LTC Information Series

PALTmed

POST-ACUTE AND LONG-TERM CARE MEDICAL ASSOCIATION

Immunization

in the Long-Term Care Setting

PALTmed

Post-Acute and Long-Term Care Medical Association

9891 Broken Land Parkway, Suite 400

Columbia, Maryland 21046

https://paltmed.org

ACKNOWLEDGMENTS

The contents of this manual were prepared by AMDA Long Term Care Medicine

AMDA wishes to thank the following individuals who contributed to the update of this kit:

David A. Nace, MD, MPH-Project Chair
Paul Drinka, MD, CMD-Project Co-Chair
Jodi Mann, PharmD, BCPS, CGP
Gregory A. Poland, MD, MACP

AMDA wishes to thank the following individuals who have contributed to making the original kit an informative and useful tool:

William Kavesh, MD, MPH-Project Chair
Paul Drinka, MD, CMD
Terry Hill, MD, CMD
Neal Larson, RNC
Thomas Lawrence, MD, CMD
Steven Levenson, MD, CMD
Susan Levy, MD, CMD
David A. Nace, MD, MPH
Naushira Pandya, MD, CMD
Gregory Poland, MD
Barbara Resnick, PhD., CRNP

Medical Writers: Eleanor Mayfield and Caroline G. Polk
Staff Writer: Jacqueline Vance, RNC, CDONA/LTC

AMDA wishes to thank the following contributing organizations and associations:

American Association of Consultant Pharmacists
American Association of Homes and Services of the Aging
American College of Health Care Administrators
American Geriatrics Society
American Health Care Association
Assisted Living Federation of America
Immunization Action Coalition
National Association of Directors of Nursing Administration/LTC
National Association of Health Care Assistants
National Citizens' Coalition for Nursing Home Reform
National Conference of Geriatric Nurse Practitioners

AMDA gratefully acknowledges Pfizer for their support of this project

Disclaimer:

This Information Series Kit is provided for discussion and educational purposes only and should not be used or in any way relied upon without consultation with and supervision of a qualified physician based on the case history and medical condition of a particular patient. The information in this kit is not intended and should not be construed as a substitute for a physician's medical advice or judgment.

AMDA expressly disclaims responsibility for any adverse effects or consequences resulting from the use of any of the advice or procedures presented or discussed in this information series kit. AMDA shall not be liable for any damages whatsoever resulting from use of this information tool kit. The American Medical Directors Association, its heirs, executors, administrators, successors, and assigns hereby disclaim any and all liability for damages of whatever kind resulting from the use, negligent or otherwise, of this information tool kit.

The authors and publisher have made every effort to ensure that the information contained in this publication reflects accepted standards and practices at the time of publication. However, because research evidence and clinical standards continually evolve, the reader is urged to check recent publications and product monographs for guidance on treatment decisions.

TABLE OF CONTENTS

LTC Physicians Information Tool Kit
Immunization in the Long-Term Care Setting

APPENDIXES

The following suggested tools may be helpful to facilities implementing immunization programs for residents and employees. Facilities may adapt these tools to reflect local circumstances.

IMMUNIZATION IN THE LONG-TERM CARE SETTING

AMDA POSITION STATEMENT: INFLUENZA AND PNEUMOCOCCAL VACCINATIONS

AMDA urges practitioners who care for geriatric and chronically ill patients in all settings (office, long-term care facilities, assisted-living settings, home health care, etc.) to administer influenza and pneumococcal vaccinations to those patients. We strongly recommend that medical directors work to develop and implement immunization programs in long-term care settings. AMDA's goal is to achieve a 90% immunization rate for influenza and pneumococcal vaccines among long-term care residents.

We believe that an annual influenza vaccination should be required for every health care worker who has direct patient contact unless a medical contraindication or religious objection exists. We strongly recommend that medical directors and other practitioners encourage caregivers (both professional health care workers and family caregivers) to obtain these vaccinations. We also recommend that vaccinations be made available and offered at no cost to staff working in long-term care settings.

INTRODUCTION

Goals of This Information Kit

The goals of this Information Kit are to:

- Provide education on the impact of influenza and pneumococcal vaccine in LTC environments,
- Increase rates of vaccination against influenza and pneumococcal disease among patients of LTC facilities,
- Increase rates of vaccination against influenza among health care workers,
- Improve the processes for managing influenza outbreaks in LTC facilities, and
- Provide education on other potentially relevant immunizations in the LTC setting.

This Kit reviews recent regulatory changes and offers guidance, information, and tools to enable medical directors and other practitioners to take the lead in establishing and implementing activities to address and prevent influenza and pneumococcal disease in LTC facilities. In addition to providing sample policies and models for immunization programs, the Kit offers resources to help facilities boost vaccination compliance among patients and staff as well as guidance for dealing with influenza outbreaks.

The Kit focuses on influenza and pneumococcal disease because of their serious impact on LTC patients' morbidity and mortality; it also provides limited information on vaccinations for herpes zoster (shingles), for which many LTC patients are at risk, and tetanus, diphtheria, and pertussis. The herpes zoster vaccine is relatively new, and many practitioners are seeking guidance as to the vaccine's use in the LTC setting. Adults over age 60, including those in LTC, are less likely than younger populations to be immunized against tetanus and are at higher risk for both acquiring and dying from the disease. Simply keeping LTC patients current on their tetanus boosters could reduce tetanus morbidity and mortality among this population.

Pertussis outbreaks have been reported in LTC facilities. A tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine (Tdap) became available in 2005, and may be used in younger adults and health care workers to prevent pertussis morbidity.[1]

Federal regulations differ for LTC and assisted-living facilities. The regulations discussed in this Information Kit apply to LTC facilities. However, the Assisted Living Federation of America supports the goals of this Information Kit.

Impact of Influenza and Pneumococcal Disease in Long-Term Care

Influenza and pneumococcal disease remain major causes of morbidity and mortality in the United States and represent the leading causes of vaccine-preventable disease.[2,3] Together, influenza and pneumonia represent the fifth leading cause of death in the elderly.[4]

Seasonal influenza alone contributes to an estimated 226,000 hospitalizations and kills an average of 36,000 Americans annually.[5,6] Increasing age and comorbidity are major risk factors for influenza and its outcomes. For instance, more than 90% of all deaths from influenza occur in the elderly, and patients over age 85 are 16 times more likely to die than those ages 65 to 69.[7]

Patients of LTC facilities are particularly at risk from influenza and pneumococcal disease given their increased age, presence of frailty and comorbidities, and increased risk of nosocomial exposure due to close clustering. Such factors have led to influenza infection rates as high as 60% and to case fatality rates of up to 55%.[8-11] In one well-studied outbreak, 65 patients in an LTC facility developed influenza, of whom more than half developed pneumonia and two died.[12] Similarly, case fatality rates of 27% to 44% have been reported for pneumococcal disease.[13,14]

Public health authorities recommend vaccination as the most effective means of preventing influenza and pneumococcal disease. In LTC settings, ample evidence shows that influenza vaccination of both patients and staff is beneficial in reducing hospitalizations and mortality rates as well as in preserving functional mobility (activities of daily living, etc.). The Centers for Disease Control and Prevention's (CDC's) Advisory Committee on Immunization Practices (ACIP) notes that although influenza vaccination in the frail elderly may not prevent illness, it is 50% to 60% effective in preventing influenza-related hospitalizations or pneumonia and 80% effective in preventing death.[15-17] All adult residents of LTC facilities are candidates for both influenza and pneumococcal vaccination.

Additionally, vaccination of health care workers against influenza has been shown to protect patients by potentially reducing illness and by decreasing mortality by as much as 40%, independent of patient vaccination status.[18-22]

Vaccination rates for patients of LTC facilities have increased over the past decade; however, patient vaccination rates seem to have reached a plateau. Among Medicare beneficiaries, influenza and pneumococcal vaccines remain underused despite the fact that they are clinically effective, cost effective, and financially covered under Medicare Part B.[23] Health care worker influenza immunization rates remain inexcusably low at 37% to 42%, and those rates have changed little over the past decade.[24-26]

New federal regulations provide financial and regulatory incentives to increase influenza and pneumococcal immunization rates. In addition, a growing number of organizations including two CDC advisory committees,* the Joint Commission, and the American College of Physicians now recommend that all health care personnel be vaccinated against influenza annually.[25] AMDA strongly endorses those efforts.

* Advisory Committee on Immunization Practices (ACIP) and Healthcare Infection Control Practices Advisory Committee (HICPAC)

Shingles (Herpes Zoster) Vaccine

Herpes zoster (HZ), also called shingles, results from a reactivation of *varicella zoster* virus (VZV) and occurs in people who have been previously exposed to natural disease or, rarely, to the attenuated virus in zoster vaccine. The risk of shingles increases with age, and half of all cases occur in people over age 60. Postherpetic neuralgia, an intense nerve pain that can last for years as a sequela of shingles, is also more common in people over age 60. Elderly people have an age-related decline in cell-mediated immunity to VZV and, as a result, an increased incidence of herpes zoster and its complications.

In 2006, the U.S. Food and Drug Administration approved the first vaccine to reduce the risk of shingles and postherpetic neuralgia in adults ages 60 and older. Unlike other vaccines, which attempt to reduce the occurrence of specific infections, the zoster vaccine attempts to prevent reactivation of dormant HZ disease.† The zoster vaccine stimulates an increase in cell-mediated immunity, thereby reducing the likelihood of an HZ episode as well as limiting the severity of symptoms, particularly chronic pain, if the disease does occur.[27,28]

The CDC recommends one dose of zoster vaccine for people who are age 60 or older. Priority, regardless of care setting, should be placed on people who will become immunosuppressed as a result of comorbid disease states. LTC facilities should strive to immunize patients while they are immunocompetent. The vaccine should not be given to people who:[27-29]

- Are allergic to the vaccine or any of its components.
- Are less than 60 years old.
- Are receiving antiviral medications against herpesvirus. (Antiviral medication should be stopped at least 24 hours before administration of vaccine and not given sooner than 14 days postvaccination.)
- Are immunocompromised (e.g., people with AIDS who have CD4+ less than 200 per mm^3 or 15% or less of total lymphocytes).
- Are taking high-dose oral corticosteroids (more than 20 mg/d prednisone for more than 2 weeks). Steroid therapy should be stopped for at least 14 days before administration of zoster vaccine.
- Are receiving recombinant human immune mediators and immune modulators (e.g., infliximab, etanercept).
- Are pregnant.

Administration of zoster vaccine presents several unique challenges. First, the vaccine requires stringent administration and storage procedures to maintain effectiveness. It must be stored frozen and protected from light until ready to administer. The diluents should be kept separate from the vaccine at room temperature or in the refrigerator. Adhering to these special handling requirements may pose a problem in delivery from suppliers. It is imperative that the vaccine be placed on dry ice during transport and immediately placed in the freezer upon delivery. It should be reconstituted only with the provided diluent and must be used within 30 minutes of preparation. The vaccine is administered as a single, one-time, subcutaneous dose.[27]

Second, unlike influenza and pneumococcal vaccines, coverage for the zoster vaccine currently falls under Medicare Part D. Physicians are not able to directly bill Medicare D for the vaccine, although AMDA is working with the Centers for Medicare & Medicaid Services (CMS) and other organizations in an effort to obtain

† To prevent chickenpox, this vaccine is given to children ages 12 months to 12 years as a combination vaccine containing live attenuated measles-mumps-rubella and varicella (MMRV). For children's vaccinations, the zoster vaccine is referred to as the varicella vaccine.

Part B coverage for it. Providers should verify coverage for each patient with the LTC facility pharmacy and administrators before administering the vaccine. Providers may find substantial differences in vaccine coverage and copayments from one insurance plan to the next.

AMDA does not have a position specific to the zoster vaccine, and available evidence in LTC settings is limited. Anyone age 60 or older who does not have contraindications or use medications that compromise the immune system can be considered for vaccination. Note that zoster vaccine has not been proven to be effective in LTC patients, and studies suggest a lower vaccine response among the oldest old. Thus, the optimal role of this vaccine in the LTC setting is not yet defined. Practitioners should consider the potential benefits and risks of vaccination for each patient.

Zoster vaccine can be given at the same time as other routine vaccinations administered in the over-65 population (e.g., influenza, tetanus, pneumococcal polysaccharide vaccines). It is recommended that vaccines be administered in separate syringes and at separate sites on the body.[30]

Tetanus, Diphtheria, and Pertussis Vaccines

Tetanus is an infectious but noncommunicable disease that is acquired through environmental exposure, typically a wound. Although extremely rare, tetanus can be fatal, especially in the elderly. Given the low incidence of tetanus, many clinicians question the importance of tetanus immunization programs in LTC settings. It is important that clinicians consider both the epidemiology of tetanus and experience with tetanus immunization programs.

Tetanus risk increases with age. From 1990 to 2001, almost 40% of the 534 cases in the United States occurred in patients age 65 or older.[1] Adults age 60 or older have nearly seven times the risk for tetanus compared with persons 5 to 19 years old and twice that for persons 20 to 59 years old.[31,32] The case-fatality ratio increases from 2.3% for persons age 40 to 59 to 18% for persons age 60 or older.[32] The primary reason for the higher death rate in elderly people is waning immunity related to declining antibody titers, which are in turn relate to low immunizations rates and, possibly, to reduced responsiveness to vaccination in the elderly.[27,33]

Of particular note to the LTC clinician, tetanus has been associated with chronic skin wounds, including pressure ulcers. Tetanus vaccine is essentially 100% effective, and immunization programs in LTC facilities have shown acceptable tolerability and safety outcomes.[34] The CDC recommends primary immunization followed by booster doses every 10 years for all adults. For adults age 65 and older, tetanus diphtheria vaccine (Td) is the recommended vaccine formulation. For adults ages 19 to 64 and health care workers, a single dose of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine (Tdap) may be given. The rationale for a single dose of Tdap in younger adults and health care workers is to reduce pertussis morbidity among adults and prevent nosocomial transmission.[1] LTC clinicians should be aware of the potential for outbreaks of pertussis among older adults, including nursing home residents.[35] Tdap is not licensed for adults age 65 and older at the present time because there are no safety or efficacy data for this age group.[36]

OVERVIEW OF FEDERAL REGULATIONS

F334: Influenza and Pneumococcal Immunizations

On October 7, 2005, the U.S. Department of Health and Human Services (DHHS) and CMS issued revisions in the *State Operations Manual, Appendix PP—Guidance to Surveyors for Long Term Care Facilities* for F-Tag 334[a], intended to increase influenza and pneumococcal immunization rates in LTC facilities that participate in Medicare and Medicaid. This revised guidance requires facilities to have policies and procedures to ensure that they do the following:

- Offer each patient vaccination against influenza annually (between October 1 and March 31) unless vaccination is medically contraindicated or unless the patient already has been vaccinated during this time period.
- Offer each patient a single pneumococcal vaccination unless vaccination is medically contraindicated or the patient has already been vaccinated.
  - A second pneumococcal vaccination may be given 5 years after the first *if* the first one was administered *before* the patient reached age 65.
  - The rule does not require facilities to provide pneumococcal "booster doses" every 5 years because doing so is not part of the ACIP recommendations.
- Provide education about the benefits and potential risks of influenza and pneumococcal vaccination to each patient or his or her legal representative before administering the vaccine.
- Ensure that every patient has the right to refuse either vaccine.

