**Key Recommendations**

- **Vaccinate all residents against influenza every year.** Begin vaccinating as soon as vaccine is available.

**New!**
- New considerations for vaccination of persons with non-severe egg allergies (hives only). See p. 3).
- Use only oseltamivir or zanamivir for the treatment and prophylaxis of influenza.

**New!**
- **Pneumococcal Vaccine:** Everyone 65 years of age and older should receive a dose of PPV23, unless they have received 2 doses of PPV23 before age 65. People aged 2 – 64 years with certain chronic medical conditions, people with immunocompromising conditions and people aged 19 – 64 years who smoke or who have asthma are also at risk. Administer a dose of pneumococcal vaccine to everyone in these groups who has not been previously vaccinated.

- The Centers for Medicaid and Medicare Services (CMS) require nursing homes to offer all residents flu and pneumococcal vaccines. Vaccinate residents unless contraindicated, the resident or legal representative refuses or there is a vaccine shortage. [www.cms.hhs.gov/NursingHomeQualityInits/downloads/NHQIVaccinationSupplement.pdf](http://www.cms.hhs.gov/NursingHomeQualityInits/downloads/NHQIVaccinationSupplement.pdf)

**Massachusetts Regulation Requires LTC Facilities to offer Flu Vaccine to Employees**

Influenza is often introduced into and spread throughout a facility by staff or visitors. Flu vaccine may be less effective in the very elderly and some vaccinated LTC residents may remain susceptible. It is important to reduce their exposure to flu. HCP vaccination reduces mortality in elderly patients.

Regulation [105 CMR 150.002(D)(8)] requires LTC facilities to provide information about the risks and benefits of flu vaccine and flu vaccine at no cost to all employees. (MDPH Circular Letter: DHCQ 06-11-468 at [www.mass.gov/Eeohhs2/docs/dph/quality/hcq_circular_letters/ltc_facilities_0611468.pdf](http://www.mass.gov/Eeohhs2/docs/dph/quality/hcq_circular_letters/ltc_facilities_0611468.pdf).)

Flu vaccination of health care workers protects the health care workers, their patients, and their families. Flu vaccination is an occupational health and patient safety issue.

An updated Employee Immunization Campaign Toolkit is available online at [www.massmed.org/AM/Template.cfm?Section=Flu](http://www.massmed.org/AM/Template.cfm?Section=Flu), or by calling 781-419-2749.

**Vaccination of Residents:** Use a systematic approach to vaccination, with checklists, to increase immunization levels:

- Vaccinate residents against flu when vaccine is available. Vaccinate residents admitted from September through March on admission.
• Ensure that written policies include annual flu vaccination for residents and staff, and pneumococcal polysaccharide vaccine (PPV23) and Td/Tdap vaccination for residents.

• Include Vaccine Information Statements (VIS) for PPV23, Td/Tdap and flu vaccines in the admission packet. Vaccine Information Statements (VISs) for all vaccines in many languages: www.immunize.org/vis.

• Obtain consent for vaccination from the resident or family member on admission.

• Implement standing orders to administer flu, PPV23 and Td/Tdap vaccines. These vaccines are safe and effective when administered simultaneously in separate syringes at different anatomical sites.

• Use chart audits to ensure that there is documentation in every chart that the resident has been offered PPV23 and Td vaccines and annual influenza vaccine.

• Consider residents with uncertain immunization histories NOT immunized and vaccinate accordingly. The benefits of vaccination far outweigh any concerns about revaccination.

**Td/Tdap vaccine:** More than 50% of tetanus cases in the U.S. are people age > 60 years; one fourth of these are associated with chronic wounds, such as decubiti. Administer Td or Tdap on admission to all residents without immunization records, and to those for whom it has been > 10 years since their last dose.

• Adults aged 65 years and older (e.g., grandparents, child-care providers, and health-care practitioners) who have or who anticipate having close contact with an infant less than 12 months of age and who previously have not received Tdap should receive a single dose of Tdap instead ofTd to protect against pertussis and reduce the likelihood of transmission.

