

**Prevention and Control of Influenza
In Long-Term Care Facilities
2016-2017**

September 2016

Background:

Influenza can severely impact long-term care facilities. Each year 5 – 20% of U.S. residents get sick with influenza. Persons living in long term care facilities are considered high risk for complications due to influenza infections. Infection among healthcare workers during outbreaks is also common. Annual influenza vaccination is the most effective method for preventing influenza virus infection and its complications and is recommended for all persons \geq 6 months who do not have a contraindication to vaccination. Antiviral medications are an adjunct to vaccination and are effective when administered as treatment and when used for chemoprophylaxis after an exposure to influenza virus.

While flu seasons can vary in severity, during most seasons, people 65 years and older bear the greatest burden of severe flu disease. In recent years, it's estimated that between 71 and 85 percent of seasonal flu-related deaths occurred in people 65 years and older and between 54 and 70 percent of seasonal flu-related hospitalizations occurred among people in that age group.

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0066312>

This report summarizes a multi-faceted approach to influenza outbreak management in long-term care facilities to enable a timely and effective response. This guidance applies to the 2016-2017 influenza season.

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Executive Summary

Preventing transmission of influenza viruses and other infectious agents within health care settings, including long-term care facilities, requires a multi-faceted approach that includes the following:

1. Vaccination

- a. **Vaccinate residents** for influenza, and make sure they are up to date with pneumococcal vaccine.
 - i. **Influenza** is an annual vaccine and can be given anytime during the season.
 - ii. **Pneumococcal** vaccine: recommendations issued in August 2014 recommend pneumococcal conjugate vaccine (PCV13, Prevnar-13®) for all adults 65 years or older. This dose is in addition to the existing recommendation of one dose of pneumococcal polysaccharide vaccine (PPSV23, Pneumovax®23).
- b. **Vaccinate staff** for influenza, all staff should be offered vaccine, and vaccine status should be documented and provided to Maine CDC annually.

2. Testing

- a. Influenza testing should occur when any resident has signs and symptoms that could be due to influenza, and especially when two residents or more develop respiratory illness within 72 hours of each other.

3. Infection Control

- a. Implement standard and droplet precautions for all residents with suspected or confirmed influenza.

4. Antiviral Treatment

- a. All long-term care facility residents who have confirmed or suspected influenza should receive antiviral treatment immediately.
- b. Treatment should not wait for laboratory confirmation of influenza

5. Antiviral Chemoprophylaxis

- a. When at least two patients are ill within 72 hours of each other and at least one resident has laboratory-confirmed influenza (by any method), the facility should promptly initiate antiviral chemoprophylaxis to all non-ill residents, regardless of whether they received influenza vaccination

If you suspect an outbreak (two or more residents develop respiratory illness within 72 hours of each other):

- b. Call Maine CDC at 1-800-821-5821 to report the outbreak
- c. Review this document for additional guidance
- d. Collect 2-5 samples for influenza testing
- e. Follow the Outbreak checklist (Appendix 1)

Section I: Key Recommendations for 2016-2017

1. Promote and administer vaccine. Vaccinate all residents and staff against influenza when available, preferably by the end of October if possible. Ensure that all residents have received two doses of pneumococcal (PPV) vaccine according to guidelines.

- The Centers for Medicaid and Medicare Services (CMS) requires nursing homes to offer all residents seasonal influenza and pneumococcal vaccines and to document results. Each resident is to be vaccinated unless medically contraindicated, the resident or legal representative refuses, or there is a vaccine shortage. Maine requests reporting of vaccine rates for residents to the Maine Immunization Program.
- Maine requires long term care facilities to offer vaccine to their staff (22 M.R.S.A. §802). This helps protect the staff, their patients, and their families, enhancing patient and worker safety. Every effort should be made to vaccinate all healthcare workers. Maine also requires reporting of vaccine rates for health care workers to the Maine Immunization Program.

Each influenza season health care workers become infected with influenza. Influenza is often introduced into or spread through a facility by staff or visitors. Additionally, influenza vaccine may be less effective in the very elderly and although they are immunized, some residents may remain susceptible to influenza. By vaccinating long-term care facility staff, mortality among elderly patients is reduced. The 2016–2017 quadrivalent vaccines contain an influenza A/H1, influenza A/H3, influenza B Yamagata lineage, and influenza B Victoria lineage component. The Advisory Committee on Immunization Practices (ACIP) recommends that all persons ≥ 6 months receive an influenza vaccine every year.