The Response to Comments that accompanied the final rule makes it clear that consent for annual influenza vaccination needs to be obtained only once, such as at the time of admission, and may be done verbally (70 *Federal Register* 194, 58840–58841, 2005). Note that F334 does not require facilities to obtain *written* consent to administer either vaccine. Both the influenza and the pneumococcal vaccines demonstrate strong safety records over the past two decades.[37] Requiring written consent for these vaccinations would be completely inconsistent with current standards of practice. Written consent is not required for other common, low-risk interventions (e.g., antibiotic or warfarin treatment), and written consent is a clear obstacle to the achievement of higher vaccination rates.[38] For these reasons, AMDA, along with ACIP and the Society for Healthcare Epidemiology of America, strongly discourages the use of written consent for these vaccines.

Facilities must be able to demonstrate to state agency surveyors that they have an immunization protocol, that they have offered influenza and pneumococcal vaccination to every patient (as appropriate), and that they have provided education about the benefits and risks of vaccination to patients or their legal representatives. The facility must document on each patient's chart that education was provided. Of note, the National Childhood Vaccine Injury Act of 1986 (42 U.S.C. §§ 300aa-1 to 300aa-34) requires health care providers to provide vaccine information sheets (VIS) before any immunization. The VIS are updated regularly and are available on the CDC website (see *Resources*, p. 23). A VIS is an educational brochure describing a vaccine, the vaccine's indications and contraindications, and its risks and benefits. Facilities may use VIS as their required education.

Facilities must follow standard practice by documenting the type of vaccine, lot number, expiration date, administration date, site of administration, and other perti-

a Available at http://cms.hhs.gov/manuals/Downloads/som107ap_pp_guidelines_ltcf.pdf (accessed January 5, 2010).

nent information for each vaccination administered. To ensure compliance with F334, facilities may use preprinted labels for their Medication Administration Records that include this information and a statement that education was provided.

In the case of a vaccine shortage declared by DHHS or a documented local or regional shortage, CMS may exercise its enforcement discretion by instructing state survey agencies not to take enforcement action against LTC facilities that are out of compliance with F334 because they were unable to obtain vaccine for their patients.

The rule does *not* require health care workers to be vaccinated as a condition of a facility's participation in Medicare and Medicaid, although the final rule states, "We agree that it is very important for health care workers to be immunized."

Monitoring Procedures for F334 (Modification of the MDS)

Effective October 1, 2005, CMS began collecting information on rates of influenza and pneumococcal immunization among patients in LTC facilities through a section of the Minimum Data Set (MDS). On the MDS, facilities must code whether patients were offered influenza and pneumococcal vaccination and, if relevant, patients' reasons for refusing vaccination. On MDS version 3.0, sections O2 and O3 will collect this same information.

Guidance for Surveyors Related to F334

In January 2006, CMS released a draft of the *State Operations Manual (SOM)–Guidance to Surveyors of Long-Term Care Facilities: Influenza and Pneumococcal Immunizations*.[39] Because of the morbidity and mortality associated with influenza and pneumococcal disease, CMS developed a new investigative protocol related to vaccination programs in LTC facilities, which was originally promulgated in 2002. In October 2009, as part of training on the infection control guidance (F441–F445) and in the wake of the 2009 H1N1 pandemic, CMS worked with AMDA and the University of Pittsburgh Institute on Aging to retrain state surveyors on the F334 guidance.

The CMS guidance states the following:

- Medicare-certified LTC facilities must establish and maintain policies and procedures for the prevention and control of influenza and pneumococcal disease that are based on CDC recommendations.
- Policies must be in place to define the following situations:
  - When and how influenza and pneumococcal vaccinations will be administered.
  - How to address a patient's refusal to be vaccinated.
  - How the facility will respond when vaccine is unavailable because of a local, regional, or national shortage of supply.
  - How a patient is assessed for contraindications.
  - How pertinent information, such as the VIS, will be provided to patients.
- Systems must be in place to ensure that patients are vaccinated unless vaccination is contraindicated or the patient refuses.
- A survey of a sample of patients must show (a) that patients have received influenza and pneumococcal vaccinations or (b) that documentation in patients' charts indicates why they have not been vaccinated.

b American Medical Directors Association. Common Infections in the Long-Term Care Setting Clinical Practice Guideline. Columbia, MD: 2004.

Surveyors will use data from the Online Survey, Certification, and Reporting (OSCAR) data network to determine whether a facility has a lower immunization rate than the national average. If a facility's immunization rate is below average, its policies and procedures will be further investigated.*

Standing Orders

Federal regulations promulgated by CMS in 2002 (67 *Federal Register* 191, 61808–61814) eliminated the requirement for specific practitioner authorization for administration of pneumococcal and annual influenza vaccinations in LTC facilities. Where permitted by state law, nurses or pharmacists may be authorized by standing orders to administer vaccinations according to an institution- or practitioner-approved protocol without the need for a practitioner's order or signature. Facilities may implement standing orders for influenza and pneumococcal vaccination of Medicare and Medicaid patients (67 *Federal Register* 191, 61808–61814, 2002). Standing orders apply only to influenza and pneumococcal vaccines and not to the tetanus or zoster vaccines.

According to the CDC, standing orders are the most consistent and effective method for increasing adult immunization rates. Studies have shown that standing orders can increase patient immunization rates to as high as 90%.[15,40] A sample standing order policy can be downloaded at www.immunize.org/catg.d/p3074.pdf. AMDA supports the use of standing orders but recognizes that some states do not permit them.[b]

BARRIERS TO IMMUNIZATION IN THE LONG-TERM CARE SETTING

This section focuses on barriers to immunization particular to influenza vaccination; less research has taken place on the pneumococcal vaccine, but many of the barriers are the same. Barriers to immunization in LTC facilities generally can be divided into the categories of knowledge, accessibility and availability, cost, promotion, consent, organization, and liability concerns.

Knowledge

When patients, family members, or facility staff have misconceptions about influenza and influenza vaccination efficacy or safety (Table 1), they are less likely to pursue flu vaccination for themselves or encourage it for others.

* OSCAR is a compilation of all data elements collected by surveyors during inspection surveys at LTC facilities for the purpose of certification for participation in the Medicare and Medicaid programs, is maintained by CMS in cooperation with the state LTC surveying agencies.

b American Medical Directors Association. *Common Infections in the Long-Term Care Setting* Clinical Practice Guideline. Columbia, MD

TABLE 1. Common Misconceptions About Influenza and Influenza Vaccination

Misconception	Reality
Flu is merely a nuisance.	Flu is the most frequent cause of death from a vaccine-preventable disease in the United States. Each year, flu causes an average of 36,000 deaths and 200,000 hospitalizations. Most people who die or become seriously ill belong to vulnerable populations, such as the elderly.[3,41] Additionally, LTC patients who survive a flu outbreak may suffer functional decline and require increased care.[42]
Flu vaccine causes the flu.	The injectable flu vaccine used in the United States is made from inactivated virus and *cannot* cause influenza infection. People may think otherwise for two reasons: ◆ It takes 1 to 2 weeks after vaccination to develop protective immunity. Occasionally people become ill with the flu within 1 to 2 weeks of being vaccinated and may think the vaccine caused their illness. In fact, the illness is caused by exposure to someone with the virus before the vaccine produced immunity, not by the vaccination. ◆ Many people consider any illness with fever and cold symptoms to be "the flu." If they get any viral illness, they may think they got the flu despite being vaccinated. Influenza vaccine protects against certain influenza viruses only, not all viruses.
Getting a flu vaccination increases susceptibility to colds.	People who have been vaccinated against influenza are better protected against the flu than those who do not get vaccinated. Because many cold viruses are in circulation during flu season, however, a person might catch a cold even if he or she has been vaccinated against the flu. The flu vaccine did not cause the person to catch a cold.
The live attenuated vaccine (nasal spray) is not safe for health care workers.	The live attenuated vaccine is considered safe if given to healthy people aged 2 to 49 years. CDC has recommended the use of live attenuated vaccine for health care workers who care for patients in nursing homes. The only exception to this recommendation is for workers who come into contact with severely immunocompromised patients, such as those with bone marrow transplants who are in protective isolation.[43] This exception would not be applicable in most LTC facilities, which do not have reverse isolation units.
Flu vaccine is not very effective.	Flu vaccine is 70% to 90% effective when it is well matched with circulating viruses. Among elderly patients of LTC facilities, flu vaccine can be 50% to 60% effective in preventing hospitalization or pneumonia and 80% effective in preventing death from influenza.[44]
Flu vaccine causes Guillain Barré syndrome.	GBS is a disease in which the body damages its own nerve cells (outside of the brain and spinal cord), resulting in muscle weakness and sometimes paralysis. It is thought that GBS may be triggered by an infection. The infection that most commonly precedes GBS is caused by a bacterium called *Campylobacter jejuni*. Other respiratory or intestinal illnesses (including influenza disease) and other triggers may precede GBS. In 1976, vaccination with the swine flu vaccine was thought to be associated with GBS, although the evidence is not fully clear.[45] Several studies have evaluated whether other flu vaccines since 1976 were associated with GBS. Only one of those studies showed an association. That study suggested that potentially 1 in 1 million vaccinated persons may be at risk of GBS associated with the flu vaccine.[46] One study has found that the rate of GBS declined fourfold from 1994 to 2003, whereas influenza immunization rates increased.[47]

TABLE 1. Common Misconceptions About Influenza and Influenza Vaccination

Misconception	Reality
Flu vaccine is harmful in pregnancy.	The safety of influenza vaccination in pregnant women has been demonstrated in numerous studies.[48] Safety for the fetus was demonstrated in a study of more than 2,000 pregnant women. Children in this study were followed for their first 7 years. Influenza vaccination did not increase the number of stillborn births, congenital malformations, malignancies, or neurocognitive disabilities.[49,50] Influenza vaccination is not just safe and effective for pregnant women; it also provides protection to newborn infants. In a randomized study of influenza vaccination in pregnant women, newborns had a 63% reduction in influenza illness and a one-third reduction in febrile illnesses.[51] These considerations are particularly important to discuss with LTC health care workers.
Flu vaccine causes autism.	Flu vaccine does not cause autism.[52,53] The Institute of Medicine performed an extensive literature review and failed to find any association between thimerisol and autism.[54] In a 2003 study looking at autism rates in Sweden and Denmark, the authors found that even though thimerisol content in vaccines declined and was eliminated, autism rates continued to rise and, hence, could not be plausibly related to thimerisol exposure.[53]

CDC, Centers for Disease Control and Prevention; GBS, Guillain-Barré syndrome; LTC, long-term care.

Most experts recommend education as the best way to dispel myths about influenza and pneumococcal disease and vaccination. At least one study, however, has found that vaccination education programs are not always comprehensive: Programs talk about vaccine side effects but do not spend as much time dispelling misconceptions and promoting the benefits of vaccination.[55] Among 96 LTC facilities that described their vaccine education programs for staff, only 77% included information on misconceptions about flu vaccine and 80% discussed vaccine efficacy, whereas 92% informed staff about side effects of the vaccine.[55] In other words, almost all facilities provided information on side effects, but almost 25% failed to address common misconceptions. Presenting balanced information on risks and benefits is clearly important to making informed decisions.

Knowing that many inservice programs lack balance, AMDA developed an 18-minute DVD (included in this information kit) that facilities should use as part of their yearly flu vaccine inservice for health care workers. Besides breaking down misconceptions and barriers, the DVD highlights health care workers of different ethnicities to discuss why they get immunized and why they think their peers should do so as well. One nursing home chain tracked its data and found that after it incorporated the DVD in all facility trainings, health care worker immunization increased 28% over the previous year.

Another "knowledge" issue is that patients, families, and staff may not remember when they last received a vaccination. Facilities should seek this information when a patient is admitted or when a staff member begins employment. Additionally, the CDC recommends that facilities adopt policies stating that when no one is sure whether a patient has been vaccinated against pneumococcal disease, the vaccine should be given.[3] When a patient is transferred to an acute care facility during flu season, an immunization status form should be included in the patient's transfer documents.

Access and Availability

Another barrier is lack of access to or availability of vaccination. Accessibility issues include not addressing immunization status when a patient is admitted to the facility and not having a year-round immunization plan or effort. Barriers relating to availability include failing to order vaccine far enough in advance of influenza season and ordering insufficient quantities of vaccine to cover all patients and staff.

Some accessibility barriers can be addressed with perseverance, planning, and effort. However, state and national shortages of vaccines may make it impossible for facilities to ensure adequate availability of vaccine.

Cost

The cost of an immunization program can be a barrier. (For yearly billing rates see www.cms.hhs.gov/AdultImmunizations/) Appendix 1 on page 33 provides a sample Medicare billing roster for reimbursement for vaccinations. Although facilities may be concerned about the cost of a staff immunization program, the costs of influenza in terms of hospitalizations, lost productivity, facility disruption, the use of antiviral medications, and even deaths are substantially higher.[5]

Promotion

Promotional barriers include not having organizational goals for an immunization program and not having materials in the facility to promote the immunization program. These barriers may be among the easiest to overcome. Many resources are available on the Internet and through various national organizations that facilities can use, copy, or adapt to help them set goals and promote their immunization programs. (See *Resources*, p. 23.)

Consent

Consent can be a confusing issue. No federal regulation requires written consent for influenza or pneumococcal immunization. (See *Overview of Federal Regulations*, p. 5.) Likewise, most states do not require written consent for vaccination. It is understood, however, that as with all treatments, patients have the right to refuse.

In general, consent procedures should be as simple as possible. Unless written consent is required by state law, it should not be used. Consent policies and procedures should be clearly outlined for patients and family members at the time of admission, and information should be part of ongoing staff orientation and education programs.

Organization

Organizational barriers include:

- Lack of policies and protocols on patient immunization,
- Lack of a system (e.g., registry) for tracking the immunization status of patients and staff,
- Lack of reminder systems,
- Lack of standing order policies and having policies that require individual physician orders,
- Poor documentation of vaccine administration, and
- Lack of systems for feedback and analysis of immunization rates and refusals.

Liability Concerns

Ample data over many decades demonstrate that influenza and pneumococcal vaccines are safe and effective.[3,56,57] Nevertheless, fears of liability related to the remote possibility of a complication may lead managers of LTC facilities to implement onerous consent requirements for vaccinations. These requirements create a barrier to the improvement of vaccination rates. Facilities should educate patients and health care workers on the proven safety record of the influenza and pneumococcal vaccines.

At the time of admission, patients and family members should be informed that, as a condition of participation in Medicare and Medicaid, the facility:

- Must offer each patient an influenza vaccination annually between October 1 and March 31;
- Must medically assess each patient before immunization; and
- May withhold vaccinations from patients who are deemed to be at risk for serious adverse reactions.

Patients and their legal representatives have the right to refuse any and all vaccinations after receiving education about the benefits and potential side effects. These education efforts and any refusals of vaccination should be documented and reviewed.

STRATEGIES AND RESOURCES FOR OVERCOMING BARRIERS TO IMMUNIZATION

Some of the barriers to immunization in the LTC setting can be overcome with a leadership commitment to effective education and communication. Most organizational barriers can be overcome through the establishment and implementation of detailed policies, procedures, and processes. CDC, the 100% Immunization Campaign, and other organizations have sample policies, forms, and other tools that facilities can adapt for their own purposes. (See *Resources*, p. 23).

Strategies for overcoming barriers to immunization serve as the basis for an audit tool and as a method of determining who needs vaccination. Strategies include

- Use of a standard form to record all vaccine-related information for each patient,
- Implementation of standing orders (see *Standing Orders*, p. 7),
- Use of incentive and recognition programs,
- Acquisition of vaccine for staff from public health programs where available and during shortages, and
- Cultivation of a culture in which influenza and pneumococcal immunization is seen as an integral part of ensuring patient safety and delivering high-quality care.

LTC facilities should make annual influenza vaccination for patients and staff an expectation. On admission, patients and families should be advised that the facility considers influenza vaccination to be an important and necessary standard of care. Every year, as fall approaches, facility staff should begin preparing to administer the influenza vaccination to all consenting patients.

