



## GUIDELINES AND RECOMMENDATIONS

# Infection Control Measures for Preventing and Controlling Influenza Transmission in Long-Term Care Facilities

November 15, 2007

### Introduction

Influenza is a contagious respiratory disease that can cause substantial illness and death among long-term care facility residents and illness among personnel in long-term care facilities. Influenza vaccination of health care personnel and long-term care facility residents combined with basic infection control practices can help prevent transmission of influenza. Every effort should be made to ensure compliance with influenza vaccination recommendations each season. However, because influenza outbreaks can still occur among highly vaccinated long-term care residents, long-term care facility personnel should be prepared to monitor personnel and residents each year for influenza and promptly initiate measures to control the spread of influenza within facilities when outbreaks are detected. This document provides general guidance for prevention and control of influenza transmission in long-term care facilities. Links to recommendations for the 2007-08 influenza seasons are provided.

### Transmission

Influenza is primarily transmitted from person to person via large virus-laden droplets that are generated when infected persons cough or sneeze; these large droplets can then settle on the mucosal surfaces of the upper respiratory tracts of susceptible persons who are near (e.g., within about 6 feet) infected persons. Three feet has often been used by infection control professionals to define close contact and is based on studies of respiratory infections; however, for practical purposes, this distance may range up to 6 feet. The World Health Organization defines close contact as "approximately 1 meter"; the U.S. Occupational Safety and Health Administration uses "within 6 feet." For consistency with these estimates, this document defines close contact as a distance of up to approximately 6 feet. Transmission may also occur through direct contact or indirect contact with respiratory secretions, such as touching surfaces contaminated with influenza virus and then touching the eyes, nose or mouth. Adults may be able to spread influenza to others from 1 day before getting symptoms to approximately 5 days after symptoms start. Young children and persons with weakened immune systems may be infectious for 10 or more days after onset of symptoms.

### Prevention and Control Measures

Strategies for the prevention and control of influenza in long-term care facilities include the following:

- Annual influenza vaccination of all residents and health care personnel,
- Implementation of Standard and Droplet Precautions when a person is suspected or confirmed to have influenza,
- Active surveillance and influenza testing for new illness cases,
- Restriction of ill visitors and personnel from entering the facility,
- Administration of influenza antiviral medications for prophylaxis and treatment when influenza is detected in the facility, and
- Other prevention strategies, such as respiratory hygiene/cough etiquette programs.

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### Vaccination

Health care personnel (e.g., all paid and unpaid workers who have contact with residents and visitors, including volunteer workers) and persons at high risk for complications from influenza, including all residents of long-term care facilities, are recommended to receive annual influenza vaccination according to current national recommendations. (<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5606a1.htm>) The National Healthy People 2010 goal for annual influenza vaccination coverage of residents of all long-term care facilities is 90%.

- Vaccination is the primary measure to prevent influenza, limit transmission, and prevent complications from influenza in long-term care facilities.
- Vaccination of 65 years and older does not prevent 100% of influenza infection, but can reduce serious complications from influenza in this population.
- Vaccination rates of 80% and higher among residents have been shown to decrease influenza outbreaks in long-term care facilities.
- Inactivated influenza vaccine or live attenuated influenza vaccine may be used to vaccinate most health care personnel.

**Inactivated influenza vaccine** approved for use among persons 6 months of age or older is the only vaccine recommended for health care personnel 50 years and older, health care personnel with chronic medical conditions, and health care personnel of any age who have close contact with severely immunosuppressed persons (e.g., patients who have recently had a hematopoietic stem cell transplant and require a protected environment).

The following persons should not receive inactivated influenza vaccine without first consulting a physician:

- persons known to have anaphylactic hypersensitivity to eggs or to other components of the influenza vaccine;
- persons with moderate-to-severe acute febrile illness. Minor illnesses with or without fever do not contraindicate use of influenza vaccine;
- persons who are not at high risk for severe influenza complications and who are known to have experienced Guillain-Barré Syndrome within 6 weeks after a previous influenza vaccination.

