causes a pandemic, there may be delays in creating and distributing a vaccine.

Nevertheless, all first responders should get an influenza vaccine each year to protect themselves, their families and the public they serve from the seasonal influenza outbreak.
What’s Your Plan of Action?

(Slide 5-25) Review what was covered in Unit 5.

- Basic facts about Avian and pandemic influenza
- How a pandemic could affect the firehouse, the department, your family, the wider community and the nation
- How to prepare the department for a pandemic
- How to keep yourself safe
- How to care for and transport patients who may be infected with Avian or pandemic flu
- How to decontaminate equipment
- Why vaccinations are important

Remind students that many health experts believe that the next outbreak of a pandemic flu is not a question of “if,” but a question of “when.” Stress the importance of being prepared.

Appendices

(Slide 5-26) Refer students to the Appendices and review the contents.

(Slide 5-27) Read the objective for the activity.

Prompt students to work individually to complete the Action Plan for changing their behavior based on the topics covered in this unit.

Review Student Responses with Class

When most students have completed their action plans, explain that people are more likely to act on their plans when they make them public. Ask one or two of them to share their plans with the rest of the class. Remind students who do not share their plans with the class that they should share their plans with someone as soon as possible to make sure they act on their plans.
What’s Your Plan of Action?

Based on what you learned in this course, what proactive steps can you take before a pandemic occurs? Work individually to describe how you will prepare for an outbreak of pandemic flu.

1. ____________________________________________________________

   ____________________________________________________________

   ____________________________________________________________

2. ____________________________________________________________

   ____________________________________________________________

   ____________________________________________________________

3. ____________________________________________________________

   ____________________________________________________________
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Infectious Diseases
Unit 5 – Avian & Pandemic Influenza

• After this unit, you will be able to:
  - Identify the differences between seasonal, epidemic and pandemic infections.
  - Describe the symptoms of Avian flu, how it is spread, the potential for an Avian flu pandemic and the effects of a pandemic.
  - Describe how you can help your department prepare for a pandemic.
  - Describe the role of the safety/infection control and prevention officer before and after a pandemic.
  - Explain how to protect yourself and patients.
  - Explain proper decontamination procedures.
  - Explain the importance of seasonal flu vaccination.
Objectives

• Identify the differences between seasonal, epidemic and pandemic infections.
• Describe the symptoms of Avian flu, how it is spread and the potential for an Avian flu pandemic.

Avian & Pandemic Influenza Overview

• Avian flu is:
  - Spread from birds to humans
  - Spread from bird to bird through migration
  - Currently, spread only bird to human, not human to human
• Avian flu could become a pandemic.
• There is no immunity to Avian flu.
• A vaccine has not been developed.
• For more information, explore:
  - Pandemic Flu Resources for First Responders
    http://www.iaff.org/pandemicflu/
  - PandemicFlu.gov
    http://www.pandemicflu.gov/index.html
Seasonal Flu, Epidemics and Pandemics

- Seasonal flu
  - Respiratory illness
  - Transmitted person-to-person
  - Vaccine is available
- Epidemic
  - An illness contained in a specific geographic area (e.g., Asia, the United States, Europe)
- Pandemic
  - A global disease outbreak

Why Does Avian Flu Have the Potential to Become a Pandemic?

- It’s being spread by migratory birds.
- It can be transmitted from birds to mammals (including humans).
- There is no human immunity.
- It’s resistant to antiviral medications commonly used.
- The virus continues to mutate.
How Is Avian Flu Spreading?

Number of Deaths

 cumulative Number of confirmed human cases of avian influenza a/h5n1 reported to who

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Note: number of cases includes reported deaths from laboratory-confirmed cases. all dates refer to onset of illness.
Symptoms of Avian Flu

- Persistent fever
- Chills
- Productive or dry cough
- Shortness of breath
- Fatigue
- Muscle aches
- Low white blood count (lymphopenia)
- Progression to pneumonia or Acute Respiratory Distress Syndrome (ARDS) within five to seven days

Objective

- Predict the effects of a pandemic flu on the:
  - Individual
  - Family
  - Department
  - Community
  - Nation
Objective

Describe the role of the safety/infection control and prevention officer both before a pandemic and after an incident.
The Role of the Safety/Infection Control and Prevention Officer

• Before a pandemic, ensure:
  - The fire station is a safe work environment.
  - There are adequate supplies and equipment.
  - Personal protective equipment (PPE) fits.
  - Fire fighters use proper equipment at the proper times.

