

Interim Guidance for Influenza Outbreak Management in Long-Term Care Facilities

The following guidance is current for the 2016-2017 influenza season. Please see [Recommendations of the Advisory Committee on Immunization Practices – United States, 2016-17 Season](#) for the latest information regarding recommended influenza vaccines. Please see [Antiviral Drugs: Information for Health Care Professionals](#) for the current summary of recommendations for clinical practice regarding the use of influenza antiviral medications.

Long-term care facilities may be defined as institutions, such as nursing homes and skilled nursing facilities that provide health care to people (including children) who are unable to manage independently in the community. This care may represent custodial or chronic care management or short-term rehabilitative services.

Influenza can be introduced into a long-term care facility by newly admitted residents, health care workers and by visitors. Spread of influenza can occur between and among residents, health care providers, and visitors. Residents of long-term care facilities can experience severe and fatal illness during influenza outbreaks.

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

- Vaccination
- Testing
- Infection Control
- Antiviral Treatment
- Antiviral Chemoprophylaxis

Before an Outbreak Occurs

Influenza vaccination should be provided routinely to all residents and health care workers of long-term care facilities.

Residents

If possible, all residents should receive trivalent inactivated influenza vaccine (TIV) annually before influenza season. In the majority of seasons, TIV will become available to long-term care facilities beginning in September, and [influenza vaccination](#) should commence as soon as vaccine is available. Informed consent is required to implement a standing order for vaccination, but this does not necessarily mean a signed consent must be present.

In the event that a new patient or resident is admitted after the influenza vaccination program has concluded in the facility, the benefits of vaccination should be discussed, educational materials should be provided, and an opportunity for vaccination should be offered to the new resident as soon as possible after admission to the facility. Since October 2005, the Centers for Medicare and Medicaid Services (CMS) has required nursing homes participating in Medicare and Medicaid programs to offer all residents influenza and pneumococcal vaccines and to document the results. According to requirements, each resident is to be vaccinated unless contraindicated medically, the resident or legal representative refuses vaccination, or the vaccine is not available because of storage. This information is to be reported as part of the CMS Minimum Data Set, which tracks nursing home health parameters.

Health Care Personnel

CDC and the Advisory Committee on Immunization Practices (ACIP), recommend that all U.S. health care personnel get vaccinated annually against influenza.

- [Health care personnel](#) who get vaccinated help to reduce the following:
 - Transmission of influenza
 - Staff illness and absenteeism
 - Influenza-related illness and death, especially among people at increased risk for severe influenza illness
 - Higher vaccination levels among personnel have been associated with a lower risk of health care facility-associated influenza cases.
- Influenza outbreaks in hospitals and long-term care facilities have been attributed to low influenza vaccination coverage among health care personnel.
- Higher influenza vaccination levels among health care personnel can reduce influenza-related illness, and even deaths, in settings like nursing homes.

Surveillance

When there is influenza activity in the local community, active daily surveillance (defined below) for influenza illness should be conducted among all new and current residents, staff, and visitors of long-term care facilities, and continued until the end of influenza season. Ill residents, personnel, and visitors should be excluded from the facility until illness has resolved.

Testing

Even if it's not influenza season, influenza testing should occur when any resident has signs and symptoms of influenza-like illness. More information about testing is included below.

When there is a confirmed or suspected influenza outbreak (2 or more ill residents)

If there is one laboratory-confirmed influenza positive case along with other cases of respiratory infection in a unit of a long-term care facility, an influenza outbreak might be occurring.

While unusual, an influenza outbreak can occur outside of the normal influenza season; therefore, testing for influenza should be added to testing for other respiratory pathogens during non-influenza season periods.

Even if it's 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.

- Determine if influenza virus is the causative agent by performing influenza testing on respiratory specimens (i.e. nasal swabs, throat swabs, nasopharyngeal swab, or nasopharyngeal or nasal aspirates) of ill residents with recent onset of signs and symptoms suggestive of influenza.
- In order of priority, the following influenza tests are recommended: reverse transcription polymerase chain reaction (RT-PCR); immunofluorescence; rapid influenza diagnostic tests.
- Because of the possibility of false negative results during influenza season, if influenza is suspected and immunofluorescence or rapid influenza diagnostic test results are negative, perform confirmatory testing using RT-PCR or viral culture. Information on [influenza diagnostic testing is available online](#) or by contacting your state public health laboratory.
- Because of the possibility of false positive results, especially outside of influenza season, perform confirmatory testing using RT-PCR or viral culture if immunofluorescence or rapid influenza diagnostic test results are positive.
- Viral culture should be performed if additional information on influenza viruses, such as influenza A virus subtype, antigenic characterization to compare with vaccine strains, or antiviral resistance data, are needed. Additionally, viral culture can be used to confirm results from rapid diagnostic testing (as mentioned above)
- Determining influenza virus type or subtype of influenza A virus can help inform antiviral therapy decisions.
- Test for other respiratory pathogens as well if it's not influenza season.
- Once an outbreak has been identified, outbreak prevention and control measures should be implemented immediately.