Some facilities adopt an "opt-out" policy for influenza vaccinations. Every year, a letter is sent to patients or their proxy announcing that annual influenza vaccinations

are about to begin and enclosing the CDC's VIS on influenza vaccine. A phone number is provided for the patient or proxy to call by a certain date if the patient does not wish to be vaccinated. If the patient or proxy does not decline, consent is implied. This process is consistent with F334 and part of the CMS training-of-trainers course "F441: Infection Control," which took place October 28, 2009, in Timonium, MD. Vaccine declination forms are useful tools that can document vaccine refusals as well as reasons for declining.[58,59] AMDA supports the use of declination forms in immunization programs.

Seasonal influenza vaccination programs should commence as soon as vaccine becomes available. In the past, concern over the potential for waning immunity led many clinicians to hold influenza vaccine until October or November. A CDC review of available data does not support waning immunity over the typical influenza season, and all providers are encouraged not to wait to administer vaccine.[6] Early vaccination is important to allow people time to develop immunity *before* the flu season begins. Patients admitted between October 1 and March 31 should be offered vaccination on admission unless documentation is available to show that they have already received the current year's flu shot or have a contraindication.

Please see the following appendices for sample documents that will help to simplify patient immunization record keeping:

- Appendix 2: Sample immunization check list for new admissions
- Appendix 3: Sample resident immunization record
- Appendix 4: Sample form for active declination of influenza vaccination for a resident of a LTC facility

EMPLOYEE IMMUNIZATION PROGRAMS

Influenza transmission among patients, family members, other visitors, and health care workers is a particular problem in LTC facilities for two reasons:

1. The close proximity of health care workers and patients.
2. The immunological changes that occur with aging and in frail or debilitated patients, which may prevent them from responding to flu vaccine with protective levels of antibody.

Unvaccinated health care workers can introduce influenza into a LTC facility as well as spread the infection once it is present. Studies have shown that influenza outbreaks in LTC facilities are associated with low vaccination rates among health care workers and that, conversely, higher levels of vaccination among health care workers are associated with a lower incidence of influenza infection.[25] Influenza vaccination of health care workers protects vulnerable patients, improves patient safety, and can significantly decrease patient morbidity and mortality.[60] In two prospective randomized studies conducted in LTC facilities in the United Kingdom, vaccination rates of 50% to 60% among health care workers were associated with 40% reductions in mortality among unvaccinated patients regardless of patient vaccination status.[18,19] Other studies have shown similar outcomes on illness and mortality rates.[20-22]

CDC has recommended annual influenza vaccination for health care workers with direct patient contact since 1981 and for all staff in health care settings since 1993. Nevertheless, the percentage of health care workers who are vaccinated annually against influenza remains unacceptably low (42% in 2007).[61]

Possible reasons for the low rate of influenza vaccination among health care workers include employers' failure to cover the cost of vaccination, fear of injections, fear of vaccine-induced illness, inconvenience, and a perception that the vaccine is ineffective. Healthy health care workers often consider themselves to be at low risk for influenza infection and are unaware of their role in the transmission of influenza to their vulnerable patients or their families. Like other healthy adults, they may have minimal or no symptoms of influenza infection. Even when asymptomatic, however, they may shed virus, thereby potentially exposing their patients and colleagues. One study found that 28% of health care workers with serologically confirmed influenza infection during the influenza season could not recall having any respiratory infection during that period. In another study, 76.6% of health care workers continued to work while ill with an influenza-like illness.[26]

Widespread illness resulting from low vaccination rates among staff may also result in staffing problems at LTC facilities, including increased workplace absenteeism, increased work hours for remaining workers, and significant measurable costs for employers.[5]

For all of these reasons, AMDA's position statement proposes that LTC facilities implement health care worker immunization programs and offer on-site vaccination at no cost to all facility staff. As of 2009, 15 U.S. states* require influenza immunization programs to be in place for health care workers in LTC facilities, with appropriate exemptions.[62] Appendix 5 offers a composite of those 15 state laws, and Appendix 6 summarizes the Society for Healthcare Epidemiology of America's (SHEA's) recommendations for influenza vaccination of health care workers, which AMDA supports.

Even when vaccination is easy to obtain, some LTC staff may be reluctant to be vaccinated primarily to protect frail patients from the secondary complications of influenza. It is important for staff to realize that they will benefit directly from receiving the vaccine. Vaccination will keep them healthier and will enable them to remain functional and productive and to miss less work during the winter months. One study has shown that healthy working adults who receive influenza vaccination have 25% fewer upper respiratory infections, 44% fewer doctor visits, and 43% fewer sick days off than their unvaccinated counterparts.[63] Staff also need to be aware that if they are vaccinated against the flu, they will be helping to protect their children and other family members from illness.

Table 2 suggests strategies for overcoming barriers to influenza vaccination among health care workers. Table 3 provides examples of appropriate incentives to encourage health care workers to accept influenza vaccination. See also the following appendices for sample documents that will help to simplify the establishment and implementation of a staff immunization program:

- Appendix 7: Sample policy and procedure document for an employee immunization program.
- Appendix 8: Sample form for active declination of influenza vaccination by a health care worker.

Additional ideas for improving immunization rates are presented in a paper by Sand and colleagues.[64] Also, the DHHS has created a toolkit for health care worker immunization (www.hhs.gov/ophs/initiatives/vacctoolkit/index.html)

* Alabama, Arkansas, Florida, Kentucky, Maine, Maryland, New Hampshire, New York, North Carolina, Oklahoma, Oregon, Pennsylvania, Rhode Island, Texas, Utah

TABLE 2. Strategies for Overcoming Barriers to Influenza Vaccination Among Health Care Workers

Barrier	Strategy
◆ Access to vaccine ◆ Inconvenience	◆ Mobile vaccination carts ◆ Off-hours clinics ◆ Provision of adequate staff and resources to staff immunization program ◆ Vaccination at staff or departmental meetings
Cost	Provision of vaccine free of charge to health care workers
◆ Concerns about vaccine-related illness, adverse events ◆ Perception of low risk for influenza ◆ Aversion to vaccination	Targeted education, including specific information to dispel accine myths and emphasize that patients benefit when health care workers are vaccinated. (Two studies in the United Kingdom found that vaccination rates of 50% to 60% among health care workers were associated with 40% reductions in mortality among residents.)[18,19]
Fear of injections	◆ Use of flu vaccine nasal spray in eligible health care workers (all healthy workers except those who come into contact with severely immunocompro mised patients) ◆ Incentives to take injection (see Table 3)
Other	◆ Role-modeling by facility leaders (e.g., the medical director) in being vaccinated ◆ Strong, visible promotion of staff vaccination by facility leadership ◆ Requirement for active, signed declination by health care workers who do not wish to be vaccinated ◆ Accurate tracking of staff compliance with vaccination ◆ Surveillance for influenza among health care workers ◆ Accountability to the quality improvement team and department managers through reporting and reviewing of department performance in obtaining staff vaccination ◆ Feedback to staff on the facility's immunization rate (post by the time clock, in lunch rooms, rest rooms, etc.)

Adapted from Talbot et al.[26]

TABLE 3. Examples of Incentives to Encourage Health Care Workers to Accept Influenza Vaccination

- Contests between units
- Free lunches
- Gift certificates
- Parties
- Raffles
- Recognition programs

ROLE OF THE MEDICAL DIRECTOR

All members of the interdisciplinary team have an important role to play in promoting immunization as a safety measure for both patients and facility staff. Active leadership by the medical director, however, is crucial to the success of a facility immunization program. The medical director can identify the need for improvement in immunization rates and catalyze the interdisciplinary effort.[65] This section focuses on the role of the medical director in both setting policy and implementing an immunization program.

Influenza and Pneumococcal Immunization

Developing Facility Policy

Federal guidance to surveyors strongly promotes the medical director's involvement in the development of facility policies on the prevention and control of influenza and pneumococcal disease (F334, 483.25(n) and proposed guidance Appendix P and PP). These policies should cover the following immunization program components:

- The timing of the facility's annual influenza vaccination program.
- The administration of vaccine and postvaccination monitoring for complications.
- The process of informing both patients or their legal representatives and staff of the benefits and risks of vaccination.
- Patients' right to refuse vaccination.
- The practitioner's determination of a medical contraindication to or the medical futility of vaccination (e.g., terminal illness), of the presence of medical precautions or contraindications (e.g., acute illness), or of allergy to the vaccine.
- Documentation of vaccine administration or refusal, with reasons, in patients' clinical records.
- Communication of vaccination information should the patient be transferred to another location or level of care. (See Appendix 9: Universal Transfer Form.)

See Appendices 10 and 11 for sample policy and procedure documents for an influenza immunization program and a pneumococcal immunization program.

Requiring Written Consent for Vaccination

The medical director should participate in determining whether the facility should require written consent for vaccine administration from patients or their legal representatives. CMS has stated that written consent is not required for vaccination, and AMDA actively discourages use of written consent forms. (See *Overview of Federal Regulations*, p. 5.) Requiring written consent creates an additional barrier to the achievement of optimal vaccination rates. Instead of requiring written consent, the medical director should encourage consideration of alternatives, such as an "opt-out" program (in which families are asked to notify the facility if they do *not* want their family member to be vaccinated) and a requirement for signed declination of vaccination.

Evaluating Patients for Vaccination

The medical director should provide guidance as needed to nursing staff and practitioners who are evaluating patients for vaccination (Table 4). The evaluation process must emphasize and support patients' right to refuse vaccination. The medical director should be available to intervene if practitioners do not comply with any step in the assessment process.

TABLE 4. Indications and Contraindications for Influenza Vaccination

Indications for vaccination:

- High risk for complications from influenza:
  - Age ≥50 years
  - Residence in a LTC facility
  - Presence of
    - Chronic disease (e.g., anemia, asthma, diabetes, heart disease, kidney disease, lung disease)
    - Muscle or nerve disorders (e.g., seizure disorders, severe cerebral palsy) that can result in difficulty breathing or swallowing
    - Weakened immune system
- Ability to spread influenza to those at high risk

Valid medical reasons for withholding vaccination:

- Presence of fever
- Moderate or severe acute illness
- End stages of a terminal illness
- Egg allergy or allergy to vaccine component
- Development of neurologic symptoms (e.g., GBS) within 6 weeks of previous dose of influenza vaccine

Issues Specific to Influenza Immunization Programs

Ordering Vaccine Supplies

The medical director should be involved in the ordering of supplies of influenza vaccine. The timing of ordering vaccine supplies for fall vaccination programs has changed in recent years. Because of the vaccine shortage in the 2004-2005 season, vaccine manufacturers now recommend that LTC facilities order their vaccine supply in the late winter of the preceding influenza season (i.e., around February or March).

The medical director should advise the facility as needed to address issues related to obtaining an adequate vaccine supply for the upcoming season. In most cases, the size of the facility and the staff vaccination rate will determine the projected need. In facilities with historically low patient or staff vaccination rates, the projected need should factor in plans for a quality improvement program to increase vaccination rates. The facility's staff turnover rate should be taken into account because a high turnover rate will increase the need for vaccine.

Timing the Annual Influenza Vaccination Program

Federal regulations require LTC facilities to offer influenza vaccination to all patients between October 1 and March 31. Despite this time frame, the medical director may have reason to start the vaccination period earlier or extend it past March 31 (e.g., early availability of the influenza vaccine, an early regional epidemic, prolonged influenza activity in the community, or lack of availability of vaccine supplies). A medical director who wishes to extend the vaccination period should:

- Consult seasonal influenza statistics available from state and local health departments and the CDC, and

- Provide medical reasons to support the decision to modify the vaccination period.

The medical director should encourage the facility to begin vaccination as soon as vaccine is available, in accordance with CDC recommendations (see *Strategies and Resources for Overcoming Barriers to Immunization*, p. 11.)

Using Practitioner Orders

Although CMS and AMDA discourage the use of individual practitioner orders for influenza and pneumococcal vaccine, some facilities may still require them as part of facility policy or state regulation. If state law allows, the medical director should assist the facility in developing a standing order policy to prevent problems with obtaining individual practitioner orders.

Managing Vaccine Shortages

The medical director should provide guidance to the facility and approve decisions about vaccine distribution in the event of a vaccine shortage. Vaccine may need to be distributed to patients and staff in a stratified manner on the basis of medical risks or other factors.

SHEA has proposed a tiered system for distributing influenza vaccine to health care workers during a vaccine shortage (Table 5). Under this system, health care workers with close, prolonged, and repeated contact with the highest risk patients (a group that includes all LTC facility patients) should have the highest priority for vaccination. This tiered system is only to be applied in the event of a vaccine shortage; when supplies are adequate, facilities should offer influenza vaccine to all health care workers.[26]

Facility-specific factors must determine how vaccine should be distributed in the event of a shortage. Because federal regulations require that all LTC patients be offered immunization, the medical director should seek guidance from local and state authorities if he or she believes that facility staff should be given priority for vaccination during a shortage.

Experts disagree on whether vaccine should be preferentially given to patients or to staff in the event of a shortage. In facilities with high staff vaccination rates, the literature supports vaccinating health care workers first as the most effective prevention strategy. In facilities with lower staff vaccination rates, however, this approach may be supplanted by the desire to protect the most vulnerable patients by vaccinating them first.

Medical directors are advised to check the CDC website (http://www.cdc.gov/flu/professionals/flubulletin.htm) periodically for the most up-to-date information about influenza vaccine supply, production, and distribution. This website may also offer resources to guide facilities on how to proceed in the face of a vaccine shortage.

TABLE 5. Vaccination of Health Care Workers During an Influenza Vaccine Shortage: A Tiered System for Allocation of Vaccine Proposed by the Society for Healthcare Epidemiology of America

Tier	Description
1A*	HCWs working in close (within 6 ft), prolonged, and repeated contact with high-risk patients (e.g., all patients in LTC facilities)
1B	All HCWs working in close but not prolonged or repeated contact with high-risk patients
1C	◆ HCWs working in units with high patient traffic ◆ HCWs who perform essential patient care functions
2	HCWs with patient contact in non–high-risk patient areas†
3	All other HCWs

HCW = health care worker
* Consider all groups in Tier 1 equal except in times of severe vaccine shortage.
† AMDA's view is that all patients of LTC facilities are high risk.

Adapted from Talbot et al.[26]

Providing Information About the Benefits and Risks of Vaccination

The medical director should assist facility staff in identifying and providing information about the benefits and risks of influenza vaccination. The CDC provides a wealth of materials that can be helpful in fulfilling this requirement. (See *Resources*, p. 23.) The CDC VIS for the different types of influenza vaccine, available at www.cdc.gov/vaccines/Pubs/vis/default.htm#flu, are updated annually and can be helpful tools in meeting this education requirement for patients and staff.

Vaccinating Staff, Volunteers, and Visitors

The medical director should play an active role in educating staff, volunteers, and regular visitors about the importance of vaccination in preventing influenza in the facility. The medical director should review the staff vaccination rate and assist the facility in improving those rates if they are determined to be a quality problem. (This review may need to be done repeatedly during the flu season to identify how to improve the rate.)

The medical director can play a pivotal role in educating staff about the principles of influenza prevention and in developing a program to ensure maximal staff participation in the vaccination program, such as providing incentives for staff vaccination. He or she should participate in any decisions to make staff vaccination mandatory or to extend mandatory vaccination to cover volunteers and frequent visitors. The medical director should also participate in developing an absenteeism policy for staff members with influenza-like illness.

Issues Specific to Pneumococcal Immunization Programs

Pneumococcal Revaccinations

CDC guidelines[3] recommend pneumococcal revaccination once after 5 years only

to patients who:

1. Were under age 65 when they received the first vaccination or
2. Have other medical conditions (e.g., asplenia, chronic renal failure, nephrotic syndrome) that increase their risk.