The Role of the Safety/Infection Control and Prevention Officer

• After an incident, ensure:
  - Health incidents are reported to health center.
  - Fire fighters follow incident-related decontamination guidelines.
  - Administrative and PPE controls are followed.
Objective

Describe how to keep the most vulnerable areas safe from Avian flu.

Respiratory Protection

Surgical Mask

N95

P100

Recommended by IAFF
Fit-Testing for Disposable Masks

**Step 1**
Don hood while agent is sprayed for you to taste and smell.

**Step 2**
Don mask while agent is sprayed. Do you taste or smell it?

**Step 3**
If you taste or smell agent, discard mask, size (or type).

**Step 4**
Carry results card.

Hand Care

- Wash hands properly.
- Wear disposable medical gloves.
- Keep waterless hand cleaner in your EMS bag.
- Discard gloves – do not wash or reuse gloves.
Eye Care

- Don protective eyewear.
- Do not rub eyes.

Objective

Identify precautions to take when caring for and transporting patients with the flu.
Precautions for Patient Care

- Request patients cover their mouths when coughing or sneezing.
- Apply disposable surgical masks or disposable respirators.
- Use bag-valve-masks.
  - Never use direct mouth-to-mouth or mouth-to-mask resuscitation.

Precautions for Patient Transport

- Do not allow air to re-circulate within the transport vehicle.
- Do not remove respirators to eat or drink.
- Have patients wear surgical masks, if tolerated.
- Use simple and non-rebreather face mask for oxygen support.
Objective

Describe how to decontaminate equipment that may have been contaminated with Avian flu.

Objective

Explain why it is important to get a vaccine for seasonal flu.
In this unit, you learned:
- Basic facts about Avian and pandemic influenza
- How a pandemic could affect the fire house, the department, your family, the wider community and the nation
- How to prepare the department for a pandemic
- How to keep yourself safe
- How to care for and transport patients who may be infected with Avian or pandemic flu
- How to decontaminate equipment
- Why vaccinations are important

Appendices

- Appendix A – Facilitators Guide to Preparing for a Pandemic Flu: What First Responders Need to Know
- Appendix B – Emergency Plan for First Responder Families Worksheet
- Appendix C – Additional Resources
  - IAFF Influenza Web Sites
  - PandemicFlu.gov
  - Center for Disease Control (CDC) Web Site
  - National Clearinghouse for Worker Safety & Health Training
Plan actions you will take to change your behavior based on the topics covered in this unit.
Appendices
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Appendix A
Facilitators Guide to *Preparing for a Pandemic Flu: What First Responders Need to Know*
A Shift-Based Training Program
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Facilitators Guide to:
Preventing for a Pandemic Flu:
What First Responders Need to Know
A shift-based training program

Overview
Many health experts believe that the next outbreak of a pandemic flu isn't a question of if, but when. This training program is for first responders who play a vital role in outbreak response. It is crucial that rank and file fire fighters learn basic information about the pandemic flu to protect themselves, their families, their department and their community.

This program provides hands-on activities and discussion questions to teach first responders to prepare for a major emergency, such as a pandemic flu outbreak.

Learning Objectives
After completing this program, first responders will be able to:
- Predict and summarize the effects of a pandemic flu on the individual, family, the department, the community and nation
- Identify proper personal protective equipment and when to don it
- Create a personal family plan for a major response and implement it

Recommended Participants
- Rank and file fire fighters, EMT and other first responders
- Members of same shift

Recommended Facilitator
- Training Coordinators/Officers
- Infection Control personnel
- Safety Officers

Agenda
This program is divided into three lessons, which could be completed in one workshop or individually, based on time.

Module 1: In My Fire House (30 minutes)
Examines the bigger picture of how first responders and their jobs are affected

Module 2: Making a Plan (1 hour)
Participants break into pairs or small groups to create a plan for their families

Module 3: Protecting Myself (30 minutes)
Remembering what PPE to wear and when to don it is addressed in this hands-on activity
Module 1: In My Fire House *(Recommended time 30 minutes)*

**Summary**
This lesson focuses on understanding questions behind the bigger picture by answering the question: What will the effects of a pandemic flu outbreak be?

**Learning objectives**
- Predict and summarize effects of a pandemic flu on the individual, family, the department, the community and nation.
- Recognize the chain reaction of events in the case of a pandemic flu.

**Materials needed**
- White board, chalk board, easel w/ pad or white paper taped to wall
- Markers

**Facilitator Instructions**

1. Guided Discussion on the Pandemic Flu (10 minutes)

To understand bigger picture of a pandemic flu outbreak, start with basic facts about the pandemic flu. Ask participants: What do you already know about the pandemic flu?