In August 2014, the ACIP voted to recommend pneumococcal conjugate vaccine (PCV13, Prevnar-13®) for all adults 65 years or older. This dose is in addition to the existing recommendation of one dose of pneumococcal polysaccharide vaccine (PPSV23, Pneumovax®23).

- Both PCV13 and PPSV23 should be routinely administered in series to all adults 65 years or older.
- The two pneumococcal vaccines should not be administered at the same visit.
- PCV13 should be given before PPSV23 because the optimal immune response is achieved when PCV13 is given first followed by PPSV23 for patients who have **NEVER** received PPSV23.

For adults previously vaccinated with PPSV23:

- Adults 65 years of age or older who have previously received one or more doses of PPSV23 should also receive a dose of PCV13 if they have not yet received it.
- A dose of PCV13 should be given at least 1 year after the receipt of the most recent PPSV23 dose.
- For those for whom an additional dose of PPSV23 is indicated (i.e., persons with functional or anatomic asplenia and immunocompromised persons), this subsequent PPSV23 dose should be given 6 to 12 months after PCV13 and at least 5 years since the most recent dose of PPSV23.

For pneumococcal vaccine-naïve adults:

- Adults 65 years of age or older who have not previously received pneumococcal vaccine or whose previous vaccination history is unknown should receive a dose of PCV13 first, followed 6 to 12 months later by a dose of PPSV23.

- If PPSV23 cannot be given during the 6 to 12 month time window, the dose of PPSV23 should be given during the next visit after 12 months. PPSV23 should not be given less than 8 weeks after the PCV13 dose.

Recommendations for routine use of PCV13 in adults at increased risk for pneumococcal disease remain unchanged.

- Adults 19 years of age or older with immunocompromising conditions, functional or anatomic asplenia, CSF leaks, or cochlear implants, and who have not previously received PCV13 or PPSV23, should receive a dose of PCV13 first followed by a dose of PPSV23 at least 8 weeks later.
- Adults at increased risk for pneumococcal disease who received PCV13 at 64 years or younger should not receive another dose of PCV13 at 65 years or older.

Vaccine availability

Due to limited funding the Maine Immunization Program is unable to provide vaccine for long term care facilities for the 2016-2017 season.

2. Take Steps to Minimize Potential Exposures

- Implement respiratory hygiene and cough etiquette
- Post visual alerts (e.g. signs, posters) at the entrance and in strategic places to instruct patients and health care personnel (HCP) on respiratory hygiene and cough etiquette.
- Provide face masks and hand sanitizer.

3. Monitor and manage ill healthcare personnel

- Develop sick leave policies for HCP that are non-punitive, flexible and consistent with public health guidance to allow and encourage HCP with suspected or confirmed influenza to stay home.
- Establish procedures for tracking absences.
- HCP who develop fever and respiratory symptoms should be excluded from work until 24 hours after symptoms (fever) resolve without the use of fever reducing medication (anti-pyretics).
 - If symptoms begin at work, the staff member should immediately excuse themselves from patient care and notify their supervisor.
 - Adherence to respiratory hygiene and cough etiquette after returning to work is always important. If symptoms such as cough and sneezing are still present the HCP should wear a facemask during patient care activities.

4. Adhere to infection control precautions for all patient care activities and aerosol-generating

procedures. Standard precautions assume that every person is potentially infected or colonized with a pathogen that could be transmitted in the healthcare setting. Elements of standard precautions that apply to patients with respiratory infections, including those caused by the influenza virus, are summarized below.

Hand Hygiene

- HCP should perform hand hygiene frequently, including before and after all patient contact, contact with potentially infectious material, and before putting on and upon removal of personal protective equipment, including gloves. Hand hygiene in healthcare settings includes washing with soap and water or using alcohol-based hand rubs. If hands are visibly soiled, use soap and water, not alcohol-based hand rubs.
- Healthcare facilities should ensure that supplies for hand hygiene are available.

Gloves

- Wear gloves for any contact with potentially infectious material. Remove gloves after contact, followed by hand hygiene. Do not wear the same pair of gloves for care of more than one patient. Do not wash gloves for the purpose of reuse.