Many practitioners favor revaccinating 5 years after the first vaccination regardless of the patient's age at the time; however, this practice goes beyond CDC recommendations and the clinical evidence. It is not required under F334. The medical director should participate in the decision to offer and carry out pneumococcal revaccinations. In reaching this decision, the facility may consider the preferences of medical staff or attending practitioners.

MANAGEMENT OF INFLUENZA CASES

The medical director should provide leadership in the implementation of influenza control practices beyond overseeing the vaccination program. Although a strong vaccination program is the first step in preventing influenza outbreaks, several other steps are critical to the successful control of influenza in the LTC setting. The medical director should do the following:

1. Provide guidance to nursing and medical staff on the management of influenza cases within the facility, including laboratory testing of index cases and information on the importance of prompt treatment.
2. Provide education on universal respiratory hygiene cough etiquette.
3. Ensure that a process exists for the medical director to be notified in a timely manner in accordance with facility policy when a case of influenza is confirmed in a patient or staff member.
4. Ensure that a process exists for tracking all cases of influenza-like illness within the facility.
5. Establish a process for determining when to implement outbreak control measures such as antiviral prophylaxis. Such measures should be coordinated with state and local health departments.
6. Be alert to reports of the identification of influenza isolates during the influenza season. An example of such reporting is the January 14, 2006, CDC *Health Alert* that recommended against the use of amantadine and rimantadine for the treatment or prophylaxis of influenza for the remainder of the 2005-2006 influenza season. According to the report, evidence indicated that a high proportion of circulating influenza A virus had developed resistance to amantadine and rimantadine.
7. Participate in the decision to post notices about influenza prevention or outbreak notification within the facility.

MANAGEMENT OF INFLUENZA OUTBREAKS

Before the Influenza Season

The medical director, in collaboration with other key facility staff should take the following steps:

1. *Prepare a comprehensive plan for patient and staff vaccination, surveillance, treatment, prophylaxis, and infection control.* The medical director and director of nursing should review the CDC's *Prevention and Control of Influenza:*

Recommendations of the Advisory Committee on Immunization Practices (ACIP), which is updated regularly and published on the CDC website (http://www.cdc.gov/mmwr/preview/mmwrhtml/rr55e628a1.htm), as well as resources from their state and local public health departments.

2. *Implement a high-profile influenza immunization campaign.* (See *Strategies and Resources for Overcoming Barriers to Immunization*, p. 11.) Send a detailed memo to practitioners that addresses influenza surveillance, treatment, prophylaxis, and infection control. (See Appendix 12 for a sample memo.) Consider distributing the CDC's VIS on influenza vaccine (available at available at www.cdc.gov/vaccines/Pubs/vis/default.htm#flu), which is updated annually, to all facility staff.

3. *Plan for antiviral use.* Discuss antiviral medication use with the consulting pharmacist(s). Adequate antiviral medications should be available for immediate prophylactic and treatment use at any time, including evenings and weekends during the influenza season.

Testing for Influenza

When influenza is present in the community, it is reasonable to test anyone who has new-onset respiratory symptoms with or without fever. LTC facilities that have aggressive testing programs may find the first or last influenza cases in the community.

Rapid antigen tests have limited sensitivity but excellent positive predictive value in the setting of an outbreak. A negative rapid antigen test must be followed by a more sensitive test when trying to detect the presence of influenza in a facility with an undefined respiratory illness. Viral cultures are widely used to follow up on rapid antigen tests but also have limited sensitivity and may take 7 to 14 days for results. The immunofluorescence direct fluorescence antibody assay is less widely available than viral culture but has a short turn-around time. Rapid viral culture techniques now allow presumptive diagnosis in 24 to 48 hours. Polymerase chain reaction testing, now considered the gold standard for testing, is more sensitive than viral culture but may be less widely available.

Medical directors should contact the laboratory their facility uses to find out which influenza tests the lab offers and the turnaround time for obtaining test results. Before the flu season begins, medical directors should ensure that the facility has adequate testing supplies and that the facility's nursing staff know how to collect nasopharyngeal specimens and order influenza tests.

It is especially important to identify initial cases and transmission of influenza A or B. Laboratory confirmation should be followed by specific treatment or prophylaxis with antiviral medication. New cases (in which transmission occurred before prophylactic drug levels were attained) may continue to appear for 2 to 3 days after prophylaxis begins.

Viral pathogens such as respiratory syncytial virus and parainfluenza virus may overlap with influenza infection or occur alone after influenza has resolved. Distinguishing these causes can prevent the unnecessary use of antiviral agents. It is therefore advisable to test for influenza to help to determine whether antiviral medication prophylaxis should continue, especially if influenza is no longer prevalent in the surrounding community.

When to Implement Outbreak Control Measures

An **outbreak**, according to the CDC, is "a sudden increase of acute febrile respiratory illness cases over the normal background rate or when any patient tests positive for influenza. One case of confirmed influenza, by any testing method, in a LTC facility patient is an outbreak."[66] The decision to initiate influenza prophylaxis in a LTC facility should optimally be made prior to the development of a full-blown clinical outbreak.[67] Ideally, begin antiviral prophylaxis within hours of receiving laboratory notification of a case of influenza (even on a weekend evening), within the context of a clinical outbreak of respiratory illness in the facility and/or an influenza outbreak in the community. When treating patients with influenza, clinical benefit is maximized when antivirals are begun within 48 hours of the appearance of symptoms. However, recent experience indicates that seriously ill hospitalized patients benefit even if treatment is delayed.[68,69]

Facilities should notify the local health department as soon as possible that an influenza outbreak has been confirmed in the facility in states that require notification.

Consult current CDC recommendations when choosing an antiviral prophylactic agent. It is important to monitor national susceptibility and resistance to antiviral medications available at http://www.cdc.gov/flu/professionals/antivirals/resistance-.htm. The CDC advises continuing antiviral prophylaxis for all patients, regardless of whether they received influenza vaccinations, for a minimum of 2 weeks or for 1 week after the onset of the last new case.[70] Depending on circumstances and the medical director's evaluation of the situation, it may be advisable to initiate chemoprophylaxis on a smaller scale, such as on the unit where the outbreak occurred.

Outbreak control measures entail medication and labor costs, adverse effects of medications, and lifestyle restrictions. For those reasons, one should consider limiting initial prophylaxis to the unit where the outbreak has occurred. Factors to consider include the pattern of new clinical respiratory illnesses within the facility, level of community influenza activity (a high level increases the likelihood of introduction by staff or visitors in multiple locations), quality of the match between the circulating and vaccine strain, and severity of influenza illness occurring in the surrounding community and nationally. Extend prophylaxis when clinical or laboratory evidence indicates viral spread. Day-by-day surveillance and discussions among the nursing and medical staff should guide decisions about how many units to cover and for how long.

Infection Control Precautions During an Outbreak

In addition to standard precautions, droplet precautions (Appendix 13) are appropriate in caring for patients who have suspected or confirmed influenza. For seasonal influenza, droplet precautions can be discontinued 5 days following onset of clinical illness.

Precautions for pandemic influenza may go beyond seasonal influenza. For example, for the 2009–2010 flu season, the CDC recommended the use of fitted N95 respirators, 7 days of isolation, and considering gastrointestinal secretions to be potentially infectious during the care of patients with suspected or confirmed H1N1.[71]

Table 6 lists additional infection control measures that are appropriate during an influenza outbreak.

Although isolation is difficult to achieve in LTC settings, caregivers should endeavor to the extent possible, to keep infected patients in their rooms and away from other patients. Cancel communal activities on influenza-affected units. The severity and spread of the outbreak may justify canceling communal activities throughout the entire facility for the duration of the outbreak. Because LTC facilities are social as well as health care environments, caregivers should balance infection control concerns with quality-of-life considerations.

During influenza season, post signs at entrances and throughout the facility asking visitors to stay home if they have new respiratory symptoms. Signs should also remind visitors, patients, and staff about hand hygiene and cough etiquette. If an outbreak is particularly severe or widespread, a complete ban on visitors for the duration of the outbreak may be appropriate.

TABLE 6. Appropriate Additional Infection Control Measures During an Influenza Outbreak

- Redouble the emphasis on:
  - Vaccination of staff and patients,
  - Hand hygiene, and
  - Respiratory hygiene and cough etiquette.
- Insist that sick staff members do not come to work.
- Limit staff floats to or from affected units.
- Post visual alerts at building entrances and on the doors to infected patients' rooms.
- Maintain a minimum 6-foot separation between an infected patient and other patients and visitors.
- Ensure that direct caregivers wear masks when working within 6 feet of an infected patient and that infected patients wear masks when they leave their rooms.
- Use curtains between beds in semiprivate rooms.

Declaring an Outbreak to Be Over

The CDC advises that an influenza outbreak should be considered to be over when, on the basis of daily monitoring of acute febrile respiratory illness, the facility has recorded no new cases for 1 week. States may issue their own guidance on when an influenza outbreak in a LTC facility may be declared over. Medical directors should be familiar with their state health department's guidance on this issue.

SUMMARY

- Influenza and pneumococcal disease are major preventable causes of morbidity and mortality among LTC patients.
- Key leadership in LTC facilities need to emphasize the importance of influenza and pneumococcal disease vaccines for all patients and for influenza vaccine for all staff.
- Facility medical directors play a key leadership role in providing medical and organizational guidance for increasing immunization rates among patients and staff.
- Federal regulations now require nursing homes to offer influenza vaccination to all patients for whom vaccination is not medically contraindicated. Detailed surveyor guidance has been published to implement these regulations.
- Procedures are now in place that use the MDS to monitor facilities' compliance with federal regulations.

- Where permitted by state law, federal regulations authorize the use of standing orders to facilitate immunization programs.
- Reimbursement rates and more efficient Medicare billing procedures provide additional incentives to providers to implement immunization programs in LTC settings.
- New federal recommendations encourage increasing immunization rates among LTC facility staff.
- LTC facilities must plan in advance for influenza outbreaks by having in place isolation procedures, mechanisms for rapid testing and confirmation by viral culture, and protocols for antiviral therapy, taking into account the levels of resistance detected in the strains circulating in the community and the United States.
- LTC facilities must have protocols in place to deal with vaccine shortages.

RESOURCES

Information, Publications, and Resource Materials from the U.S. Centers for Disease Control and Prevention

Additional Information About Vaccination of Specific Populations http://www.cdc.gov/flu/professionals/vaccination/hcw.htm

FLU.gov
http://www.flu.gov

Infection Control Measures for Preventing and Controlling Influenza Transmission in Long-Term Care Facilities: Guidelines and Recommendations
http://www.cdc.gov/flu/professionals/infectioncontrol/longtermcare.htm

Influenza and influenza vaccine
http://www.cdc.gov/flu/

Influenza information for health care professionals
http://www.cdc.gov/flu/professionals/

Go to this site for:

- Antiviral drug information
- Diagnostic testing options
- Infection control guidelines
- Influenza surveillance information
- Patient and provider educational materials
- Vaccination recommendations

Influenza and Influenza Vaccine Information for Healthcare Personnel
http://www.cdc.gov/ncidod/dhqp/id_influenza_vaccine.html

Influenza Vaccine Bulletins
http://www.cdc.gov/flu/professionals/flubulletin.htm

Pneumococcal Vaccination
http://www.cdc.gov/vaccines/vpd-vac/pneumo/default.htm

Seasonal Flu Vaccine: Questions & Answers
http://www.cdc.gov/flu/about/qa/fluvaccine.htm

Seasonal Influenza: Flu
http://www.cdc.gov/flu/professionals/patiented.htm

Vaccine Adverse Event Reporting System (VAERS)
http://www.cdc.gov/vaccinesafety/Activities/vaers.html

Vaccine Information Statements
http://www.cdc.gov/vaccines/pubs/vis/default.htm

Vaccine Safety and Adverse Events
http://www.cdc.gov/vaccines/vac-gen/safety/default.htm

Vaccines and Immunizations
http://www.cdc.gov/vaccines/pubs/default.htm

Other Federal Government Resources

Federal Register Notice: Final Rule–Medicare and Medicaid Programs; Conditions of Participation: Immunization Standards for Hospitals, Long-Term Care Facilities, and Home Health Agencies (42 CFR Parts 482, 483, and 484 [CMS–3160–FC])
http://www.cms.hhs.gov/quarterlyproviderupdates/downloads/CMS3160FC.pdf

Medicare Preventive Services Series Web-Based Training Courses
http://cms.meridianksi.com/kc/main/kc_frame.asp?kc_ident=kc0001&loc=5

National Vaccine Injury Compensation Program
http://www.hrsa.gov/vaccinecompensation/default.htm

Vaccine Adverse Event Reporting System (VAERS)
http://vaers.hhs.gov/
http://www.fda.gov/cber/vaers/vaers.htm

VAERS Table of Reportable Events Following Vaccination
http://vaers.hhs.gov/ resources/VAERS_RET.pdf

Other Sources of Information, Publications, and Resource Materials

Immunization Action Coalition
http://www.immunize.org
http://www.vaccineinformation.org/flu/index.asp

Sample standing order for annual influenza vaccination:
http://www.immunize.org/catg.d/p3074.pdf

Institute for Vaccine Safety, Johns Hopkins University Bloomberg School of Public Health
http://www.vaccinesafety.edu/

National Foundation for Infectious Diseases
http://www.nfid.org/

National Network for Immunization Information
http://www.immunizationinfo.org/

REFERENCES

1. Kretsinger K, Broder KR, Cortese MM, et al. Preventing tetanus, diphtheria, and pertussis among adults: Use of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine. MMWR 2006; 55(RR17): 1-33.

2. U.S. Centers for Disease Control and Prevention. Pneumococcal disease. In: Epidemiology and Prevention of Vaccine-Preventable Diseases (3rd edition). W. Atkinson, Wolfe C, Hamborsky J, McIntyre L, eds. 1996. Washington, DC: U.S. Department of Health and Human Services, Public Health Service, pp. 175-183.

3. U.S. Centers for Disease Control and Prevention. Prevention of pneumococcal disease: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Recomm Rep 1998; 46(RR-8): 1-24. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/00047135.htm. Accessed 11/02/09.

4. Fedson DS. Adult immunization: Summary of the National Vaccine Advisory Committee Report. JAMA 1994; 272: 1133-1137.

5. Poland GA, Tosh B, Jacobson RM. Requiring influenza vaccination for health care workers: Seven truths we must accept. Vaccine 2005; 23: 2251-2255.

6. Fiore AE, Shay DK, Broder K, et al. Prevention and control of seasonal influenza with vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2009. MMWR Recomm Rep 2009; 58(RR-8): 1-52.

7. Thompson WW, Shay DK, Weintraub E, et al. Mortality associated with influenza and respiratory syncytial virus in the United States. JAMA 2003; 289: 179-186.

8. Goodman R, Orenstein W, Munro T, et al. Impact of influenza A in a nursing home. JAMA 1982; 247(10): 1451-1453.

9. Horman JT, Stetler HC, Israel E, et al. An outbreak of influenza A in a nursing home. Am J Public Health 1986; 76(5): 501-504.

10. Morens D, Rash V. Lessons from a nursing home outbreak of influenza A. Infect Control Hosp Epidemiol 1995; 16(5): 275-280.

11. Simor A. Influenza outbreaks in long-term care facilities: How can we do better? Infect Control Hosp Epidemiol 2002; 23(10): 564-567.

12. Bradley SF, SHEA Long-Term-Care Committee. Prevention of influenza in long-term care facilities. Infect Control Hosp Epidemiol 1999; 20: 629-637.