**Live attenuated influenza vaccine (LAIV)** may be given to health care personnel younger than 50 years who do not have contraindications to receiving this intranasal vaccine. Health care personnel who may receive LAIV include those who care for immunocompromised patients who do not require care in a protective environment. Health care workers who care for patients with severely weakened immune systems (i.e., patients who have recently had a hematopoietic stem cell transplant and require a protected environment) and who receive LAIV should refrain from contact with severely immunosuppressed patients for 7 days after LAIV vaccination.

The following persons should not receive LAIV:

- persons with a history of hypersensitivity, including anaphylaxis, to any of the components of LAIV or to eggs.
- persons aged 2-4 years old who have recurrent wheezing and healthy persons 50 years and older;
- persons with asthma, reactive airways disease, or other chronic disorders of the pulmonary or cardiovascular systems;
- persons with other underlying medical conditions, including metabolic diseases such as diabetes, renal dysfunction, and hemoglobinopathies; or persons with known or suspected immunodeficiency diseases or who are receiving immunosuppressive therapies;

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- children or adolescents receiving aspirin or other salicylates (because of the association of Reye syndrome with wild-type influenza infection);
- persons with a history of Guillain-Barré Syndrome;
- pregnant women; or
- administration of LAIV should be postponed among persons with a fever or significant nasal congestion that may interfere with delivery of the LAIV although persons with mild respiratory illness can receive LAIV.

### **Control Measures Including Infection Control**

In addition to influenza vaccination, the following infection control measures are recommended to prevent person-to-person transmission of influenza and to control influenza outbreaks in long-term care facilities:

#### **1. Surveillance**

Conduct surveillance for respiratory illness and use influenza testing to identify outbreaks early so that infection control measures can be promptly initiated to prevent the spread of influenza in the facility.

#### **2. Education**

Educate personnel about the importance of vaccination, signs and symptoms of influenza, control measures and indications for obtaining influenza testing.

#### **3. Influenza Testing**

Develop a plan for collecting respiratory specimens and performing rapid influenza testing (e.g., rapid diagnostic test, immunofluorescence) and viral cultures for influenza (<http://www.cdc.gov/flu/professionals/diagnosis/index.htm>) when respiratory illness clusters occur or when influenza is otherwise suspected in a resident.

Because rapid tests for influenza are only moderately sensitive, negative specimens should also be tested by viral culture or PCR, if available.

#### **4. Antiviral Chemoprophylaxis**

Antiviral chemoprophylaxis should be given to residents and offered to health care personnel in accordance with current recommendations (<http://www.cdc.gov/flu/professionals/antivirals/index.htm>) during influenza outbreaks. Antiviral chemoprophylaxis should continue for at least 2 weeks, and as long as 1 week after the last resident case occurred. Persons receiving antiviral chemoprophylaxis should be actively monitored for potential adverse effects, and for possible infection with influenza viruses that are resistant to antiviral medications. On the basis of influenza virus testing conducted at CDC and Canada indicating high levels of resistance of influenza A virus to the adamantane class of antiviral medications, CDC and ACIP recommend that neither amantadine nor rimantadine be used for the treatment or chemoprophylaxis of influenza A in the United States until susceptibility to these antiviral medications has been re-established among circulating influenza A viruses. Two influenza antiviral drugs are recommended for use in the United States during the 2007-08 flu season: oseltamavir and zanamavir. Oseltamavir and zanamivir are effective against both influenza A and B viruses.

#### **5. Respiratory Hygiene/Cough Etiquette Programs**

Implement respiratory hygiene/cough etiquette whenever residents or visitors have symptoms of respiratory infection to prevent the transmission of all respiratory tract infections in long-term care facilities. Respiratory hygiene/cough etiquette programs include (<http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm>):

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- Posting visual alerts instructing residents and persons who accompany them to inform health care personnel if they have symptoms of respiratory infection and discouraging those who are ill from visiting the facility.
- Providing tissues or masks to residents and visitors who are coughing or sneezing so that they can cover their mouth and nose.
- Providing tissues and alcohol-based hand rubs in common areas and waiting rooms.
- Ensuring that supplies for handwashing are available where sinks are located and providing dispensers of alcohol-based hand rubs in other locations.
- Encouraging persons who are coughing to sit at least 3 to about 6 feet from others. Residents with symptoms of respiratory infection should be discouraged from using common areas where feasible.