*Suggested responses*:
- A pandemic is an outbreak that spreads across a region
- There is the potential for a current strain of the Avian Flu (the H5N1 strain) to begin to infect humans. Several cases have been reported, but only from bird to human transmission (not human to human).
- Scientists and health officials warn that if this strain of the Avian Flu begins to spread form human to human it could become a pandemic outbreak.
- A strain of the Avian Flu is potentially deadly because we do not have immunity to it and a vaccine will take months to make and distribute.
- In 1918, a pandemic flu outbreak killed nearly 50 million people worldwide.

*See page A-12 for more resources on pandemic flu information.

2. Guided Discussion with Writing Activity (20 minutes)

Instructor will draw the fire house they work at in the center of the board. Around it, instructor will draw a fire fighter, a family, a fire department and a town. Ask participants to predict the effects of a pandemic outbreak on these items. (Write answers near or under the drawing or have students go up and write responses).

*Suggested responses are on the next page.*
Module 1: In My Fire House continued...

Start with the fire house. **What would happen to this fire station if a pandemic outbreak were to happen?** Suggested responses:
- More calls because so many people are sick
- One third of workforce would be out sick is predicted by experts
- Continuous restocking of equipment or limited supplies
- Death of coworker
- Quarantine or isolation

Next, ask them to step into the shoes of the fire chief. **What would happen to the department?** Suggested responses:
- Staffing issues, such as mandatory staffing, overtime and recall
- Administrative duties such as budgeting, payroll
- Call volume affects dispatch
- Equipment stocking
- Need for CISM and Family Assistance Support Teams

**What would happen to your family?** Suggested responses:
- Family sick
- Shift changes
- Child care unavailable
- Deaths of elderly or young members of family
- Quarantine or isolation
(Ask to name a few; the next modules cover this in-depth.)

**What might happen in the community?** Suggested responses:
- Schools close
- Grocery or other stores understaffed, limited supplies available
- Banks close
- Transportation system running slow
- Lack of available medical care
- Quarantine or isolation

**Can you name other areas that might be affected across the nation?** (Write these answers around the outside of the others.) Suggested responses:
- Banking/financial system and economy
- Transportation system (airlines, subways, buses, roads)
- Communications system (telephones, cell phones, Internet)
- Quarantine or isolation

**Is the department ready?**
This would be an opportunity to review the department’s plan for Avian Flu/Pandemic Flu response, if it is available. Review the department’s planning checklist and/or SOPs for flu or outbreak response.
Module 2: Making a Plan *(Recommended time 1 hour)*

While it may not seem like a concern of the department, the preparedness of every family is crucial in maintaining a working emergency response system. It is important that first responders have a plan for their families so that, with the peace of mind that their own families are prepared, they can do their job in the event of pandemic flu or any major emergency that may occur.

**Summary**

This lesson is focused on creating a family plan in case of a major emergency.

**Learning objectives**

- Decide what work/family issues need to be addressed in an emergency.
- Develop alternative plans for family during a major emergency.

**Materials needed for each student**

- Pen or pencil
- Handout “Emergency Plan for First Responder Families” worksheet

**Facilitator Instructions**

1. **Guided Discussion (5 minutes)**
   Introduce activity and refresh major points. *What are major effects of a pandemic influenza on:*
   - **Home?** (Caring for sick family member, unavailability of doctor or pediatrician)
   - **Work?** (Limited PPE, one third workforce is sick, increased calls)
   - **Community?** (Limited food and water, businesses and schools closed)

   *Let’s consider those factors when thinking about a family’s situation.*

2. **Scenario (20 minutes)**

   Read the scenario below aloud (or have a student read) about a family under a major emergency. Ask students: *What are some factors that the family must consider in this emergency?*

   The Martins family lives in Kansas. The mother is a nurse and the father is a fire fighter. They have two children ages 6 and 12. The 6-year old has asthma. They just moved to Kansas two weeks ago, leaving behind relatives in another state. They also have a dog.

   A serious flu pandemic outbreak has hit their town. There are so many sick people the schools have closed. The mother has been called to work at the hospital and the father is being required to stay on shift. On a normal day, the kids are in school. The family does not have any supplies on hand or an emergency plan.
Module 2: Making a Plan continued...

Lead a discussion with the following questions:

- What are some of the challenges this family needs to take care of?
- What could they have done before hand?
- What might an emergency plan for this family look like?

Ask other discussion questions:

- What will they do if their cell phones don’t work?
- What will this family do if the subway, bus system or roads are closed?
- Will they have enough food and water?
- What will they do if their children’s pediatrician is not available?
- What will they do if they get sick?