13. Nourti J, Butler J, Crutcher J, et al. An outbreak of multidrug-resistant pneumococcal pneumonia and bacteremia among unvaccinated nursing home patients. NEJM 1998; 338: 1861-1868

14. U.S. Centers for Disease Control and Prevention. Outbreak of pneumococcal pneumonia among unvaccinated residents of a nursing home: New Jersey, April 2001. MMWR 2001; 50(33): 707-710.

15. Patriarca PA, Weber JA, Parker RA, et al. Efficacy of influenza vaccine in nursing homes. Reduction in illness and complications during an influenza A (H3N2) epidemic. JAMA 1985; 253: 1136-1139.

16. Arden NH, Patriarca PA, Kendal AP. Experiences in the use and efficacy of inactivated influenza vaccine in nursing homes. 1986: 155-168.

17. Monto AS, Hornbuckle K, Ohmit SE. Influenza vaccine effectiveness among elderly nursing home residents: A cohort study. Am J Epidemiol 2001; 154: 155-160.

18. 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): 1-6.

19. 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): 93-97.

20. Salgado C, Giannetta E, Hayden FG, Farr BM. Preventing nosocomial influenza by improving the vaccine acceptance rate of clinicians. Infect Control Hosp Epidemiol 2004; 25(11): 923-928.

21. Hayward AC, Harling R, Wetten S, et al. Effectiveness of an influenza vaccine programme for care home staff to prevent death, morbidity, and health service use among residents: Cluster randomised controlled trial. BMJ 2006; 333(7581): 1241-1246.

22. Shugarman LR, Hales C, Setodji CM, et al. The influence of staff and resident immunization rates on influenza-like illness outbreaks in nursing homes. J Am Med Dir Assoc 2006; 7(9): 562-567.

23. U.S. Centers for Disease Control and Prevention. Notice to readers: Facilitating influenza and pneumococcal vaccination through standing orders programs. MMWR 2003; 52(04): 68-69. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5204a4.htm. Accessed 12/04/09.

24. Walker F, Singleton J, Lu P, et al. Influenza vaccination of healthcare workers in the United States, 1989–2002. Infect Control Hosp Epidemiol 2006; 27(3): 257-265.

25. Pearson ML, Bridges CB, Harper SA. Influenza vaccination of health-care personnel: Recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Advisory Committee on Immunization Practices (ACIP). [Erratum appears in MMWR Recomm Rep. 2006 10; 55(9): 252]. MMWR Recomm Rep 2006; 55(RR-2): 1-16.

26. Talbot TR, Bradley SF, Cosgrove SE, et al. SHEA position paper: Influenza vaccination of healthcare workers and vaccine allocation for healthcare workers during vaccine shortages. Infect Control Hosp Epidemiol 2005; 26: 882-890.

27. U.S. Centers for Disease Control and Prevention. Prevention of herpes zoster. MMWR 2008; 57(RR-5): 1-30. Available at: http://www.cdc.gov/mmwr/PDF/rr/rr5705.pdf. Accessed 10/27/09.

28. Oxman MN, Levin MJ, Johnson GR, et al. A vaccine to prevent herpes zoster and postherpetic neuralgia in older adults. N Engl J Med 2005; 352: 3371-3384.

29. U.S. Centers for Disease Control and Prevention. Recommended adult immunization schedule—United States, 2009. MMWR 2008; 57(53): Q1-Q4.

30. Yeni P, Carbon C, Tremolieres F, Gilbert C. Serum levels of antibody to toxoid during tetanus and after specific immunisation of patients with tetanus. J Infect Dis 1982; 145: 278-282.

31. U.S. Centers for Disease Control and Prevention. Diphtheria, tetanus, and pertussis: Recommendations for vaccine use and other preventive measures. Recommendations of the Immunization Practices Advisory Committee (ACIP). MMWR Recomm Rep 1991; 40(RR-10): 1-28. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/00041645.htm. Accessed 11/02/09.

32. Bardenheier B, Prevots R, Khetsuriani N, Wharton M. Tetanus Surveillance—United States, 1995–1997. MMWR 1998; 47(SS-2): 1-13. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/00053713.htm. Accessed 11/02/09.

33. Kishimoto S, Tomino S, Mitsuya H, et al. Age-related decline in the in vitro and in vivo synthesis of anti-tetanus toxoid antibody in humans. J Immunol 1980; 125: 2347-2352.

34. Hagen-Coenen J, Drinka PJ, Siewert M. Tetanus-diphtheria vaccinations in a veterans nursing home. J Am Geriatr Soc 1992; 40(5): 513-514.

35. Addiss DG, Davis JP, Meade BD, et al. A pertussis outbreak in a Wisconsin nursing home. J Infect Dis 1991; 164: 704-710.

36. Immunization Action Coalition. Ask the Experts: Diptheria, Tetanus, Pertussis. 2009. Available at: http://www.immunize.org/askexperts/experts_tet.asp. Accessed 12/23/09.

37. Vellozzi C, Burwen DR, Dobardzic A, et al. Safety of trivalent inactivated influenza vaccines in adults: background for pandemic influenza vaccine safety monitoring. Vaccine 2009; 27(15): 2114-2120.

38. Kissam S, Gifford DR, Patry G, Bratzler DW. Is signed consent for influenza or pneumococcal vaccination required? Arch Intern Med 2004; 164(1): 13-16.

39. CMS State Operations Manual, Appendix PP—Guidance to Surveyors for Long Term Care Facilities.[note] Available at http://cms.hhs.gov/manuals/Downloads/som107ap_pp_guidelines_ltcf.pdf (last accessed January 5, 2010.)

40. Bratzler DW, Houck PM, Jiang H, et al. Failure to vaccinate Medicare inpatients: A missed opportunity. Arch Intern Med 2002; 162(20): 2349-2356.

41. Kramarz P, Ciancio B, Nicoll A. Seasonal and pandemic influenza vaccines for the elderly and other risk groups: a review of available data. Pol Arch Med Wewn 2009; 119(10): 654-9.

42. Barker WH, Borisute H, Cox C. A study of the impact of influenza on the functional status of frail older people. Arch Intern Med 1998; 158(6): 645-650.

43. U.S. Centers for Disease Control and Prevention. Question & Answers: Influenza and Influenza Vaccine Information for Healthcare Personnel. November 16, 2005. Available at: http://www.cdc.gov/ncidod/dhqp/id_influenza_vaccine.html. Accessed 11/02/09.

44. Immunization Action Coalition. Influenza Vaccine Questions and Answers. Available at: http://www.vaccineinformation.org/flu/qandavax.asp. Accessed 11/02/09.

45. Evans D, Cauchemez S, Hayden FG. "Prepandemic" immunization for novel influenza viruses, "swine flu" vaccine, Guillain-Barré syndrome, and the detection of rare severe adverse events. J Infect Dis 2009; 200(3): 321-328.

46. U.S. Centers for Disease Control and Prevention. Questions & Answers: Guillain Barré Syndrome (GBS). Updated Dec. 10, 2003. Available at: http://www.cdc.gov/flu/about/qa/gbs.htm Accessed 11/02/09.

47. Haber P, DeStefano F, Angulo FJ, et al. Guillain-Barré syndrome following influenza vaccination. JAMA 2004; 292(20): 2478-2481.

48. Tamma PD, Ault KA, del Rio C, et al. Safety of influenza vaccination during pregnancy. Am J Obstet Gynecol 2009; 201(6): 547-552. doi: 10.1016/j.ajog.2009.09.034

49. Heinonen OP, Shapiro S, Monson RR, et al. Immunization during pregnancy against poliomyelitis and influenza in relation to childhood malignancy. Int J Epidemiol 1973; 2: 229-235.

50. Heinonen OP, Slone D, Shapiro S. Immunizing agents. In: Kaufman DW, ed. Birth defects and drugs in pregnancy. Littleton, MA: Publishing Sciences Group; 1977: 314-321.

51. Zaman K, Roy E, Arifeen SE, et al. Effectiveness of maternal influenza immunization in mothers and infants. NEJM 2008; 359: 1555-1564. doi: 10.1056/NEJMoa0708630

52. Hviid A, Stellfeld M, Wohlfahrt J, Melbye M. Association between thimerosal-containing vaccine and autism. JAMA 2003;290(13):1763-1766.

53. Stehr-Green P, Tull P, Stellfeld M, et al. Autism and thimerosal-containing vaccines: lack of consistent evidence for an association. Am J Prev Med 2003; 25(2): 101-106.

54. Institute of Medicine, Immunization Safety Review Committee. Immunization Safety Review: Vaccines and Autism. Washington, DC: National Academies Press; 2004.

55. Lewis L. Studies: LTC staff still resist flu shots. Caring for the Ages. 2001; 2(9): 1, 16-18.

56. Targonski PV, Poland GA. Adult Immunizations. In Clinical Preventive Medicine, 2nd ed. Lang RS, Hensrud DD, ed. 2004. Chicago: American Medical Association, pp. 573-590.

57. Smith NM, Bresee JS, Shay DK, et al. Prevention and control of influenza: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2006; 55(Early Release): 1-41. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr55e628a1.htm. Accessed 11/02/09.

58. Polgreen P, Septimus E, Parry MF, et al. Relationship of influenza vaccination declination statements and influenza vaccination rates for healthcare workers in 22 US hospitals. Infect Control Hosp Epidemiol 2008; 29(7): 675-677.

59. Ribner B, Hall C, Steinberg JP, et al. Use of mandatory declination form in a program for influenza vaccination of healthcare workers. Infect Control Hosp Epidemiol 2008; 29(4): 302-308.

60. Lemaitre M, Meret T, Rothan-Tondeur M, et al. Effect on influenza vaccination of nursing home staff on mortality of residents: A cluster-randomized trial. J Am Geriatr Soc. 2009; 57(9): 1580-1586. Epub 2009 Aug 4.

61. National Foundation for Infectious Diseases. Call to Action: Influenza Immunization Among Health Care Workers. Available at: http://www.nfid.org/pdf/publications/calltoaction.pdf. Accessed 11/02/2009.

62. Stewart A, Cox M, Rosenbaum S. The Epidemiology of U.S. Immunization Law: Immunization Requirements for Staff and Residents of Long-Term Care Facilities Under State Laws/ Regulations. 2005. Washington, DC: George Washington University School of Public Health and Health Services, Department of Health Policy. (All materials developed under this initiative are available at: http://www.gwhealth-policy.edu)

63. Nichol KL, Lind A, Margolis KL, et al. The effectiveness of vaccination against influenza in healthy, working adults. N Engl J Med 1995; 333: 889-893.

64. Sand K, Lynn J, Bardenheier B, et al. Increasing influenza immunization for long-term care facility staff using quality improvement. J Am Geriatr Soc 2007; 55(11): 1741-1747.

65. Nace D, Hoffman E, Resnick NM, Handler SM.. Achieving and sustaining high rates of influenza immunization among long-term care staff. J Am Med Dir Assoc 2007; 8(2): 128-133.

66. U.S. Centers for Disease Control and Prevention. Guidelines and Recommendations: Infection Control Measures for Preventing and Controlling Influenza Transmission in Long-Term Care Facilities. Available at: http://www.cdc.gov/flu/professionals/infectioncontrol/longtermcare.htm. Accessed 12/04/09.

67. Drinka PJ. Experience with the rapid directigen test for influenza. J Am Med Dir Assoc 2006; 7 (1): 37-39.

68 McGeer A, Green KA, Plevneshi A, Shigayeva A, et al. Antiviral therapy and outcomes of influenza requiring hospitalization in Ontario, Canada. Clin Infect Dis 2007; 45(12): 1568-1575.

69 Ison MG. Influenza in hospitalized adults: Gaining insight into a significant problem. J Infect Dis 2009; 200(4): 485-488.

70. U.S. Centers for Disease Control and Prevention. CDC Health Alert: CDC recommends against the use of amantadine and rimantadine for the treatment or prophylaxis of influenza in the United States during the 2005–06 Influenza Season. January 14, 2006. Available at: http://www.cdc.gov/flu/han011406.htm. Accessed 11/02/09.

71. U.S. Centers for Disease Control and Prevention. Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare Settings, Including Protection of Healthcare Personnel. October 14, 2009. Available at: http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm. Accessed 10/23/09.

ADDITIONAL READING/BIBLIOGRAPHY

de Roux A, Schmoele-Thoma B, Siber GR, et al. Comparison of pneumococcal conjugate polysaccharide and free polysaccharide vaccines in elderly adults: Conjugate vaccine elicits improved antibacterial immune responses and immunological memory. Clin Infect Dis 2008; 46(7): 1015-1023.

Dinleyici EC, Yargic ZA. Current knowledge regarding the investigational 13-valent pneumococcal conjugate vaccine. Expert Rev Vaccines 2009; 8(8): 977-986.

Dransfield MT, Nahm MH, Han MK, et al. Superior immune response to protein-conjugate versus free pneumococcal polysaccharide vaccine in chronic obstructive pulmonary disease. Am J Respir Crit Care Med 2009; 180(6): 499-505.

Drinka PJ, Krause P, Nest L, et al. Delays in the application of outbreak control prophylaxis for influenza A in a nursing home. Infect Control Hosp Epidemiol. 2002; 23(10): 600-603.

Drinka PJ. Emergence of rimantadine-resistant virus within 6 days of starting rimantadine prophylaxis with oseltamivir treatment of symptomatic cases. J Am Geriatr Soc 2007; 55(6): 923-926.

Drinka PJ. Experience with the rapid directigen test for influenza. J Am Med Dir Assoc 2006; 7(1): 37-39. Epub 2005 Jul 22.

Fulop T, Pawelec G, Castle S, Loeb M. Immunosenescence and vaccination in nursing home residents. Clin Infect Dis 2009; 48(4): 443-448. Review.

Hak E, Sanders EA, Verheij TJ, et al. Rationale and design of CAPITA: A RCT of 13-valent conjugated pneumococcal vaccine efficacy among older adults. Neth J Med 2008; 66(9): 378-383.

Harper SA, Fukuda K, Uyeki TM, et al. Prevention and control of influenza: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2005; 54(RR08): 1-40. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5408a1.htm. Accessed 11/02/09.

Institute for Healthcare Improvement. How-to Guide: Improving Hand Hygiene—A Guide for Improving Practices Among Health Care Workers. Available at: http://www.shea-online.org/Assets/files/IHI_Hand_Hygiene.pdf. Accessed 11/02/09.

Jackson LA, Janoff EN. Pneumococcal vaccination of elderly adults: New paradigms for protection. Clin Infect Dis 2008; 47(10): 1328-1338.

O'Brien KL, Hochman M, Goldblatt D. Combined schedules of pneumococcal conjugate and polysaccharide vaccines: Is hyporesponsiveness an issue? Lancet Infect Dis 2007; 7(9): 597-606.

Schwarz TF, Flamaing J, Rumke HC, et al. Safety and immunogenicity of 13-valent pneumococcal conjugate vaccine given concomitantly with trivalent inactivated influenza vaccine in healthy adults. Poster presented at the 2nd Vaccine Global Congress, Boston; December 7-9, 2008.

Scott DA, Komjathy SF, Hu BT, et al. Phase 1 trial of a 13-valent pneumococcal conjugate vaccine in healthy adults. Vaccine 2007; 25: 6164-6166.

APPENDIX 1. Reimbursement and Medicare Billing Procedures

Medicare pays separate rates for the administration and cost of both the influenza and pneumococcal vaccines. (See http://www.cms.hhs.gov/AdultImmunizations/ 02_Providerresources.asp.)

Roster billing is now available to simplify the paperwork involved in obtaining Medicare reimbursement for the administration of influenza and pneumococcal vaccinations. (See Figure A1 for a sample roster billing form.)