### 6. Standard Precautions ([http://www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_standard.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html))

During the care of any resident with symptoms of a respiratory infection, health care personnel should adhere to Standard Precautions:

- Wear gloves if hand contact with respiratory secretions or potentially contaminated surfaces is anticipated.
- Wear a gown if soiling of clothes with a resident's respiratory secretions is anticipated.
- Change gloves and gowns after each resident encounter and perform hand hygiene as discussed below.
- Decontaminate hands before and after touching the resident, after touching the resident's environment, or after touching the resident's respiratory secretions, whether or not gloves are worn.
- When hands are visibly soiled or contaminated with respiratory secretions, wash hands with soap (either plain or antimicrobial) and water.
- If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands. Alternatively, wash hands with soap (either plain or antimicrobial) and water.

### 7. Droplet Precautions ([http://www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_droplet.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html))

In addition to Standard Precautions, health care personnel should adhere to Droplet Precautions during the care of a resident with suspected or confirmed influenza for 5 days after the onset of illness:

- Place resident in a private room. If a private room is not available, place (cohort) suspected influenza residents with other residents suspected of having influenza; cohort residents with confirmed influenza with other residents confirmed to have influenza.
- Wear a surgical or procedure mask upon entering the resident's room. Remove the mask when leaving the resident's room and dispose of the mask in a waste container.
- If resident movement or transport is necessary, have the resident wear a surgical or procedure mask, if possible.

### 8. Restrictions for III Visitors and III Health care Personnel when Influenza Activity is Occurring in the Surrounding Community

- Notify visitors (e.g., via posted notices) that adults with respiratory symptoms should not visit the facility for 5 days and children with symptoms for 10 days following the onset of illness.
- Evaluate health care personnel with influenza-like illness and perform rapid influenza tests (<http://www.cdc.gov/flu/professionals/diagnosis/index.htm>) to confirm the causative agent is influenza and exclude those with influenza-like symptoms from patient care for 5 days following onset of symptoms, when possible. -like symptoms from patient care for 5 days following onset of symptoms, when possible.

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### 9. Other Considerations

In addition to Standard and Droplet Precautions, the following procedures also may be considered:

- To maintain the residents' ability to socialize and have access to rehabilitation opportunities during periods when influenza infections are unlikely and no influenza is suspected or confirmed, residents with symptoms of respiratory infections can be permitted to participate in group meals and activities if they can be placed 3 to about 6 feet from other residents and can adhere to respiratory hygiene/cough etiquette.
- If influenza is suspected in any resident, influenza testing should be done promptly. Confine symptomatic residents with suspected or confirmed influenza and their exposed roommates to their rooms or on one unit (i.e., cohorted) for 5 days following the onset of symptoms. Personnel should work on only one unit, if possible.
- Patients receiving antiviral treatment for influenza should continue to be confined until treatment is completed because patients may still be infectious and rarely may be shedding antiviral resistant viruses.

## Control of Influenza Outbreaks in Long-Term Care Facilities

### Definitions

- **Cluster:** Three or more cases of acute febrile respiratory illness (AFRI) occurring within 48 to 72 hours, in residents who are in close proximity to each other (e.g., in the same area of the facility).
- **Outbreak:** A sudden increase of AFRI cases over the normal background rate or when any resident tests positive for influenza. One case of confirmed influenza by any testing method in a long-term care facility resident is an outbreak.

The outbreak control measures described below should be promptly implemented in the event of any clustering or an outbreak of AFRI, or any case of laboratory confirmed influenza:

Inform local and state health department officials within 24 hours of outbreak recognition. Determine if the health department wants clinical specimens or viral isolates.