Implement daily active surveillance for respiratory illness among ill residents, health care personnel and visitors to the facility.

- During an outbreak, once a single laboratory-confirmed case of influenza has been identified, it is likely there are other cases among exposed persons.
- Conduct daily active surveillance until at least 1 week after the last confirmed influenza case occurred.
- 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.
- Ensure that the laboratory performing the tests notifies the facility of tests results promptly.

- The local health and state health departments should be notified of every suspected or confirmed influenza outbreak in a long-term care facility, especially if a resident develops influenza while on or after receiving antiviral chemoprophylaxis.

Implement Standard and Droplet Precautions for all residents with suspected or confirmed influenza.

CDC's guidance titled [Prevention Strategies for Seasonal Influenza in Healthcare Settings](#) contains details on the prevention strategies for all health care settings. Specific recommendations are highlighted below.

Standard Precautions are intended to be applied to the care of all patients in all health care settings, regardless of the suspected or confirmed presence of an infectious agent. Implementation of Standard Precautions constitutes the primary strategy for the prevention of healthcare-associated transmission of infectious agents among patients and health care personnel.

Examples of standard precautions include:

- Wearing gloves if hand contact with respiratory secretions or potentially contaminated surfaces is anticipated.
- Wearing a gown if soiling of clothes with a resident's respiratory secretions is anticipated.
- Changing gloves and gowns after each resident encounter and performing hand hygiene
- Perform hand hygiene 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. Gloves do not replace the need for performing hand hygiene.

Droplet Precautions are intended to prevent transmission of pathogens spread through close respiratory or mucous membrane contact with respiratory secretions. Droplet Precautions should be implemented for residents 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, while a resident is in a health care facility.

Examples of Droplet Precautions include:

- Placing ill residents in a private room. If a private room is not available, place (cohort) residents suspected of having influenza residents with one another;
- Wear a facemask (e.g., surgical or procedure mask) upon entering the resident's room. Remove the facemask when leaving the resident's room and dispose of the facemask in a waste container.
- If resident movement or transport is necessary, have the resident wear a facemask (e.g., surgical or procedure mask), if possible.
- Communicate information about patients with suspected, probable, or confirmed influenza to appropriate personnel before transferring them to other departments.

These Precautions are part of the overall infection control strategy to protect against influenza in health care settings and should be used along with other infection control measures, such as isolation or cohorting of ill residents, screening employees and visitors for illness, furloughing ill health care personnel, and discouraging ill visitors from entering the facility.

In some cases, facilities may choose to apply [Standard Precautions](#) and [Droplet Precautions](#) for longer periods based on clinical judgment, such as in the case of young children or severely immunocompromised residents, who may shed influenza virus for longer periods of time.

Because residents with influenza may continue to shed influenza viruses while on antiviral treatment, infection control measures to reduce transmission, including following Standard and Droplet Precautions, should continue while the resident is taking antiviral therapy. This will also reduce transmission of viruses that may have become resistant to antiviral drugs during therapy.

Administer influenza antiviral treatment and chemoprophylaxis to residents and health care personnel according to current recommendations.

All long-term care facility residents who have confirmed or suspected influenza should receive antiviral treatment immediately.

Treatment should not wait for laboratory confirmation of influenza.

Antiviral treatment works best when started within the first 2 days of symptoms. However, these medications can still help when given after 48 hours to those that are very sick, such as those who are hospitalized, or those who have progressive illness.

Three influenza antiviral drugs approved by the U.S. Food and Drug Administration are recommended for use in the United States: oral oseltamivir (available as a generic version or under the trade name Tamiflu®), as a pill or suspension; zanamivir (trade name Relenza®), available as an inhaled powder using a disk inhaler device; and intravenous peramivir (trade name Rapivab®). It should be noted that some long-term care residents may have difficulty using the inhaler device for zanamivir.

Amantadine and rimantadine are **NOT** recommended for use because of high levels of antiviral resistance among circulating influenza A viruses.