• For other adults aged 65 years and older, a single dose of Tdap vaccine may be given instead of Td vaccine, in persons who have not previously received Tdap.

• Tdap can be administered regardless of interval since the last tetanus- or diphtheria-toxoid containing vaccine.

• After receipt of Tdap, persons should continue to receive Td for routine booster immunization every 10 years.

**Pneumococcal Vaccine:** Everyone 65 years of age and older should receive a dose of PPV23, unless they have received 2 doses of PPV23 before age 65. People aged 2 – 64 years with chronic medical conditions and people aged 19 – 64 years who smoke or who have asthma are also at risk. Administer a dose of pneumococcal vaccine to everyone in these groups who has not been previously vaccinated.

A single revaccination, at least 5 years after initial vaccination, is recommended for people with:

• chronic renal failure or nephrotic syndrome;

• functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); and

• immunocompromising conditions.

**Vaccination of Family Members and Visitors:** Inform family members and other visitors about their role in the transmission of flu to patients and encourage them to get vaccinated. To find flu vaccine, they can call their health care provider or local board of health, visit the MassPRO website
Where to purchase vaccine: Go to www.preventinfluenza.org/profs_production.asp for a list of manufacturers with flu vaccine to sell. For a list of approved influenza vaccine formulations and the age groups for which they are licensed, see the table on p. 8.

Medicare Part B Reimbursement for Administration of Flu and Pneumococcal Vaccines as of 1/1/2011 is $27.19/dose in metro-Boston and $24.78/dose in the rest of the state. For more information, see www.cms.hhs.gov/AdultImmunizations/.

Egg Allergies: Because influenza vaccines are produced by inoculating influenza virus into eggs, the finished vaccine contains a trace amount of egg protein. In previous seasons, allergy to eggs has been listed as a contraindication to influenza vaccination. However, several recent studies have documented safe receipt of TIV in people with egg allergies, particularly in those with a history of less severe reactions to eggs. Egg allergic people who experience mild reactions to egg – specifically those who have experienced only hives - can and should receive influenza vaccine with some additional safety measures:

- Vaccine should be given by a health care provider who is familiar with the potential manifestations of egg allergy.
- TIV should be used rather than LAIV because studies showing safe receipt of vaccine have been done using TIV, and there are insufficient data to support the use of LAIV in egg-allergic individuals.
- The recipient should be observed for at least 30 minutes after vaccination is complete to monitor for possible reactions.

Individuals with any history of severe or non-severe egg allergies should be referred to an allergist or other health care provider with experience managing allergic reactions to egg and should only be vaccinated in settings in which necessary personnel and equipment for rapid recognition and treatment of anaphylaxis are available.


Influenza Prevention and Control Measures

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

- Annual influenza vaccination of all residents and health-care personnel
- Age-appropriate vaccination of residents with pneumococcal vaccine
- Standard and droplet precautions with suspect or confirmed influenza cases
- Active surveillance and influenza testing for new illness cases
- Restriction of ill visitors and personnel
- Administration of antiviral medications for prophylaxis and treatment
Handwashing and respiratory hygiene/cough etiquette programs

**Surveillance, Testing and Reporting**

**Surveillance:** Conduct surveillance for respiratory illness and use influenza testing to identify outbreaks so infection control measures can be promptly initiated in all settings, including inpatient and outpatient settings. Call MDPH at 617-983-6800 for guidance and assistance with surveillance and control measures.

**Influenza testing:** Diagnostic testing for influenza can aid clinical judgment and guide treatment decisions and control measures.

- Diagnostic tests for influenza performed at the Hinton State Laboratory Institute (SLI) include viral culture and influenza RNA detection by polymerase chain reaction (PCR).

- Point of care rapid antigen testing capable of detecting influenza A and B virus infections is not routinely performed at the SLI but is widely available at hospitals, private providers and other healthcare settings. Rapid influenza diagnostic tests have limited sensitivity and false negative results are common. False positive tests can also occur and are more likely when flu is rare in the community. For more information and guidance on use of rapid influenza diagnostic tests, visit CDC’s influenza website at [www.cdc.gov/flu/professionals/diagnosis/clinician_guidance_ridt.htm](http://www.cdc.gov/flu/professionals/diagnosis/clinician_guidance_ridt.htm).