Gowns

- Wear gowns for any patient-care activity when contact with blood, body fluids, secretions (including respiratory), or excretions is anticipated. Remove gown and perform hand hygiene before leaving the patient's environment. Do not wear the same gown for care of more than one patient.

Droplet Precautions

- Droplet precautions should be implemented for patients with suspected or confirmed influenza for 7 days after illness onset or until 24 hours after the resolution of fever and respiratory symptoms, whichever is longer.
- Place patients with suspected or confirmed influenza in a private room or area if possible. If not possible, attempt to cohort ill individuals together or leave with original roommate.
- HCP should wear a facemask when entering the room of a patient with suspected or confirmed influenza. If the patient needs to leave their room, have the patient wear a facemask, if possible, and follow respiratory hygiene, cough etiquette, and hand hygiene.
- Communicate information about patients with suspected, probable, or confirmed influenza to appropriate personnel before transferring them to other areas in the facility or to other facilities.

5. Manage Visitor Access and Movement Within the Facility

- Limit visitors for patients in isolation for influenza to persons who are necessary for the patient's emotional well-being and care.
- All visitors should follow proper respiratory hygiene, cough etiquette, and hand hygiene.

6. Monitor Influenza Activity

- Establish mechanisms and policies by which HCP are promptly alerted about increased influenza activity in the community or if an outbreak occurs.
- Designate a specific person who is responsible for communication with public health officials and dissemination of information to HCP.

7. Implement environmental and engineering infection control measures

- Standard cleaning and disinfection procedures are adequate for influenza virus environmental control.
- Consider designing and installing engineering controls to reduce or eliminate exposures including installing physical barriers such as partitions or curtains.
- Verify cleaning products are effective against influenza.

8. Train and Educate Healthcare Personnel

- Ensure that all HCP receive job- or task-specific education and training on preventing transmission of infectious agents, including influenza. Competency should be documented initially and repeatedly, as appropriate, for the specific staff positions.

Section II: Prevention Measures

1. Vaccinate all residents and staff using a systematic approach to increase immunization levels.

- Vaccinate all residents and staff as soon as vaccine is available (usually September through October), and continue to vaccinate new residents throughout the season.
- Ensure your facility has a written policy on immunizations that includes annual influenza vaccination for all residents and staff, and pneumococcal vaccine for all residents.
- Obtain consent for vaccination from residents or their family members on admission. Include Vaccine Information Statements (VIS) in admission packets.
- Implement standing orders for administration of influenza and pneumococcal vaccines as they become available to long-term care facilities.
- Inactivated influenza and pneumococcal vaccines are safe and effective when administered at the same time by using separate syringes and given at different anatomical sites.
- Perform chart audits to ensure that there is documentation in every chart that the resident has been offered annual influenza vaccine and both pneumococcal (PCV13 and PPSV23) vaccines.
- Consider residents with uncertain immunization histories NOT immunized and vaccinate accordingly. The benefits of vaccination far outweigh any concerns about revaccination.

2. Encourage family members and visitors to receive an influenza vaccine.

- Make them aware of their role in the transmission of influenza to residents.
- To locate a flu clinic, family members may contact their healthcare providers, visit <http://vaccine.healthmap.org> or dial 211.

3. Encourage family members, visitors and all staff to practice respiratory etiquette to prevent the transmission of respiratory illnesses.

- Post educational materials on respiratory etiquette.
- Promote frequent hand washing and the use of alcohol-based hand gel.
- Educational materials on respiratory hygiene are available at <http://www.maine.gov/dhhs/mecdc/infectious-disease/epi/order-form-wn.shtml> and <http://www.cdc.gov/flu>

Section III: Early Detection of Influenza

Despite its clear benefits, vaccination does not offer complete protection against influenza viruses, and outbreaks can still occur. Imperfect matching between the vaccine and circulating strains may limit vaccine effectiveness. Information on current vaccine match is available on the federal CDC website at <http://www.cdc.gov/flu>. The diminished immune response that sometimes occurs with advanced age and underlying medical conditions may further decrease overall vaccine effectiveness.

- Prompt recognition of influenza and the initiation of infection control measures can help prevent influenza from spreading.
- Reliable, timely detection depends upon prompt recognition of clinical signs and symptoms and submissions of respiratory specimens for laboratory diagnosis.

Influenza-like illness (ILI) is defined as fever of $>100^{\circ}$ F AND cough and/or sore throat, in the absence of a known cause.