The recommended dosing and duration of antiviral treatment is twice daily for 5 days. Longer treatment courses for patients who remain severely ill after 5 days of treatment can be considered. Dosage adjustment may be required for children and persons with certain underlying conditions. Clinicians should consult the manufacturers' package insert for recommended drug dosing adjustments and contraindications.

Having preapproved orders from physicians or plans to obtain orders for antiviral medications on short notice can substantially expedite administration of antiviral medications.

For more information on the antiviral agents see [Recommended Dosage and Duration of Treatment or Chemoprophylaxis for Influenza Antiviral Medications](#).

All eligible residents in the entire long-term care facility (not just currently impacted wards) should receive antiviral chemoprophylaxis as soon as an influenza outbreak is determined.

When at least 2 patients are ill within 72 hours of each other and at least one resident has laboratory-confirmed influenza, the facility should promptly initiate antiviral chemoprophylaxis to all non-ill residents, regardless of whether they received influenza vaccination during the previous fall. 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.

Antiviral chemoprophylaxis is recommended for all non-ill residents, regardless of their influenza vaccination status, in long-term care facilities that are experiencing outbreaks.

Antiviral chemoprophylaxis is meant for patients and residents who are not exhibiting influenza-like illness but who may be exposed or who may have been exposed to an ill person with influenza, to prevent transmission.

Use of antiviral drugs for chemoprophylaxis of influenza is a key component of influenza outbreak control in institutions that house residents at higher risk of influenza complications. While highly effective, antiviral chemoprophylaxis is not 100% effective in preventing influenza illness.

CDC recommends antiviral chemoprophylaxis for a minimum of 2 weeks, and continuing for at least 7 days after the last known case was identified.

Persons whose need for chemoprophylaxis is attributed to potential exposure to a person with laboratory-confirmed 2009 H1N1, influenza A (H3N2), or influenza B should receive oseltamivir or zanamivir. Zanamivir should be used when persons require chemoprophylaxis as a result of exposure to influenza virus strains that are suspected of being oseltamivir-resistant.

(For more information see [Recommended Dosage and Duration of Treatment or Chemoprophylaxis for Influenza Antiviral Medications](#) or the [IDSA guidelines](#))

Antiviral chemoprophylaxis can be considered or offered to unvaccinated personnel who provide care to persons at high risk of complications.

While CDC recommends judicious use of antiviral medications for chemoprophylaxis to reduce the possibility of development and spread of antiviral resistant influenza viruses, chemoprophylaxis may be considered for all employees, regardless of their influenza vaccination status, if the outbreak is caused by a strain of influenza virus that is not well matched by the vaccine.

Antiviral chemoprophylaxis should also be considered in personnel for whom influenza vaccine is contraindicated.

An emphasis on early treatment is an alternative to chemoprophylaxis in managing certain persons who have had a suspected exposure to influenza virus. Health care personnel who have occupational exposures can be counseled about the early signs and symptoms of influenza and advised to contact their health-care provider immediately for evaluation and possible early treatment if clinical signs or symptoms develop.

For newly vaccinated staff, antiviral chemoprophylaxis can be administered up to 2 weeks following influenza vaccination with TIV. Persons receiving antiviral chemoprophylaxis should not receive live attenuated influenza virus vaccine (LAIV), and persons receiving LAIV should not receive antiviral treatment or chemoprophylaxis until 14 days after LAIV administration.

The latest CDC antiviral recommendations are available on [CDC's influenza antiviral drugs page for health professionals](#).

Be Aware of the Possibility of a Drug-Resistant Virus

Residents receiving antiviral medications who do not respond to treatment or who become sick with influenza after starting chemoprophylaxis might have an infection with an antiviral-resistant influenza virus.

To limit the potential transmission of antiviral drug-resistant influenza virus, whether in chronic or acute-care settings or other closed settings, measures should be taken to reduce contact between ill persons taking antiviral drugs for treatment and other persons, including those receiving antiviral chemoprophylaxis.

Infection-control measures are especially important for patients who are immunocompromised to reduce the risk for transmission of oseltamivir-resistant viruses.

Notify the health department if a resident develops influenza while on or after receiving antiviral chemoprophylaxis.

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 vaccination recommendations. For the latest information on influenza vaccination, see [CDC's seasonal influenza vaccination resources for health professionals page](#).

*Patients with illness associated with influenza virus infection often have fever or feverishness with cough, chills, headache, myalgias, sore throat, or runny nose. Some patients, such as the elderly, children with neuromuscular disorders, and young infants, may have atypical clinical presentations.