FIGURE A-1. Sample Roster Billing Form for Administration of Pneumococcal and Flu Virus Vaccine

Provider name: _____ Provider number: _____

Date of service: _____

Patient's Medicare Number	Patient's Last Name	Patient's First Name	MI	Date of Birth

PAGE _____ OF _____ (Maximum of 3 pages)

Warning: Ask patient if he or she has been vaccinated with PPV.

- Rely on patient's memory to determine prior vaccination status.
- If patient is uncertain whether he or she has been vaccinated with PPV since age 65, administer the vaccine.

APPENDIX 2. Sample Immunization Checklist for New Admissions

(Keep in permanent section of resident's medical chart)

- Assume that all residents being admitted to the facility need to receive the pneumococcal vaccine, tetanus/diphtheria vaccine, and (if admission occurs between October 1 and March 31) influenza vaccine.
- If the resident being admitted has a vaccination record or verification from his or her personal physician that he or she has received the following vaccinations, enter that information here.
- If the resident being admitted has no vaccination record and/or the admitting practitioner is uncertain of his or her vaccination status, consider the person to be unvaccinated.

Resident name: _____

Date of admission: _____

---

1. Received pneumococcal vaccine? Yes ❑ (year_____) No ❑
   Confirmed by resident's personal physician? Yes ❑ No ❑

When evidence of vaccination is uncertain or missing, offer vaccination with appropriate counseling. Document reasons for nonvaccination below. Offer vaccination again at a later time.

2. Received tetanus-diphtheria toxoid during the past 10 years? Yes ❑ (approx. date _____) No ❑
   Provider (e.g., doctor's office, hospital) _____

3. Between October 1 and March 31:
   Received influenza vaccination for the current season? Yes ❑ (approx. date _____) No ❑
   Provider (e.g., community flu clinic, doctor's office) _____

Reasons why vaccinations were NOT administered at admission:

Pneumococcal vaccine
- ❑ Previously vaccinated
- ❑ Not indicated for vaccination per algorithm in ACIP recommendations
- ❑ Practitioner override:
  - ❑ Medically contraindicated
  - ❑ Condition Terminal
  - ❑ Other
- ❑ Patient refused

Influenza vaccine
- ❑ Previously vaccinated
- ❑ Practitioner override:
  - ❑ Medically contraindicated
  - ❑ Condition Terminal
  - ❑ Other
- ❑ Patient refused

NOTE: Immunosuppressive therapy is **not** a contraindication for either influenza or pneumococcal vaccination.

APPENDIX 3. Sample Resident Immunization Record

(Retain in permanent section of resident's medical chart)

Resident's name _____ Date of birth (mm/dd/yy) _____

Room number _____ Identification number_____

Vaccinations administered on admission

Type of Vaccine	Trade Name or Manufacturer	Date Received	Injection Site	Vaccine Lot Number	Adverse Reactions (0-72 hrs.)*	Administered by (Initial)
Influenza Vaccine						
Pneumococcal Vaccine						
Other (Specify)						

Vaccinations administered during residence in the facility

Immunizing Agent	Trade Name or Manufacturer	Date Received	Injection Site	Vaccine Lot	Adverse Reactions Number	Administered by (Initial) (0-72 hrs.)*
Pneumococcal						
Pneumococcal						
Influenza						
Influenza						
Influenza						
Other (Specify)						

* Codes to identify adverse reactions: s = swelling, e = erythema, m = myalgia, f = fever (temp in °F if > normal), a = anaphylaxis, o = other (specify).

Initials _____ Licensed practitioner's/nurse's name _____

Initials _____ Licensed practitioner's/nurse's name _____

Initials _____ Licensed practitioner's/nurse's name _____

Initials _____ Licensed practitioner's/nurse's name _____

Initials _____ Licensed practitioner's/nurse's name _____

APPENDIX 4. Sample Form for Active Declination of Influenza Vaccination for a Resident (or Responsible Party) of a Long-Term Care Facility

(Name of Facility) Influenza Immunization Program

I understand that as a result of living in a long-term care facility, I may be at risk of acquiring influenza infection. In addition, I may spread influenza to others, even if I have no symptoms. This can result in serious illness, particularly in persons at high risk for influenza complications.

I have received education about the safety and effectiveness of influenza vaccination. I acknowledge that I am aware of the following facts:

- Influenza is a serious respiratory disease that kills an average of 36,000 persons and hospitalizes more than 200,000 persons in the United States each year.
- Influenza vaccination is recommended for me to reduce the risk of contracting influenza disease and its complications, including death.
- If I become infected with influenza, even when my symptoms are mild, I can spread severe illness to others.
- I understand that the strains of virus that cause influenza infection change almost every year, which is why a different influenza vaccine is recommended each year.
- I cannot get the influenza disease from the influenza vaccine.
- The consequences of my refusing to be vaccinated could endanger my health and the health of those with whom I have contact.

I have also been given the opportunity to be vaccinated with influenza vaccine. **However, I decline** influenza vaccination at this time.

I understand that by declining this vaccine, I continue to be at risk of acquiring influenza. If in the future I wish to be vaccinated with influenza vaccine, I can receive the vaccine between October 1 and March 31.

Resident name: _____

Witness name: _____

Signature of resident (or responsible party):

_____

Witness signature: _____

Date: ____ / _____ / _____

APPENDIX 5. Summary of Long-Term Care Facility Immunization Laws for Employees[c]

The following chart details current state laws regarding mandatory vaccination for employees of long-term care facilities.

State	Law
AL	**Code of Ala. § 22-21-10. Flu and pneumonia vaccination program . . .** (a) As used in this section, the following words have the following meanings: . . . (2) Long term care facility. The term includes a skilled nursing facility, intermediate care facility, specialty care assisted living facility or dementia care facility, or an assisted living facility licensed under this chapter. (b) Each long term care facility in this state shall conduct an immunization program as provided in this section which gives residents the opportunity to be immunized annually against the influenza virus and to be immunized against pneumococcal disease and employees the opportunity to be immunized against influenza virus. (c) A long term care facility shall notify the resident upon admission of the immunization program provided by this section and shall request that the resident agree to be immunized against influenza virus and pneumococcal disease. (d) A long term care facility shall document the annual immunization against influenza virus and the immunization against pneumococcal disease for each resident and the annual immunization against influenza virus for each employee, as provided in this section. Upon finding that a resident is lacking the immunizations as provided herein or that an employee has not been immunized against influenza virus, or if the long term care facility is unable to verify that the individual has received the required immunizations, the long term care facility shall provide or arrange for immunization. (e) (1) The annual immunization and documentation program provided by this section for influenza shall be completed not later than November 30 of each year. (2) The annual immunization and documentation program provided by this section for pneumococcal disease shall be assessed within 5 days of admission and when indicated. (f) For an individual who becomes a resident of or who is newly employed by the long term care facility after November 30, but before March 30 of the following year, the long term care facility shall determine the individual's status for the influenza virus required under this section, and if found to be deficient, the long term care facility shall provide the required immunizations. (g) No individual, resident, or employee, shall be required to receive vaccine under this section if the vaccine is medically contraindicated, if the vaccine is against the individual's religious beliefs, or if the individual refuses the vaccine after being fully informed of the health risks of not being immunized. (h) The State Board of Health may adopt rules to implement the immunization provisions of this section. (i) The State Health Officer shall waive the requirements of this chapter in the event that there is a shortage of vaccine. (j) The State Board of Health shall make available to long term care facilities educational and informational materials pertaining to the vaccination program provided in this section.
AR	**A.C.A. § 20-10-1304. Implementation . . .** (b) Each nursing home facility in this state shall . . . (1) Obtain consent from residents or their legal guardians upon admission to participate in all immunization programs that are conducted within the facility while that person is a resident of that facility, and not in violation of the resident's right to refuse treatment; (2) As a condition of their employment, require all employees to participate in immunization programs conducted while they are employed at the facility, unless the employee meets the qualifications for exemptions as listed in §20-10-305; and (3) (A) Document and report annually immunizations against influenza virus for both residents and full-time and part-time employees. (B) Document and report annually immunizations against pneumococcal disease for residents. (d) The Department of Health shall provide vaccines, supplies, and staff necessary for the immunizations of nursing home residents and employees as provided for in this subchapter. **A.C.A. § 20-10-1305. Exemption . . .** All residents or full-time or part-time employees of nursing home facilities shall be immunized according to this subchapter with the following exemptions: (1) No individual shall be required to receive either an influenza virus vaccine or a pneumococcal pneumonia vaccine if the vaccine is medically contraindicated as described in the product labeling approved by the Food and Drug Administration; and (2) The provisions of this section shall not apply if the resident or legal guardian objects on the ground that the immunization conflicts with the religious tenets and practices of a recognized church or religious denomination of which the resident or guardian is an adherent or member.
FL	**Fla. Stat. § 400.141.** Administration and management of nursing home facilities . . . (24) Annually encourage and promote to its employ-

c From Association for Professionals in Infection Control and Epidemiology. Chart Detailing Current State Laws Regarding Mandatory Vaccination for Employees of Long-Term Care Facilities. n.d. Available at: http://www.apic.org/Content/NavigationMenu/GovernmentAdvocacy/IssuesInitiatives/Influenza/HealthcareWorkerImmunization/healthcareimmunize.htm. Accessed 12/23/09.

State	Law
	ees the benefits associated with immunizations against influenza viruses in accordance with the recommendations of the United States Centers for Disease Control and Prevention. The agency may adopt and enforce any rules necessary to comply with or implement this subsection.
KY	**K.R.S. § 209.552. Immunization against pneumococcal disease and influenza - Documentation - Immunization of employees . . .** (3) Every long-term care facility shall require each employee to be immunized against pneumococcal and influenza virus. Upon employment, the long-term care facility shall: (a) Notify the employee of the requirements of this section and request that the employee agree to be immunized against pneumococcal disease and influenza virus; (b) Assess the employee's immunization status for influenza virus and pneumococcal disease; (c) Counsel each employee on the risks of influenza and pneumococcal disease; the efficacy, side effects, and contraindications of these immunizations; and the recommendations of the Centers for Disease Control prior to administration of the vaccines; and (d) Provide or arrange for immunizations against pneumococcal and influenza in accordance with the recommendations of the Advisory Committee on Immunization Practices of the Centers for Disease Control, unless medically contraindicated, if the employee or long-term care facility does not have documentation of the appropriate immunizations. (4) Every long-term care facility shall document the annual immunization against influenza virus and pneumococcal immunization for each employee. Upon finding that an employee lacks either or these immunizations, the facility shall provide or arrange for immunization in accordance with the recommendations of the Advisory Committee on Immunization Practices of the Centers for Disease Control, unless medically contraindicated. (5) The provisions of this section shall not apply if: (a) The vaccine is medically contraindicated; (b) The employee, resident, or resident's legal guardian objects to the immunizations due to religious beliefs; or (c) The employee or resident refuses the vaccine after being fully informed of the health risks.
ME	**10-144 Department of Human Services; Bureau of Health; Chapter 264:** Immunization Requirements for Healthcare Workers This rule is issued pursuant to the statutory authority of the Department of Human Services to require immunization of the employees of designated health care facilities as set forth in 22 M.R.S.A. §802, as amended by P.L. 2001, Ch. 185. It prescribes the dosage for required immunizations and defines responsibilities, exclusion periods, record keeping and reporting requirements for officials of hospitals and healthcare facilities . . . [37] 2. Immunizations Required C. All Designated Healthcare Facilities shall adopt a policy that recommends and offers annual immunizations against influenza to all personnel who provide direct care to residents of the facility. D. No chief administrative officer may permit any employee to be in attendance at work without a certificate of immunization for each disease or other acceptable evidence of immunity to each disease, or documentation of exemption or declination. 3. Exceptions and Declinations. An employee who does not meet the immunization/immunity requirement may be permitted to attend work under the following conditions: A. The employee presents to the designated healthcare facility a physician's written statement that immunization against one of more of these diseases is medically inadvisable. If the statement does not include all diseases, the employee must meet the immunization/immunity requirements for any diseases not covered by the statement. B. The employee state in writing an opposition to immunization because of a sincere religious belief or for philosophical reasons. 4. Certification of Immunization and Proof of Immunity A. Certificate of Immunization. To demonstrate proper immunization against each disease, an employee shall present the designated healthcare facility with a Certificate of Immunization from a physician, nurse or health official who has administered the immunizing agent(s) to the employee. Physicians within their own practice may authorize their own employees to issue a certificate of immunization on behalf of the physician. The certificate shall specify the immunizing agent, and the date(s), including month and year, on which it was administered. Physicians, having reviewed official patient records created by another practitioner which indicate that a particular patient has received an immunization on a specified date, demonstrating at a minimum the month and year the immunization was given, may certify that the immunization was given. Adequately prepared secondary and/or collegiate school health records will also be considered acceptable for the purpose of meeting this requirement. B. Proof of Immunity. To demonstrate that an employee is immune to any of the diseases, the employee shall present the hospital/facility with laboratory evidence demonstrating immunity, or other acceptable evidence of immunity. (See 7-B Individual Health Records) . . .

State	Law
MD	**Md. Health-General Code Ann. § 18-404. Immunization against influenza virus and pneumococcal disease . . .** (d) New residents or employees. - - A related institution that accepts an individual as a new resident or accepts an individual as a new employee after December 1 but before April 1 shall: (1) Determine the individual's status for immunization as required under subsection (b) of this section; and (2) If necessary, provide or arrange for an immunization as required under subsection (b) of this section. (e) Circumstances under which vaccine is not required. - - A resident or employee is not required to receive a vaccine under this section if: (1) The vaccine is medically contraindicated for the resident or employee; (2) The vaccine is against the resident or employee's religious beliefs; or (3) After being fully informed by the related institution of the health risks associated with not receiving a vaccine, the resident or employee refuses the vaccine. (f) Documentation. - - (1) (i) Each related institution shall document the annual immunization against influenza virus and immunization against pneumococcal disease received by each resident in the resident's medical record.(ii) Each related institution shall document the annual immunization against influenza virus received by each employee in the employee's personnel file. (2) If a resident or employee refused to be immunized as required under subsection (b) of this section, the related institution shall document the refusal and the reason for the refusal. (g) Notification; educational and informational materials. - - Each related institution shall: (1) Notify each prospective resident of each prospective employee of the immunization requirements of this section and request that the resident or employee agree to be immunized in accordance with subsection (b) (3) of this section; and (2) Make available to all residents and employees of the related institution educational and informational materials relating to immunization against influenza virus and immunization against pneumococcal disease.
NH	**NH S.B. 438; 151:9-b Immunizations by Hospitals, Residential Care Facilities, Adult Day Care Facilities, and Assisted Living Facilities. . .** IV. Before November 30 of each year, each hospital, residential care facility, adult day care facility, and assisted living facility licensed under this chapter shall provide to its consenting employees annual immunizations against influenza, in accordance with the recommendations of the Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention, subject to the availability of an adequate supply of the necessary vaccine, and subject to exemptions for medical contraindications and religious beliefs. Consenting employees beginning employment between October 1 and February 1 shall be provided with immunization against influenza prior to or upon reporting to work, subject to the availability of an adequate supply of the necessary vaccine, and subject to exemptions for medical contraindications and religious beliefs. 2. Effective Date. This act shall take effect January 1, 2005.
NY	**NY CLS Pub Health § 2192. Long-term care resident and employee immunization required** Except as provided in section twenty-one hundred ninety-five of this article, every long-term care facility in this state shall require residents and employees to be immunized for influenza virus and pneumococcal disease in accordance with regulations of the commissioner. NY CLS Pub Health § 2194. Employee immunization . . . 1. Every long-term care facility shall notify every employee of the immunization requirements of this article and request that the employee agree to be immunized against influenza virus and pneumococcal disease. 2. The long-term care facility shall require documentation of annual immunization against influenza virus and immunization against pneumococcal disease for each employee. Upon finding that an employee is lacking such immunization or the long-term care facility or individual is unable to provide documentation that the individual has received the appropriate immunization, the long-term care facility must provide or arrange for immunization. Immunization and the documentation thereof shall take place no later than November thirtieth of each year. 3. An individual who is newly employed as an employee after November thirtieth but before April first shall have his or her status for influenza and pneumococcal immunization determined by the facility, and if found to be deficient, the facility shall provide or arrange for the necessary immunization. **NY CLS Pub Health § 2195.** Exceptions . . . No individual shall be required to receive either an influenza vaccine or pneumococcal vaccine if the vaccine is medically contraindicated, or if it is against his or her religious beliefs, or if he or she refuses the vaccine after being fully informed of the health risks of such action.
NC	**N.C. Gen. Stat. § 131D-9. Immunization of employees and residents of adult care homes . . .** (a) Except as provided in subsection (e) of this section, an adult care home licensed under this Article shall require residents and employees to be immunized annually against influenza virus and shall require residents to also be immunized against pneumococcal disease. (b1) An adult care home shall notify every employee of the immunization requirements of this section and shall