3. Group Activity (25 minutes)

Students will now develop a plan for their families based on predicted factors. Hand out worksheet “Emergency Plan for First Responder Families” for participants to fill out during the activity. (You may also hand out optional readiness plans available at www.ready.gov)

Divide students into groups of two or three. They will need to develop a backup plan based on childcare, transportation, communication and health and welfare.

Groups should discuss the issues they might face with their own families and assist others with solutions to challenges they might face. They should brainstorm potential problems and solutions on scrap paper. They should help each other complete the worksheet, which includes coming up with alternative plans.

Write the bulleted list below on an easel pad or chalkboard to remind students of the factors behind an emergency family plan:

- Child care
- Transportation
- Communication
- Health and welfare

Encourage students to fill out the form to the best of their ability and acknowledge they will have to consult their spouse to get more information, and finish it later if time is limited.

4. Debrief (10 minutes). After students have completed the form, ask the following evaluation questions:

- What are some of the challenges they encountered while making their plans?
- What information were they unable to complete?
- What plan do they feel most sure about?
- What will they do to practice this plan?
- How will they share it with their families?
- Where will they keep the form?
- Who else outside their immediate families need to know about their plans?
- What else might they add to the form?
Module 3: Protecting Myself (Recommended time 25 minutes)

Summary
This lesson is focused on the proper use of personal protective equipment (PPE) while responding to potential flu patients.

Learning objectives
After completing this lesson, students will be better able to:

• Explain four key pieces of equipment for protection
• Assess appropriate time to put on PPE
• Summarize proper disposal and decontamination procedures
• Identify further steps in personal protection, such as restocking equipment

Materials needed for each student

• Sleeves
• Gloves
• Eye protection
• Face mask

Adaptation
Students can work in pairs if equipment is limited. Encourage discussion between pairs as to when to use equipment.

Facilitator Instructions

1. Introduce activity: This activity is a refresher for first responders to identify the correct PPE and how to use it effectively. We will focus on the proper timing of use of PPE. The flu is transferred through bodily liquids through the eyes, nose and mouth. These areas are most vulnerable to infection and you need to protect them.

2. Directions: Instructor will read the scenario (on page A-11) slowly aloud. Students should don what they consider the appropriate PPE at the point in the scenario they consider appropriate. Note when they donned the PPE. After the scenario has been read, discuss the appropriate PPE and the correct time to don it.

3. Remind students of key facts while they put on equipment:

• Not every first responder on the scene needs to risk infection by handling the patient
• Universal precautions
• Decontamination procedures

Note the appropriate PPE is listed after the scenario and the correct timing is indicated by three asterisks (***).
Module 3: Protecting Myself continued...

Scenario

Your unit has been dispatched to an unknown sickness at a local bus stop. Although there have not been any cases of pandemic flu or Avian flu reported in your town, you have heard on the news that there are cases overseas. You arrive to find a family of three with flu-like symptoms:

- Fever
- Headache
- Cough
- Exhaustion
- Vomiting

You suspect these patients have influenza based on their presentation. [***] You obtain vital signs and history. You learn that the family has just returned from a vacation in Southeast Asia. You request additional units. You treat the patients and transport them to the nearest hospital.

***It is at this point students put on their PPE for the activity.

- Exam gloves
- Mask
- Eye protection
- Gown/sleeve protection

4. Debrief

- When did you put on your gear?
- When was the correct time?
- What were the clues you heard to put on your PPE?
- Why is each piece of equipment necessary? (Hold up equipment and ask for each one).
- What is the next step in this scenario? (Sample responses: filing a report, calling the health department immediately)
Materials Checklist

Module 1: In My Fire House
- White board, chalk board, easel w/ pad or white paper taped to wall
- Markers, if using paper

Module 2: Making a Plan
- Pen or pencil
- Emergency Plan for First Responder Families Worksheet

Module 3: Protecting Myself
For each participant or pair:
- Sleeves
- Gloves
- Eye protection
- Face mask

Additional Resources

IAFF Pandemic Flu Home Page
www.iaff.org/pandemicflu

IAFF Online Education Program on the Pandemic Flu
http://www.iaff.org/academy/online/modules/avian/01.htm

United States Official U.S. Government website on Pandemic and Avian Influenzas
www.pandemicflu.gov

United States Government Emergency Preparedness
www.ready.gov

International Association of Fire Fighters
Department of Education
1750 New York Ave. NW
Washington, DC 20006
(202) 824-1550