Resources

Vaccine

[Seasonal Influenza Vaccination Resources for Health Professionals \(https://www.cdc.gov/flu/professionals/vaccination/index.htm\)](https://www.cdc.gov/flu/professionals/vaccination/index.htm)

Prevention and Control of Influenza with Vaccines. Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2010: Nursing Homes and Other Long-Term Care Facilities. MMWR 2010;59(RR08);1-62

CDC. Immunization of Health-Care Personnel. Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2011;60(RR07);1-45

Antiviral Drugs

[2011-2012 Influenza Antiviral Medications: Summary for Clinicians \(https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm\)](https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm)

Seasonal Influenza in Adults and Children—Diagnosis, Treatment, Chemoprophylaxis, and Institutional Outbreak Management: Clinical Practice Guidelines of the Infectious Diseases Society of America

[Recommendations of the Advisory Committee on Immunization Practices \(ACIP\): Antiviral Drug Information for Health Care Professionals \(https://www.cdc.gov/flu/professionals/antivirals/index.htm\)](https://www.cdc.gov/flu/professionals/antivirals/index.htm)

Recommendations of the Advisory Committee on Immunization Practices (ACIP): Antiviral Drug Information for Health Care Professionals: Control of Influenza Outbreaks in Institutions. MMWR 2011;60(RR01);1-24

Testing

[Guidance for Clinicians on the Use of Rapid Influenza Diagnostic Tests \(https://www.cdc.gov/flu/professionals/diagnosis/clinician_guidance_ridt.htm\)](https://www.cdc.gov/flu/professionals/diagnosis/clinician_guidance_ridt.htm)

Infection Control

[Prevention Strategies for Seasonal Influenza in Healthcare Settings \(https://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm\)](https://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm)

[Health care-associated infections and long-term care settings \(https://www.cdc.gov/longtermcare/index.html\)](https://www.cdc.gov/longtermcare/index.html)

Reported Outbreaks in Long-Term Care Facilities

CDC. Outbreaks of 2009 Pandemic Influenza A (H1N1) Among Long-Term Care Facility Residents --- Three States, 2009. MMWR 2010;59(03):74-77

Additional References

Apisarnthanarak A, Uyeki T, Puthavathana P, Kitphati R, Mundy L. Reduction of seasonal influenza transmission among healthcare workers in an intensive care unit: A 4-year intervention study in Thailand. *Infect Control Hosp Epidemiol* 2010; 31(10):996-1003.

Turnberg W, Daniell W, Duchin J. Influenza vaccination and sick leave practices and perceptions reported by health care workers in ambulatory care settings. *Am J Infect Control* 2010; 38(6):486-8.

CDC. [Influenza vaccination of health-care personnel: recommendations of the Healthcare Infection Control Practices Advisory Committee \(HICPAC\) and the Advisory Committee on Immunization Practices \(ACIP\). MMWR 2006;55\(No. RR-2\).](#)

Salgado CD, Giannetta ET, Hayden FG, Farr BM. Preventing nosocomial influenza by improving the vaccine acceptance rate of clinicians. *Infect Control Hosp Epidemiol* 2004;25:923--8.

Saito R, Suzuki H, Oshitani H, Sakai T, Seki N, Tanabe N. The effectiveness of influenza vaccine against influenza A (H3N2) virus infections in nursing homes in Niigata, Japan, during the 1998--1999 and 1999--2000 seasons. *Infect Control Hosp Epidemiol* 2002;23:82--6.

Cunney RJ, Bialachowski A, Thornley D, Smaill FM, Pennie RA. An outbreak of influenza A in a neonatal intensive care unit. *Infect Control Hosp Epidemiol* 2000;21:449--54.

Carman WF, Elder AG, Wallace LA, et al. Effects of influenza vaccination of health-care workers on mortality of elderly people in long-term care: a randomised controlled trial. *Lancet* 2000;355(9198): 93--7.

Saxen H, Virtanen M. Randomized, placebo-controlled double blind study on the efficacy of influenza immunization on absenteeism of health care workers. *Pediatr Infect Dis J* 1999;18:779--83.

Wilde JA, McMillan JA, Serwint J, Butta J, O'Riordan MA, Steinhoff MC. Effectiveness of influenza vaccine in health care professionals: a randomized trial. *JAMA* 1999;281:908--13.

Potter J, Stott DJ, Roberts MA, et al. Influenza vaccination of health care workers in long-term-care hospitals reduces the mortality of elderly patients. *J Infect Dis* 1997;175:1--6.