- Implement daily active surveillance for respiratory illness among all residents and health care personnel until at least 1 week after the last confirmed influenza case occurred.
- Identify influenza virus as the causative agent early in the outbreak by performing rapid influenza virus testing (<http://www.cdc.gov/flu/professionals/diagnosis/index.htm>) of residents with recent onset of symptoms suggestive of influenza. In addition, obtain viral cultures from a subset of residents to confirm rapid test results (both positive and negative) and to determine the influenza virus type and influenza A subtype. Ensure that the laboratory performing the tests notifies the facility of test results promptly.
- Implement Droplet Precautions ([http://www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_droplet.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html)) for all residents with suspected or confirmed influenza.
- Confine the first symptomatic resident and exposed roommate to their room, restrict them from common activities, and serve meals in their rooms.
- If other patients become symptomatic, cancel common activities and serve all meals in patient rooms. If patients are ill on specific wards, do not move patients or personnel to other wards, or admit new patients to the wards with symptomatic patients.
- Limit visitation, exclude ill visitors, consider restricting visitation of children via posted notices.
- Monitor personnel absenteeism due to respiratory symptoms and exclude those with influenza-like symptoms from patient care for 5 days following onset of symptoms, when possible.
- Restrict personnel movement from areas of the facility having outbreaks to areas without patients with influenza.
- Limit new admissions.

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- Administer the current season's influenza vaccine to unvaccinated residents and health care personnel as per current vaccination recommendations (<http://www.cdc.gov/flu/protect/keyfacts.htm>) for nasal and intramuscular influenza vaccines.
- Administer influenza antiviral chemoprophylaxis and treatment (<http://www.cdc.gov/flu/professionals/antivirals/>) to residents and health care personnel according to current recommendations.
- Consider antiviral chemoprophylaxis for all health care personnel, regardless of their vaccination status, if the health department has announced that the outbreak is caused by a variant of influenza virus that is a sub-optimal match with the vaccine.

### Additional Resources

The following resources provide information about preventing the spread of influenza in health care facilities:

Sneller VP, Izurieta H, Bridges C, Bolyard E, Johnson D, Hoyt M, Winqvist A. Prevention and control of vaccine preventable diseases in long-term care facilities. *JAMDA* 2000; Sept-Oct: S1-S37.

Bradley SF. Prevention of influenza in long-term-care facilities. Long-Term Care Committee of the Society for Healthcare Epidemiology of America. *Infect Control Hosp Epidemiol* 1999; 20: 629-37.

Recommendations for Vaccination of Health Care Workers

<http://www.cdc.gov/flu/professionals/infectioncontrol/institutions.htm>

Control of Influenza Outbreaks in Institutions

<http://www.cdc.gov/flu/professionals/infectioncontrol/institutions.htm>

Respiratory Hygiene/Cough Etiquette

<http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm>

Guideline for Isolation Precautions in Hospitals

<http://www.cdc.gov/ncidod/dhqp/pdf/guidelines/Isolation2007.pdf>

Standard Precautions Excerpt [http://www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_standard.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html)

Droplet Precautions Excerpt [http://www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_droplet.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html)

Guideline for Preventing Healthcare Associated Pneumonia, Influenza Excerpt

[http://www.cdc.gov/ncidod/dhqp/id\\_influenza\\_pneuExcerpt.html](http://www.cdc.gov/ncidod/dhqp/id_influenza_pneuExcerpt.html)

Flu Vaccination Resources for Healthcare Professionals

<http://www.cdc.gov/flu/professionals/vaccination/#patient>

Information about Personal Protective Equipment

<http://www.cdc.gov/ncidod/dhqp/ppe.htm>

Healthcare Infection Control Practices Advisory Committee (HICPAC) Publications

<http://www.cdc.gov/ncidod/guidelines.html>

For more information, visit [www.cdc.gov/flu](http://www.cdc.gov/flu), or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6358 (TTY).

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