State	Law
	request that the employee agree to be immunized against the influenza virus. (c) An adult care home shall document the annual immunization against influenza virus and the immunization against pneumococcal disease for each resident and each employee, as required under this section. Upon finding that a resident is lacking one or both of these immunizations or that an employee has not been immunized against influenza virus, or if the adult care home is unable to verify that the individual has received the required immunization, the adult care home shall provide or arrange for immunization. The immunization and documentation required shall occur not later than November 30 of each year. (d) For an individual who becomes a resident of or who is newly employed by the adult care home after November 30 but before March 30 of the following year, the adult care home shall determine the individual's status for the immunizations required under this section, and if found to be deficient, the adult care home shall provide the immunization. (e) No individual shall be required to receive vaccine under this section if the vaccine is medically contraindicated, or if the vaccine is against the individual's religious beliefs, or if the individual refuses the vaccine after being fully informed of the health risks of not being immunized. (f) Notwithstanding any other provision of law to the contrary, the Health Services Commission shall have the authority to adopt rules to implement the immunization requirements of this section . . .
N.C.	**Gen. Stat. § 131E-113. Immunizations of employees and residents . . .** (a) Except as provided in subsection (e) of this subsection, a nursing home licensed under the Part shall require residents and employees to be immunized against influenza virus and shall require residents to also be immunized against pneumococcal disease. (b) Upon admission, a nursing home shall notify the resident of the immunization requirements of this section and shall request that the resident agree to be immunized against influenza virus and pneumococcal disease. (b1) A nursing home shall notify every employee of the immunization requirements of this section and shall request that the employee agree to be immunized against influenza virus. (c) A nursing home shall document the annual immunization against influenza virus and the immunization against pneumococcal disease for each resident and each employee, as required under this section. Upon finding that a resident is lacking one or both of these immunizations or that an employee has not been immunized against influenza virus, or if the nursing home is unable to verify that the individual has received the required immunization, the nursing home shall provide or arrange for immunization. The immunization and documentation required shall occur not later than November 30 of each year. (d) For an individual who becomes a resident of or who is newly employed by the nursing home after November 30 but before March 30 of the following year, the nursing home shall determine the individual's status for the immunizations required under this section, and if found to be deficient, the nursing home shall provide the immunization. (e) No individual shall be required to receive vaccine under this section if the vaccine is medically contraindicated, of if the vaccine is against the individual's religious beliefs, of if the individual refuses the vaccine after being fully informed of the health risks of not being immunized. (f) Notwithstanding any other provision of law to the contrary, the Health Services Commission shall have the authority to adopt rules to implement the immunization requirements of this section.
OK	**OKLA. ADMIN. CODE § 310:675-9-31 (2003); Influenza and pneumococcal vaccinations** (a) Each facility shall document evidence of the offering of annual vaccination against influenza for each resident and for each employee, in accordance with the Recommendations of the Advisory Committee on Immunization Practices for the Centers for Disease Control and Prevention most recent to the time of vaccination. (c) The immunization provided for in this section may be waived because of medical contraindication or may be refused.
OR	**ORS § 433.416. When employer to provide preventive immunization . . .** (1) An employer of a health care worker at risk of contracting an infectious disease in the course of employment shall provide the worker preventive immunization for infectious disease if such preventive immunization is available and is medically appropriate. (2) Such preventive immunization shall be provided by the employer at no cost to the worker. (3) A worker shall not be required as a condition of work to be immunized under this section, unless such immunization is otherwise required by federal or state law, rule, or regulation.
PA	**35 P.S. § 632.5. Employee immunization . . .** (a) Notice to Employees. - - Every facility shall notify every employee of the immunization requirements of this act and request that the employee agree to be immunized against influenza virus.

State	Law
	(b) Records and Immunizations. - - The facility shall require documentation of annual immunization against influenza virus for each employee, which includes written evidence from a health care provider indicating the date and location the vaccine was administered. These documents shall be maintained by the facility for not less than 18 months. Upon finding that an employee is lacking such immunization or the facility or individual is unable to provide documentation that the individual has received the appropriate immunization, the facility shall make available the immunization. The immunization and documentation shall take place in a manner consistent with the recommendations of the Centers for Disease Control and Prevention. (c) Immunization authorized. - - Nothing in this section shall prohibit the immunization against pneumococcal disease to employees.
RI	**R.I. Gen. Laws § 23-17.19-3. Long-term care resident and employee immunization . . .** Except as provided in §23-17.19-6, every facility in this state shall request that residents and employees be immunized for influenza virus and pneumococcal disease in accordance with this chapter. **R.I. Gen. Laws § 23-17.19-5. Employee immunization . . .** (a) Notice to employees. Every facility shall notify every employee of the immunization requirements of this chapter and request that the employee agree to be immunized against influenza virus. (b) Records and immunizations. The facility shall require documentation of annual immunization against influenza virus for each employee, which includes written evidence from a health care provider indicating the date and location the vaccine was administered. Upon finding that an employee is lacking the immunization, the facility shall make available the immunization. Immunization and the documentation of the immunization shall take place no later than November 30 of each year. (c) Other immunizations. An individual who is newly employed as an employee and after November 30 and prior to April 2 shall have his status for influenza determined by the facility, and if found to be deficient, the facility shall make available the necessary immunization. (d) Immunization authorized. Nothing in this section shall prohibit the immunization against pneumococcal disease to employees. **R.I. Gen. Laws § 23-17.19-6. Exceptions . . .** No resident or employee shall be required to receive either the influenza or pneumococcal vaccine if any of the following apply: (1) the vaccine is contraindicated; (2) It is against his or her religious beliefs; or (3) The resident or the resident's legal guardian refuses the vaccine after being fully informed of the health risks of that action.
TX	**Tex. Health & Safety Code § 161.0051. Required Immunizations for Nursing Homes . . .** (b) The board by rule may require nursing homes to offer, in accordance with an immunization schedule adopted by the board, immunizations to elderly residents or staff who are in contact with elderly residents against diseases that the board determines to be: (1) caused by infectious agents; (2) potentially deadly; and (3) preventable by vaccine. (c) The board by rule shall require nursing homes to offer, in accordance with an immunization schedule adopted by the board: (1) pneumococcal vaccine to elderly residents; and (2) influenza vaccine to elderly residents and to staff who are in contact with elderly residents. **5 T.A.C. § 97.202. Required Immunizations . . .** (a) Nursing homes are required to offer in accordance with an immunization schedule adopted by the Texas Department of Health. (2) Influenza vaccinations for residents and employees. The facility must offer influenza vaccination to residents and employees in contact with residents. Vaccination must be completed unless the vaccine is medically contraindicated by a physician or unless the employee or resident has refused the vaccine. (A) Influenza vaccination for all residents and employees must be completed by November 30 of each year. Employees hired or residents admitted after this date and during the influenza season (through February of each year) must receive influenza vaccinations unless medically contraindicated by a physician or unless the employee or resident has refused the vaccine. (B) Vaccine administration must be in accordance with the recommendations of the Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention at the time of the most recent vaccination. (b) Documentation of receipt or refusal of vaccinations. Immunization records will be maintained for each employee in contact with residents and will show the date of the receipt or refusal of each annual influenza vaccination. The medical record for each resident will show the date of the receipt or refusal of the annual influenza vaccination and the pneumococcal vaccine. **40 TAC § 19.1601. Infection Control . . .** (B) Influenza vaccinations for residents and employees. The facility must offer influenza vaccine to residents and employees in contact with residents, unless the vaccine is medically contraindicated by a physician or the employee or resident has refused the vaccine. (i) Influenza vaccination for all residents and employees in contact with resi-

State	Law
	dents must be completed by November 30 of each year. Employees hired or residents admitted after this date and during the influenza season (through February of each year) must receive influenza vaccinations, unless medically contraindicated by a physician or the employee or resident refuses the vaccine. (ii) Vaccine administration must be in accordance with the recommendations of the Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention at the time of the most recent vaccination. (C) Documentation of receipt or refusal of vaccination. Immunization records must be maintained for each employee in contact with residents and must show the date of the receipt or refusal of each annual influenza vaccination. The medical record for each resident must show the date of the receipt or refusal of the annual influenza vaccination and the pneumococcal vaccine.
UT	**R432-40-4. Policy and Procedures . . .** Each long-term health care facility shall implement written policies and procedures that include: (1) a comprehensive assessment and immunization program for residents and employees; (2) how and when to provide the influenza and pneumococcal immunizations; (3) standing orders from a qualified health care practitioner to ensure residents obtain influenza and pneumococcal immunizations; and (4) collection and recording of resident-specific immunization history information for each resident admitted to the facility **R432-40-5. Immunization Offer and Exemptions . . .** (1) Each long-term health care facility shall make available to all employees an influenza immunization during the recommended vaccine season. The facility shall be deemed to have made influenza immunization available if the facility document that each employee on staff had the opportunity to receive an influenza immunization under their existing health plan coverage. If the employee does not have health plan coverage for influenza immunization, then the facility shall be deemed to have made influenza immunization available if the facility documents that each employee on staff had the opportunity to receive an influenza immunization at a cost to the employee that is at or below that charged by their local health department. (2) Each long-term health care facility shall documents circumstances beyond its control that prevent it from providing immunizations, such as non-availability of vaccine. If the facility is unable to obtain the necessary vaccines, it shall provide documentation and request an alternative plan from the local health department or Utah Department of Health. (3) The following are exempt from influenza and pneumococcal immunizations: (a) a resident, or the resident's responsible person if the resident is unable to act for himself, who has refused the immunization(s) after haven been given the opportunity to be immunized; and (b) an employee who has refused the immunization(s) after having been given the opportunity to be immunized; (c) a resident or employee who has a condition contraindicated for immunization according to the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practice (ACIP) recommendations for influenza vaccine or for pneumococcal vaccine. (2) For each resident and employees who is not immunized, the facility shall document in the resident's or employees respective files the reason for not becoming immunized. The long-term care facility shall annually make influenza and pneumococcal immunizations available to all residents and employees who have claimed an exemption. The long-term care facility shall document each refusal to receive and medical contraindication to influenza and pneumococcal immunizations.

APPENDIX 6. Influenza Vaccination for Health Care Workers: Summary Recommendations of the Society for Healthcare Epidemiology of America

1. For the safety of health care workers and patients, all health care workers should receive influenza vaccine annually unless they have a contraindication to the vaccine or actively decline vaccination.
2. All health care facilities should provide annual multi-faceted programs to actively promote vaccination of health care workers.
3. Influenza vaccination programs should contain the following elements:
    a. Targeted education about the severity of influenza illness, particularly in high-risk patients.
    b. Targeted education about vaccine efficacy and safety as well as dispelling of vaccine myths.
    c. Administrative support and leadership.
    d. Provision of vaccine at no cost to health care workers.
    e. Improved access to vaccine (e.g., via mobile carts and off-hours clinics).
    f. Active declination policy for health care workers who do not want or cannot receive influenza vaccine.
4. All health care facilities should accurately track and record health care worker vaccination rates, including vaccinations obtained outside of the formal facility program, to assess the effectiveness of the vaccine program. This data should include compliance for individual health care workers and unit-specific rates.
2. Each facility should have a surveillance system for health care–associated influenza to assess the impact of their vaccination program.

Source: Talbot et al.[26]

APPENDIX 7. Sample Policy and Procedure Document for an Employee Immunization Program

Policy

An employee immunization evaluation will be conducted as part of the pre-employment physical examination and pre- and post exposure to infectious disease in the facility. An optional immunization program will be available to all staff.

Guidelines

1. All employees will be evaluated upon hire for documented record of vaccination against or clinical presence of the following diseases:
    - Chickenpox
    - Hepatitis B
    - Measles
    - Mumps
    - Rubella
    - Tetanus-diphtheria
    - Tuberculosis
    - Polio
2. Employees who are HIV positive may be exempt from some or all routine immunization mandates as their condition dictates.
3. Inquiries concerning Employee Assessment and Immunization should be referred to the Infection Control Surveillance Officer.
4. The facility's Infection Control Surveillance Officer or designee will administer hepatitis B and influenza vaccines, and tetanus-diphtheria prophylaxis only.
5. Immunization required for pre- and post-exposure to infectious disease in the facility will be determined by the facility's medical director and provided by the employee's personal physician.
6. The administrator and medical director reserve the right to evaluate the appropriateness of immunizations offered to individual employees. This evaluation will be based on:
    - The employee's risk of exposure in a given geographical area,
    - The duties and direct contact with residents the employee will have, and
    - The characteristics of the resident population and the level of care provided in the facility.

Hepatitis B Virus

1. All personnel will have documented training in epidemiology, modes of transmission, prevention, and availability of an effective vaccine to prevent hepatitis B virus (HBV).
2. Employees at substantial risk of exposure to direct contact with blood or body fluids containing blood in the course of their duties must be offered the opportunity to be immunized with HBV vaccine, as required by OSHA's Occupational Exposure to Bloodborne Pathogens Standard.

Influenza

1. All employees should be offered annual, optional immunization with a vaccine based on currently circulating viral strains as identified by the U.S. Centers for Disease Control and Prevention. Influenza vaccine is particularly recommended for people with a history of chronic cardiac, metabolic, pulmonary, or renal disease.
2. Influenza vaccination is recommended for all personnel. Studies indicate that a high rate of influenza immunization among nursing facility staff reduces the introduction of or helps to limit the spread of influenza within the facility. It will also decrease staff absenteeism during an influenza outbreak.
3. In the case of a confirmed influenza A epidemic, the medical director may consider prophylaxis with oseltamivir or zanamivir for 5 days in nonvaccinated or newly vaccinated personnel, unless medically contraindicated. CDC recommends against the use of adamantanes because of increasing microbial resistance to this class of agents. (Smith et al.[57])

Tetanus-Diphtheria Toxoid

Routine immunization. An employee who has never completed the primary series will be encouraged to do so. A booster dose every 10 years is recommended for employees with a history of primary immunization.

Prophylaxis. The need for prophylaxis is determined on the basis of assessment of an occupationally related wound or injury (clean or contaminated) and the immunization status of the injured person. Evidence shows that protective levels of antibodies persist for at least 5 years after the primary series of 4 doses of tetanus toxoid.