- When laboratory confirmation is desired, testing by RT-PCR and/or viral culture is recommended. PCR and viral culture testing also provide essential information on circulating influenza subtypes and strains.

- For information on influenza specimen collection and transportation, or to speak with an immunization epidemiologist, call MDPH at 617-983-6800. For specimen collection kits, call the kit room at the SLI at 617-983-6640.

**Reporting:** In accordance with 105 CMR 300.000 (Reportable Diseases, Surveillance and Isolation and Quarantine Requirements):

- Influenza-associated pediatric deaths and illness due to novel influenza A viruses and should be reported immediately to the MDPH at 617-983-6800 or 888-658-2850.

- All positive laboratory findings indicative of influenza virus infection are reportable directly to MDPH.

- Providers, healthcare facilities, long term care facilities and other institutional settings must also report all outbreaks of influenza-like illness (ILI) to their local board of health. Local boards of health are required to report all outbreaks to the MDPH within 24 hours. If the local board of health is not available, outbreaks can be reported directly to MDPH.

Outbreaks in hospitals, long term care facilities and other entities licensed by the Division of Healthcare Quality (DHCQ) should also be reported to DHCQ at 800-462-5540 x8150.

MDPH also requests that providers notify MDPH immediately of all ICU admissions and deaths in pregnant women with any type of influenza. Providers in the city of Boston should report these cases directly to the Boston Public Health Commission.

For specific information about reporting, see the MDPH Reportable Diseases, Surveillance and Isolation and Quarantine Requirements website at [www.mass.gov/Eeohhs2/docs/dph/cdc/reporting/rdiq_reg_summary.rtf](http://www.mass.gov/Eeohhs2/docs/dph/cdc/reporting/rdiq_reg_summary.rtf). Please note that additional jurisdiction-specific reporting requirements may also apply. Healthcare providers and laboratories...
within the city of Boston must also report all cases of influenza and all laboratory tests positive for influenza directly to the Boston Public Health Commission (see www.bphc.org or contact BPHC at 617-534-5611 for additional information).

Additional information on the prevention and control of influenza can be found in the influenza chapter of the MDPH Guide to Surveillance, Reporting and Control, at www.mass.gov/Eeohhs2/docs/dph/disease_reporting/guide/influenza.rtf.

**Infection Control**

Promptly implement the outbreak control measures described below and contact MDPH at 617-983-6800 and the Division of Healthcare Quality at 800-462-5540 x8150 in the event of any one of the following:

- Influenza is confirmed by laboratory testing in at least one resident
- More than one resident in the facility or an area of the facility (e.g., separate unit) develops influenza-like illness (ILI) during a 1-week period.

ILI is defined as fever > 100°F with cough and/or sore throat, in the absence of a known cause.

1. **MDPH epidemiologists can facilitate testing and provide control recommendations in the event of an outbreak.** To prevent the transmission of all respiratory infections, including flu, implement the infection control measures listed below at the first point of contact with a potentially infected person. Incorporate these measures into infection control practices as one component of standard precautions. Find tools to help promote and implement these recommendations at www.cdc.gov/flu/professionals/infectioncontrol

2. **Active surveillance and testing for new illness and cases:** Educate staff about the signs and symptoms of influenza-like illness. The ILI line list found on the last page of this document can be used to collect and manage relevant information about ill residents and staff.

3. **Respiratory hygiene/cough etiquette:** Post visual alerts in appropriate languages at the entrance to outpatient facilities (e.g., emergency departments, physician offices) instructing patients and people who accompany them (e.g., family, friends) to inform health care personnel of symptoms of a respiratory infection when they first register for care and to practice respiratory hygiene/cough etiquette. Posters, brochures and fact sheets promoting cough etiquette and handwashing in multiple languages are available from MDPH by calling 617-983-6800 or they can be downloaded from www.mass.gov/handwashing.


For more information and up-to-date recommendations for influenza infection control, visit the CDC website at: www.cdc.gov/flu/professionals/infectioncontrol.