Suspect an outbreak when:

- Any resident tests positive for influenza, by any method.
- Two residents or more develop respiratory illness within 72 hours of each other.

Testing:

- Even if it is not influenza season, influenza testing should occur when any resident has signs and symptoms that could be due to influenza, and especially when two residents or more develop respiratory illness within 72 hours of each other
- Test for influenza in the following:
 - Ill persons who are in the affected unit as well as previously unaffected units in the facility
 - Persons who develop acute respiratory illness symptoms more than 72 hours after beginning antiviral chemoprophylaxis
 - Note that elderly persons and other long-term care residents, including those who are medically fragile and those with neurological or neurocognitive conditions, may manifest atypical signs and symptoms with influenza virus infection, and may not have fever.
- Influenza testing is available free of charge through Maine’s Health and Environmental Testing Laboratory (HETL) www.mainepublichealth.gov/lab.

What to do if an outbreak is suspected or identified?

Follow the checklist for influenza outbreaks in Long Term Care (Appendix 1).

Use of Antiviral Medications

1. Treatment

- Two antiviral medications are recommended for the treatment of influenza.
 - Oseltamivir
 - Zanamivir (cannot be used by individuals with underlying respiratory conditions)
- Initiate treatment within 2 days of illness onset.
- Recommended duration of treatment is 5 days.
- Treatment should not wait for laboratory confirmation of influenza

The initiation of antiviral medications for treatment of ILI is approved by Maine Care and should be initiated prior to laboratory confirmation.

- The formulary allows for the use of oseltamivir or zanamivir.
- Maine Care currently does not require a prior authorization for the use of oseltamivir or zanamivir chemoprophylaxis at a long-term care facility.

2. Chemoprophylaxis

Chemoprophylactic drugs are not a substitute for vaccination. They can be used as an adjunct in preventing and controlling influenza.

When at least 2 patients are ill within 72 hours of each other and at least one resident has laboratory-confirmed influenza antiviral chemoprophylaxis should be:

- Administered to all non-ill residents, regardless of influenza vaccination status.
 - Priority should be given to residents living in the same unit or floor as an ill resident. However, since staff and residents may spread influenza to residents on other units, floors, or buildings of

the same facility, all non-ill residents are recommended to receive antiviral chemoprophylaxis to control influenza outbreaks.

- Offered to unvaccinated staff who provide care to persons at high risk.
 - Prophylaxis should be considered for all staff if the outbreak is caused by a strain of influenza that is not well matched by the vaccine. Information on current vaccine match is available on the federal CDC website at <http://www.cdc.gov/flu>.
- Continued for a minimum of 2 weeks, and continuing for at least 7 days after the last known case was identified.
- The dosage for each resident should be determined individually because recommendations vary by age group and medical conditions (see antiviral manufacturer's prescribing information).

Drug Resistance

- Drug resistance in influenza viruses changes frequently.
- To limit the potential transmission of antiviral drug-resistant influenza virus, measures should be taken to reduce contact between ill persons taking antiviral drugs for treatment and other persons, including those receiving antiviral chemoprophylaxis.

HETL performs pyrosequencing on a subset of influenza A/pH1N1 and influenza A/H3 samples. This testing provides information on antiviral resistance in Maine, and is distributed through the weekly surveillance report. For the most up to date information see www.maineinflu.gov or www.cdc.gov/flu.

Consider the following additional measures to reduce transmission among residents and health care personnel:

- Have symptomatic residents stay in their own rooms as much as possible, including restricting them from common activities, and have their meals served in their rooms when possible.
- Limit the number of large group activities in the facility and consider serving all meals in resident rooms if possible when the outbreak is widespread (involving multiple units of the facility).
- Avoid new admissions or transfers to wards with symptomatic residents.
- Limit visitation and exclude ill persons from visiting the facility via posted notices. Consider restricting visitation by children during community outbreaks of influenza.
- Monitor personnel absenteeism due to respiratory symptoms and exclude those with influenza-like symptoms from work until at least 24 hours after they no longer have a fever.
- Restrict personnel movement from areas of the facility having illness to areas not affected by the outbreak.
- Administer the current season's influenza vaccine to unvaccinated residents and health care personnel as per current recommendations.
- When an ill individual has appointments or is being transferred (to another facility or a hospital) notify the receiving facility of the patient illness so that appropriate precautions can be taken.