INJURY	IMMUNIZATION HISTORY	RECOMMENDATION
Minor, uncontaminated wound	> 10 y since primary series or booster	Booster dose Td
Contaminated, open, or penetrating wound	> 5 y since primary series or booster	Booster dose Td

APPENDIX 8. Sample Form for Active Declination of Influenza Vaccination by a Health Care Worker

(Name of Facility) Employee Influenza Immunization Program

I understand that as a result of my occupational exposure, I may be at risk of acquiring influenza infection. In addition, I may spread influenza to my patients, other health care workers, and my family, even if I have no symptoms. This can result in serious illness, particularly in persons at high risk for influenza complications.

I have received education about the safety and effectiveness of influenza vaccination. I acknowledge that I am aware of the following facts:

- Influenza is a serious respiratory disease that kills an average of 36,000 persons and hospitalizes more than 200,000 persons in the United States each year.
- Influenza vaccination is recommended for me to reduce the risk of contracting influenza disease and its complications, including death.
- If I become infected with influenza, even when my symptoms are mild, I can spread severe illness to others.
- I understand that the strains of virus that cause influenza infection change almost every year, which is why a different influenza vaccine is recommended each year.
- I cannot get the influenza disease from the influenza vaccine.
- The consequences of my refusing to be vaccinated could endanger my health and the health of those with whom I have contact.

I have also been given the opportunity to be vaccinated with influenza vaccine at no charge to myself. **However, I decline influenza vaccination at this time for the following reason**

_____

_____

_____

I understand that by declining this vaccine, I continue to be at risk of acquiring influenza, potentially resulting in transmission to my patients. If in the future I wish to be vaccinated with influenza vaccine, I can receive the vaccine at no charge to me between October 1 and March 31.

Employee Name: _____ Witness Name: _____

Employee Signature: _____ Witness Signature: _____

Date: _____

APPENDIX 9. Universal Transfer Form

AMDA has developed and recommends the use of the Universal Transfer Form (UTF) to facilitate the transfer of necessary patient information from one care setting to another. Patient transfers are fraught with the potential for errors stemming from the inaccurate or incomplete transfer of patient information. Use of the UTF can help to minimize the occurrence of such errors by ensuring that patient information is transmitted fully and in a timely fashion.

Patient's name:_____ Patient Identifier #2: _____

Setting discharged from:_____

Setting discharged to: _____

Attending physician in setting discharged from: _____

Planned discharge date: _____

Admission date: / / Discharge date: / /

A. Admitting diagnosis:

_____

B. Other diagnoses from this admission:

1. _____ 4. _____
2. _____ 5. _____
3. _____ 6. _____

C. Current diagnoses prior to admission:

1. _____ 4. _____
2. _____ 5. _____
3. _____ 6. _____

D. Surgical procedures and endoscopies during admission (include name of physician who performed the procedure)
None ❑

1. _____ Date/results _____ (may attach)
2. _____ Date/results _____ (may attach)
3. _____ Date/results _____ (may attach)

E. Laboratory values; please record the latest results

WBC	/ /	_____	BUN	/ /	_____
Hgb	/ /	_____	Creatinine	/ /	_____
Na+	/ /	_____	Other	/ /	_____
K+	/ /	_____			
Fasting glucose	/ /	_____			

F. Results and dates of pertinent studies (radiology, CT, MRI, nuclear scans, etc.) (may attach)

1. _____
2. _____
3. _____

Chest X-ray: Date performed:_____ Results: No active disease:_____

Or description if abnormal:_____

G. Allergies:

Medication: _____ Reaction: _____

Medication: _____ Reaction: _____

Foods: _____ Reaction: _____

Other: _____ Reaction: _____

H. Admission weight: _____; Discharge weight: _____

I. Advance Directives:

	Yes	No
CPR	❑	❑
PEG tube feeding	❑	❑
Further hospitalization	❑	❑

Other: _____

(Attach copies)

J. Has patient had a recent fall? Yes ❑ No ❑ Is patient at risk for wandering? Yes ❑ No ❑

K. Comments on inpatient course: (may attach summary)

_____

_____

_____

_____

_____

_____

L. Is the patient aware of his/her diagnosis(es)? Yes ❑ No ❑

If No, why not? _____

M. Patient's cognitive status for decision making:

❑ Independent ❑ Modified independence (some difficulty in new situations)

❑ Moderately impaired (decisions poor) ❑ Severely impaired (never/rarely makes decisions)

N. Is the patient a candidate for rehabilitation therapy? Yes ❑ No ❑

If yes, state goals for rehabilitation:

_____

_____

_____

O. Discharge medication orders:

1. _____ Rationale: _____

Dose _____ Route _____ Frequency _____

2. _____ Rationale: _____

Dose _____ Route _____ Frequency _____

3. _____ Rationale: _____

Dose _____ Route _____ Frequency _____

4. _____ Rationale: _____

Dose _____ Route _____ Frequency _____

5. _____ Rationale: _____

Dose _____ Route _____ Frequency _____

6. _____ Rationale: _____

Dose _____ Route _____ Frequency _____

7. _____ Rationale: _____

Dose _____ Route _____ Frequency _____

8. _____ Rationale: _____

Dose _____ Route _____ Frequency _____

9. _____ Rationale: _____

Dose _____ Route _____ Frequency _____

10. _____ Rationale: _____

Dose _____ Route _____ Frequency _____

P Is patient on antibiotics? Yes ❑ No ❑

Reason for antibiotic: _____

Antibiotic stop date: _____

Q. Diet: _____

R. Immunizations: Influenza: ____ Date PPD: ____ Results ____ Date ____ Pneumovax: ____Date TD : ____ Date
+/_

S. Additional orders:

_____

_____

_____

T. Follow-up on consults/tests/procedures recommended:

_____

_____

_____

U. Is patient legally competent? Yes ❑ No ❑

If no, name of legally appointed decision maker: _____

If yes, but has a decision maker, name of decision maker: _____

Name of physician/designee completing form: _____

Contact phone number: ( ) _____–_____ Extension or beeper: _____

Date form completed: / /

Name of Primary Care Physician _____

Contact phone number: ( ) _____–_____ Extension or beeper: _____

APPENDIX 10. Sample Policy and Procedure Document for an Influenza Immunization Program

I. Policy: To provide a high level of protection against flu for all residents and staff by reducing the population at risk.

II. Responsibility

A. It is the responsibility of the Director of Nursing, or her designee, to inform residents of the availability of immunization and ascertain their desire to receive it. A family member or legal guardian may give permission when the resident is unable to make the decision.
B. It is the responsibility of the charge nurse or designee to review the medical record of each resident for a physician order (may be standing) to initiate the immunization process.
C. It is the responsibility of the pharmacy to provide the vaccine.
D. Residents or their responsible party and staff will be provided with educational materials about the benefits and potential side effects of the flu vaccine immunization (U.S. Centers for Disease Control and Prevention [CDC] Vaccine Information Statements). The provision of these materials will be documented in each resident's clinical record and in each staff member's confidential medical file.
E. If the attending physician chooses not to order the vaccine for a resident because it is medically contraindicated, this decision will be documented in the resident's clinical record.
F. If a resident or his or her responsible party or staff declines the vaccine, the reason for declination will be documented in the resident's clinical record or the staff member's confidential medical file.

III. Procedure

A. Permission to provide flu vaccine on an annual basis will be requested upon admission to the facility as recommended by the CDC and federal regulations.
B. Flu vaccine is offered between October 1 and March 31 unless CDC, the Department of Health, or the Medical Director indicates a deviation from this recommended time period.
C. If a resident or staff member is exhibiting signs of respiratory infection such as sore throat, rhinitis, cough, or fever or is receiving antibiotics, administration of the vaccine will be postponed until the infection is resolved. Resolution is considered to have occurred 5 days after all symptoms have ceased or course of antibiotics is stopped.
D. The temperature of each resident and staff member will be obtained and recorded in his or her clinical record or confidential medical file before the administration of the vaccine.
E. The site of administration and the lot number of the vial also will be recorded in each resident's clinical record and staff member's confidential medical file.

Residents' reaction to the vaccination must be reported to the attending practitioner and documented in their clinical record. Staff members' reaction to vaccination must be reported to their attending practitioner and documented in their confidential medical file.

APPENDIX 11. Sample Policy and Procedure Document for a Pneumococcal Immunization Program

I. Policy

A. To provide a high level of protection against pneumococcal disease for all residents by reducing the population at risk.
B. To address the fact that the resident population has a significantly increased incidence and severity of pneumococcal disease.

II. Procedure for Residents

A. Upon admission to the facility, residents will be offered the pneumococcal vaccine as recommended by the CDC and federal regulations.
B. An active physician's standing order will appear on each resident's chart to initiate the immunization process. Any resident who has never received the pneumococcal vaccine will be considered a candidate for vaccination. If a resident received the pneumococcal vaccine more than 5 years ago, nursing staff will contact the attending practitioner, who may wish to order a one-time booster vaccination.
C. The pharmacy will provide the vaccine.
D. Residents or their responsible parties will be provided with educational materials about the benefits and potential side effects of the pneumococcal vaccine immunization (U.S. Centers for Disease Control and Prevention [CDC] Vaccine Information Statements). The provision of these materials will be documented in each resident's chart.
E. If a resident or his or her responsible party refuses the vaccine, the reason for refusal will be documented in the resident's chart. If the attending physician chooses not to order the vaccine because it is medically contraindicated, this decision will also be documented in the resident's chart.
F. If a resident is exhibiting signs of respiratory infection (e.g., sore throat, rhinitis, cough, fever) or is receiving antibiotics, administration of the vaccine will be postponed.
G. The resident's temperature will be obtained and recorded in his or her clinical record at the time of vaccine administration.
H. The site of administration and the lot number of the vial will be recorded in the resident's clinical record.
I. Any reaction to the inoculation must be reported to the attending practitioner and documented in the resident's progress notes.

APPENDIX 12. Sample "Flu Season" Memo to Practitioners

MEMO TO: All practitioners

SUBJECT: Influenza prevention and control

[Facility] usually gets its first cases of influenza in late December or early January, but there have been sporadic reports of influenza across the nation. The flu could arrive here at any time. Because research studies continue to focus on the central role of staff in importing and transmitting influenza within nursing facilities, we are emphasizing the importance of staff vaccinations. ***Please encourage your colleagues to get flu shots.*** Please also prepare lists of residents with contraindications to [*antiviral*] (see item 4 below).

1. **Influenza vaccination.** Please continue efforts to vaccinate your residents and encourage all clinical staff and volunteers to get flu vaccinations. Unvaccinated residents and staff put others at risk.

2. **Testing.** Please do the [*rapid test, follow-up test*] on residents who have acute respiratory illness (with symptoms such as cough, sore throat, runny nose).
   - The collection procedure [*is...*].
   - Refrigerate the specimen if there is a delay between collection and transportation to [*the laboratory*].
   - Check [_____ and _____] on the order form.
   - The tests are done in *[the laboratory*] each day from [_____ to _____]. The turn-around time is usually [_____ hours].
   - The laboratory will [*call positives to...*].
   - We will continue surveillance throughout the flu season.

3. **Treatment for residents with influenza confirmed by [*rapid test*].** If treatment can be started within 36 hours of symptom onset, please treat the resident as follows: [oseltamivir or zanamivir—the following example uses oseltamivir]
   Oseltamivir 75 mg PO BID, preferably with food, for 5 days.
   For residents with CrCl 10–30, reduce dose to 75 mg QD.
   For residents with CrCl <10, give one 75 mg dose only.

   Adverse reactions (primarily mild and transient gastrointestinal symptoms and headache) occur in about 15% of treated patients. Tolerance appears to be better when the medication is taken with food.

   Treatment with oseltamivir is permitted ***only*** for residents with influenza confirmed by [*rapid test*] and ***only*** if treatment can be started 36 to 48 hours of the onset of symptoms. ***If treatment cannot be started within 48 hours, do not give antiviral treatment.***

4. **Unit-based [or facility-wide] antiviral prophylaxis.** If there is a confirmed case of influenza on one of your units, please treat the affected resident as above. Give all other residents on the unit [*antiviral, dose*] for 2 weeks except when contraindicated or when the resident has had a prior adverse reaction to the medication. We [*will/will not*] use preprinted orders.

   Please compile a list of residents on each unit who should not receive antiviral prophylaxis because of a contraindication or prior adverse reaction [*using the attached form*]. Ensure that this list is available at all times.

5. **Continued surveillance.** Please continue to do the [*rapid test*] on residents with acute respiratory illness throughout the flu season. If flu recurs on a unit previously given [*antiviral*], we will consider extending prophylaxis or beginning a new 2-week course.

6. **Infection control.** Please focus on preventing the splattering and smearing of respiratory secretions into the environment. Because cohorting and placement of infected residents in a private room are often not possible, concentrate on keeping infected residents at least 3 feet from others. If possible, get infected residents to wash their hands before they venture into contact with others. Consider whether the resident might wear a mask when near others. Staff should consider wearing a mask when working within 3 feet of residents with flu. Continue to use standard precautions for the care of all residents. Wear gloves when direct contact with respiratory secretions is likely and remove gloves immediately after contact. ***Most important, wash hands after each resident contact.***

APPENDIX 13. Guidelines for the Use of Droplet Precautions

(Excerpted from CDC Guideline for Isolation Precautions in Hospitals*)

Background

Droplet Precautions are designed to reduce the risk of droplet transmission of infectious agents. Droplet transmission involves contact of the conjunctivae or the mucous membranes of the nose or mouth of a susceptible person with large-particle droplets (larger than 5 μm in size) containing microorganisms generated from a person who has a clinical disease or who is a carrier of the microorganism. Droplets are generated from the source person primarily during coughing, sneezing, or talking and during the performance of certain procedures such as suctioning and bronchoscopy. Transmission via large-particle droplets requires close contact between source and recipient persons, because droplets do not remain suspended in the air and generally travel only short distances, usually 3 ft or less, through the air. Because droplets do not remain suspended in the air, special air handling and ventilation are not required to prevent droplet transmission. Droplet Precautions apply to any patient known or suspected to be infected with epidemiologically important pathogens that can be transmitted by infectious droplets. Infectious agents for which Droplet Precautions are indicated include pertussis, influenza virus, adenovirus, rhinovirus, N. meningitides, and group A streptococcus (for the first 24 hours of antimicrobial therapy).

IV. Droplet Precautions

In addition to Standard Precautions, use Droplet Precautions or the equivalent for a patient known or suspected to be infected with microorganisms transmitted by droplets (large-particle droplets [larger than 5 μm in size] that can be generated by the patient during coughing, sneezing, talking, or the performance of procedures). *Category IB*

In addition to Standard Precautions, use Droplet Precautions or the equivalent for a patient known or suspected to be infected with microorganisms transmitted by droplets (large-particle droplets [larger than 5 μm in size] that can be generated by the patient during coughing, sneezing, talking, or the performance of procedures). *Category IB*

A. Patient Placement

Place the patient in a private room. When a private room is not available, place the patient in a room with a patient(s) who has active infection with the same microorganism but with no other infection (cohorting). When a private room is not available and cohorting is not achievable, maintain spatial separation of at least 3 ft between the infected patient and other patients and visitors. Special air handling and ventilation are not necessary, and the door may remain open. *Category IB*

B. Mask

Healthcare personnel wear a mask (a respirator is not necessary) for close contact with infectious patient; the mask is generally donned upon room entry. In addition to wearing a mask as outlined under Standard Precautions, wear a mask when working within 3 ft of the patient. *Category IB*

C. Patient Transport

Limit the movement and transport of the patient from the room to essential purposes only. If transport or movement is necessary, minimize patient dispersal of droplets by masking the patient, if possible. *Category IB*

* Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee. Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. Atlanta, GA: U.S. Centers for Disease Control and Prevention; 2007. Available at: http://www.cdc.gov/ncidod/dhqp/gl_isolation.html. Accessed 1/21/10.