5. **Vaccination:** Assess the influenza and pneumococcal vaccination status of all patients and vaccinate appropriately as described above. Review influenza vaccination status of all staff as well, and vaccinate any susceptible staff.

6. **Antiviral drugs** are an adjunct to, not a substitute for, vaccination for preventing and controlling influenza. The neuraminidase inhibitors oseltamivir (Tamiflu®) and zanamivir
(Relenza®) are currently recommended for use against circulating influenza viruses. The adamantanes (amantadine and rimantadine) are not recommended because of high levels of resistance to these drugs among recently circulating influenza A (H3) and 2009 H1N1 pandemic viruses.

a. **Treatment with antiviral agents:** Clinical judgement is an important factor in treatment decisions for patients presenting with influenza-like illness. Prompt empiric antiviral treatment with influenza antiviral medications is recommended while results of definitive diagnostic tests are pending, or if diagnostic testing is not possible, for patients with clinically suspected influenza illness who have:

- Illness requiring hospitalization
- Progressive, severe or complicated illness, regardless of previous health status
- Patients at increased risk for severe disease

Do not delay antiviral treatment, when clinically indicated, pending definitive laboratory confirmation of influenza. Influenza antiviral medications are most effective when initiated within 2 days of illness, but these medications may also provide benefits for severely ill patients when initiated even after 2 days.

Point of care rapid tests capable of detecting influenza A and B virus infections are available, but health care providers and public health personnel should be aware that rapid influenza diagnostic tests have limited sensitivity and false negative results are common. Thus, negative results from rapid influenza diagnostic test should not be used to guide decisions regarding treating patients with influenza antiviral medications. In addition, false positive tests can occur and are more likely when influenza is rare in the community. When laboratory confirmation is desired, testing by RT-PCR and/or viral culture is recommended.

b. **Antiviral agents for outbreak control:** Used in conjunction with vaccination and behavioral measures, including droplet precautions and cohorting of ill residents, antiviral agents are a key component of outbreak control in long-term care facilities and other institutional settings. Antiviral chemoprophylaxis should be considered following identification of any laboratory-confirmed case of influenza or in the presence of more than one resident meeting criteria for influenza-like illness (see above definition) in a facility or area of the facility.

- When antiviral agents are used for outbreak control, they should be administered to all residents (include all employees if variant strain is found that is not well matched to vaccine), regardless of immunization status.
- All unvaccinated staff should be re-offered influenza vaccine. They should also be offered chemoprophylaxis if they care for persons at high risk for complications.
- All staff, regardless of vaccination status, should be offered chemoprophylaxis if there are any indications that the outbreak is caused by a variant strain of influenza that is not covered by the vaccine.
- The drugs should be continued for a minimum of 2 weeks and as long as 10 days after the last onset of symptoms.
- The antiviral dose for each resident is determined based on age, renal function, liver function and other pertinent characteristics.
• During institutional outbreaks, chemoprophylaxis also can be offered to unvaccinated staff members who provide care to persons at high risk of complications.

• Pre-approved medication orders, or plans to obtain physician’s orders on short notice, should be in place to ensure that chemoprophylaxis can be started as soon as possible.

If there is a variant strain or unusual circumstances occurring during a season, MDPH will issue appropriate bulletins and advisories. ACIP recommendations and additional guidance from CDC can be found at [www.cdc.gov/flu/professionals/antivirals/](http://www.cdc.gov/flu/professionals/antivirals/).

Clinicians should be alert to changes in antiviral recommendations that might occur as additional antiviral resistance data becomes available during the 2011-2012 season.