Section IV: References and Other Sources of Information

1. Centers for Disease Control and Prevention. A toolkit for Long-term Care Employers. <http://www.cdc.gov/flu/toolkit/long-term-care/index.htm>
2. Centers for Disease Control and Prevention. Prevention Strategies for Seasonal Influenza in Healthcare Settings. <http://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm>.

3. . Centers for Disease Control and Prevention. Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP) - United States, 2016-17 Influenza Season. *MMWR* 2016; 65 (5);1-54.
https://www.cdc.gov/mmwr/volumes/65/rr/rr6505a1.htm?s_cid=rr6505a1_w
4. Centers for Disease Control and Prevention. Interim Guidance for Influenza Outbreak Management in Long-Term Care Facilities. <http://www.cdc.gov/flu/professionals/infectioncontrol/ltc-facility-guidance.htm>
5. Centers for Disease Control and Prevention. Guidelines for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings.
http://www.cdc.gov/hicpac/2007IP/2007ip_part4.html#4;
6. Centers for Disease Control and Prevention. Influenza Web Site. <http://www.cdc.gov/flu/> .
7. Maine Department of Health and Human Services. Maine CDC Influenza Web Site. www.maineflu.gov

For questions or consultations or to report an outbreak please call Maine CDC at: 1-800-821-5821.

For downloadable flu materials including posters visit:

<http://www.maine.gov/dhhs/mecdc/infectious-disease/epi/order-form-wn.shtml>

<http://www.cdc.gov/flu/professionals/flugallery/index.htm>

Appendix 1: Checklist for Influenza Outbreaks in Long Term Care

Recognition, Reporting & Testing

- Upon suspicion of an influenza outbreak, notify Maine CDC by calling 1-800-821-5821
- Obtain an outbreak number from Field Epidemiologists for identification purposes: #
- Maintain a line listing of symptomatic residents and staff
- Collect and submit specimens from affected residents and staff as soon as an outbreak is suspected.
- Follow HETL guidelines for specimen collection, handling, and transport; label specimens with outbreak #
- Notify facility medical director that an influenza outbreak is suspected

Control Measures for Facility

Infection Control:

- Re-offer vaccine to all unvaccinated staff and residents
- Institute droplet precautions for symptomatic residents
- Cohort ill residents as much as possible and suspend group activities
- Minimize resident and staff movement between affected and unaffected units/wards
- Enforce strict hand hygiene for all facility staff
- Supplement hand washing with soap and water with ethanol or alcohol-based hand sanitizers
- Begin treatment doses of antivirals to all symptomatic residents and staff, and begin prophylactic doses of antivirals to all residents and unvaccinated staff (within 48 hours)

Environmental Controls:

- Clean all high traffic areas and high touch items (i.e. faucets, door handles, and toilet or bath rails)
- Use EPA-registered disinfectants or detergents/disinfectants approved for use against influenza for routine cleaning and disinfection

Administrative Controls:

- Exclude ill staff from work for at least 24 hrs after symptoms have resolved without the use of anti-pyretics
- Suspend group activities as much as possible until after the outbreak is contained
- Post signage about the outbreak and proper hand hygiene
- Limit new admissions to a non-infected wing, or close to new admissions altogether

Recommendations for Residents & Visitors

- Encourage ill residents to stay in their room/apartment for at least 24 hours after symptoms resolve without the use of anti-pyretics
- Promote good hand hygiene for residents: after using the toilet, having contact with an ill individual, and before preparing food, eating or drinking
- Consider restricting visitation until the outbreak has subsided

Internal and External Communications

- Identify a single point of contact for internal communications
- Identify a single point of contact for external communications
- Notify staff of outbreak and control measures and conduct enhanced surveillance for ill staff
- Notify residents/guardians of outbreak and control measures and request ill residents report to nursing staff
- Consider a final communication to staff, residents, and guardians when the outbreak has resolved

Appendix 2: Sample Line List of Residents with Acute Respiratory Illness and/or Pneumonia

Facility Name:			Patient Location	Vaccination		Illness Description				Laboratory Testing		Illness Complications			
Name	Age	Sex	Room #, Bed designation	Influenza	Pneumococcal	Onset Date	Fever (>100° F)	Cough	Sore Throat	Rapid antigen	PCR	Pneumonia	Hospitalized	Died	Date of Death
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