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Appendix B
Emergency Plan for First Responder Families Worksheet
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Emergency Plan for First Responder Families Worksheet

Be sure your family has a plan in case of a major emergency. Make sure each family member knows about the plan. Check out www.ready.gov and www.pandemicflu.gov for more planning checklists and information. This worksheet is divided into four sections:

- Safety, Health and Home
- Communication
- Transportation
- Child and Animal Care

Safety, Health and Home

**Supplies**

- Water, one gallon of water per person per day for at least three days, for drinking and sanitation
- Food, at least a three-day supply of non-perishable food
- Battery-powered or hand crank radio
- Flashlight and extra batteries
- First aid kit
- Whistle to signal for help
- Dust mask, to help filter contaminated air and plastic sheeting and duct tape to shelter-in-place
- Moist towelettes, garbage bags and plastic ties for personal sanitation
- Wrench or pliers to turn off utilities
- Can opener for food (if kit contains canned food)
- Local maps

**Respiratory Protection**

- Have appropriate face masks on hand for your family in case you have to travel or care for someone who is sick. Appropriate face masks should be made of dense-weave cotton material that snugly covers the nose and mouth and be specifically fit for each member of the family.

**Isolation/Quarantine**

- In the event of a community-wide quarantine, you will be ordered to stay at home to avoid becoming sick. Be sure to have supplies on hand for everyone, including your pets, for several weeks.

*Note any other safety and health concerns that your family needs to know:*
## Communication

<table>
<thead>
<tr>
<th>Family Member Name</th>
<th>Cell/Pager #</th>
<th>Work/School #</th>
<th>Home #</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Family Physician Dr.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pediatrician Dr.</td>
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</tr>
</tbody>
</table>

### Emergency Meeting Places

It's important to have locations where you know your family can meet in case of a fire, flood or other emergency. Work with your family to decide on local and regional locations.

<table>
<thead>
<tr>
<th>Location</th>
<th>Address</th>
<th>Phone Number</th>
<th>Key contact person</th>
<th>Other information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighborhood</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Evacuation Location</td>
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</tr>
<tr>
<td>Out of Town Relative</td>
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</tbody>
</table>
List your current routes and methods to get to and from work and school. List a Plan B on the right side in case your first route/method of transportation is unavailable. Be sure to note alternative routes and drivers (neighbor, cab) if applicable. Have a map on hand for evacuation or if you have to walk.

<table>
<thead>
<tr>
<th>Usual Routes/Methods</th>
<th>Plan B Routes/Method</th>
</tr>
</thead>
<tbody>
<tr>
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</table>
Child and Animal Care

Describe your current plan for child care and a Plan B.

<table>
<thead>
<tr>
<th>Current Plan</th>
<th>Plan B</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>

Describe your current plan for taking care of the pets and a Plan B for them.

<table>
<thead>
<tr>
<th>Current Plan</th>
<th>Plan B</th>
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<tbody>
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</tbody>
</table>

**Child and Animal Care Checklist**

- ☐ Have supplies, water and medication on hand for your children.
- ☐ Have supplies, water and medication on hand for your pets.
- ☐ Discuss a plan for children staying at home for extended periods of time, as school closings may occur along with restrictions on public gatherings.
- ☐ Plan entertainment, educational activities and recreation for your children to do at home. Have materials, such as reading books, coloring books and games on hand for your children to use.

**Medications**

List any prescriptions or required medication for children and pets.

<table>
<thead>
<tr>
<th>Child or Pet Name</th>
<th>Medication</th>
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<tbody>
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March 2007
Appendix C
Additional Resources

Centers for Disease Control (CDC) http://www.cdc.gov/flu/weekly/fluactivity.htm

IAFF
- Pandemic Flu Resources for First Responders http://www.iaff.org/pandemicflu/

Occupational Safety and Health Administration (OSHA), information on respiratory protection,

National Clearinghouse for Worker Safety & Health Training,
http://www.wetp.org/wetp/index.cfm

- NFPA 1600 Standard on Disaster/Emergency Management and Business Continuity Programs
- NFPA 1500 Standard on FD Occupational Safety and Health Program
- NFPA 1521 Standard for Fire Department Safety Officer
- NFPA 1561 Standard on Emergency Services Incident Management System
- NFPA 1581 Fire Department Infection Control Program
- NFPA 1999 Standard on Protective Clothing for Emergency Medical Operations

Planning Checklists:
- State and Local Planning Checklist http://www.pandemicflu.gov/plan/statelocalchecklist.html


World Health Organization (WHO),

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