**Additional Information**


CDC. Influenza vaccination of health-care personnel: recommendations of the Healthcare Infection Control Practices Advisory (HICPAC) and the Advisory Committee on Immunization Practices (ACIP) 2006:55(No. RR-2). [www.cdc.gov/mmwr/preview/mmwrhtml/rr5502a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5502a1.htm)

CDC. Prevention of pneumococcal disease: recommendations of the ACIP. MMWR 1997;46 (No. RR-8). [www.cdc.gov/mmwr/preview/mmwrhtml/00047135.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/00047135.htm)


Visit the MDPH web site [www.mass.gov/dph/flu](http://www.mass.gov/dph/flu). Hard copies and technical consultation are available by calling MDPH at 617-983-6800 or 888-658-2850.
### Approved Influenza Vaccines for Different Age Groups

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Trade Name</th>
<th>Dose/ Presentation</th>
<th>Thimerosal (mcg Hg/0.5 mL dose)</th>
<th>Ovalbumin Content (mcg/ 0.5 mL dose)</th>
<th>Age Group</th>
</tr>
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<tbody>
<tr>
<td>Sanofi pasteur</td>
<td>Fluzone® Inactivated</td>
<td>0.25 mL prefilled syringe</td>
<td>0</td>
<td>0.05</td>
<td>6–35 mos</td>
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<td></td>
<td></td>
<td>0.5 mL prefilled syringe</td>
<td>0</td>
<td>0.1</td>
<td>≥ 36 mos</td>
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<td></td>
<td>0.5 mL single dose vial</td>
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<td>0.1</td>
<td>≥ 36 mos</td>
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<tr>
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<td></td>
<td>5.0 mL multidose vial</td>
<td>25</td>
<td>0.1</td>
<td>≥ 6 mos</td>
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<tr>
<td></td>
<td>Fluzone® High-Dose</td>
<td>0.5 mL prefilled syringe</td>
<td>0</td>
<td>0.1</td>
<td>≥ 65 yrs</td>
</tr>
<tr>
<td></td>
<td>Fluzone Intradermal</td>
<td>0.1 mL prefilled microinjection syringe</td>
<td>0</td>
<td>0.02/dose²</td>
<td>18-64 yrs</td>
</tr>
<tr>
<td>Novartis</td>
<td>Fluvirin® Inactivated</td>
<td>0.5 mL prefilled syringe</td>
<td>≤ 1.0</td>
<td>≤ 1</td>
<td>≥ 4 yrs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.0 mL multidose vial</td>
<td>25</td>
<td>≤ 1</td>
<td>≥ 4 yrs</td>
</tr>
<tr>
<td>GlaxoSmithKline</td>
<td>Fluarix®, Inactivated</td>
<td>0.5 mL prefilled syringe</td>
<td>0</td>
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<td>FluLuval™, Inactivated</td>
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<td>≤ 1</td>
<td>≥ 18 yrs</td>
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<tr>
<td>CSL Biotherapies</td>
<td>Afluria³, Inactivated</td>
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<td>≤ 1</td>
<td>≥ 9 yrs¹</td>
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<tr>
<td></td>
<td></td>
<td>5.0 mL multidose vial</td>
<td>24.5</td>
<td>≤ 1</td>
<td>≥ 9 yrs¹</td>
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<tr>
<td>MedImmune</td>
<td>FluMist® Live attenuated intranasal</td>
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<td>See Footnote 4 below</td>
<td>2–49 yrs</td>
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Table adapted from MMWR. August 18, 2011:3.  
[www.cdc.gov/mmwr/pdf/wk/mm60e0818.pdf?source=govdelivery](http://www.cdc.gov/mmwr/pdf/wk/mm60e0818.pdf?source=govdelivery)

¹There is no preferential recommendation between any of the formulations of TIV or LAIV, but clinicians should note the recommended age groups and possible contraindications for each vaccine.

²Personal communication from Sanofi Pasteur 8/1/11

³Based upon available information to date, the ACIP recommends the following:
- Do not use Afluria in children aged 6 months through 8 years.
- Use other age-appropriate, licensed seasonal influenza vaccine formulations to prevent influenza in children aged 6 months through 8 years.
- If no other age-appropriate, licensed seasonal influenza vaccine is available for a child aged 5 years through 8 years who has a medical condition that increases their risk for influenza complications, Afluria may be given. Discuss the benefits and risks of influenza vaccination with the parents or caregivers before administering Afluria.

⁴Insufficient data available for use of LAIV in egg-allergic patients.