

Control of Influenza and Pneumococcal Disease in Long-Term Care Facilities (LTCFs) 2017 – 2018

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Key Recommendations

Everyone aged 6 months and older should receive flu vaccine every year. The Advisory Committee on Immunization Practices (ACIP) recommends vaccination with either the inactivated influenza vaccine (IIV) or recombinant influenza vaccine (RIV). Vaccination should not be delayed to procure a specific vaccine formulation. Begin offering flu vaccine as soon as it is available. There is no preferential recommendation for any one age-appropriate inactivated flu formulation over another. Choice of which influenza vaccine formulation to use should primarily be driven by the age indication, contraindications and precautions. There is no current preference for quadrivalent vs. trivalent or high-dose vs. adjuvanted vs. standard dose.

Vaccinate staff: In Massachusetts during 2016-2017, 75% of healthcare workers in LTCFs and Rest Homes received influenza vaccine. Only 60% of healthcare workers in Adult Day Health programs received influenza vaccine. In contrast, 82% of acute care facilities in Massachusetts achieved vaccine coverage of 90% or greater among healthcare workers. MDPH encourages facilities to review current healthcare personnel influenza policies implement processes to maximize vaccination coverage. All healthcare facilities should strive to reach the goal of having 90% of healthcare personnel vaccinated annually against influenza in order to best protect patients, family members, and staff from influenza illness.

Influenza-like illness in your facility? See [page seven](#) for guidance on reporting clusters of influenza-like illness, prophylaxis of those exposed, and other control measures.

What's New for the 2017-2018 Season?

- **Afluria.** Afluria (Trivalent) and Afluria Quadrivalent inactivated influenza vaccines by (Seqirus) can both be used in persons 5 years of age and older.
- **Flublok.** Flublok Quadrivalent, a recombinant influenza vaccine (RIV4) by Protein Sciences, was licensed for use in those 18 years and older in October 2016.
- **FluLaval.** FluLaval has been approved as a 0.5 mL dose for everyone 6 months of age and older.
- **Pregnant women** may receive any licensed, age-appropriate, recommended influenza vaccine.
- An updated list of all flu vaccine products available in the USA is available at <http://www.immunize.org/catg.d/p4072.pdf>

Unchanged: Live attenuated influenza vaccine (LAIV) is not recommended for the 2017-2018 season. The ACIP recommendation that quadrivalent live attenuated influenza vaccine (LAIV4) should **not be used is extended for the 2017-2018 flu season.** Please see page 5 in this advisory for additional details.

Unchanged: Guidelines related to egg allergy. Last year, the ACIP began to recommend that any licensed influenza vaccine formulation may be administered to persons with egg allergy of any severity. There are no changes to this guidance. Please see page 5 in this advisory for more detailed guidance to ensure proper evaluation and safe administration.

Influenza Prevention and Control Recommendations:

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

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

- **Annual influenza vaccination of all residents and healthcare personnel**
- Age-appropriate vaccination of residents with pneumococcal vaccines
- Standard and droplet precautions with suspect or confirmed influenza cases
- Active surveillance and influenza testing for new cases
- Restriction of ill visitors and personnel
- Rapid administration of antiviral medications for treatment and prophylaxis
- Handwashing and respiratory hygiene/cough etiquette programs

Your recommendation and offer of vaccine are the most important determinants of whether or not your patient gets vaccinated. Use annual flu vaccination to assess patients for the need for other vaccines, including Tdap and pneumococcal conjugate (PCV13) and pneumococcal polysaccharide (PPSV23) vaccines.

2017-2018 Influenza Vaccine Composition:

- Trivalent influenza vaccines contain:
 - an A/Michigan 45/2015 (H1N1)pdm09-like virus (**New!**)
 - an A/Hong Kong/4801/2014 (H3N2)-like virus
 - a B/Brisbane/60/2008-like (Victoria lineage) virus
- Quadrivalent vaccines contain the above three viruses and a second influenza B strain, B/Phuket/3073/2013-like/(Yamagata lineage) virus.

This represents a change in the influenza A (H1N1) virus component from the previous season.

Timing of Flu Vaccination and Waning Immunity

The ACIP **continues** to recommend vaccination before the onset of influenza activity in a community and by the end of October, if possible. To avoid missed opportunities for vaccination, providers should offer flu vaccination at routine health visits and hospitalizations as soon as vaccine is available, particularly for young children who may need two doses.

Some available data indicate that early vaccination (e.g., in July and August) might be associated with suboptimal immunity before the end of the influenza season, particularly among older adults. However, this finding has not been found consistently across studies, age groups, influenza viral subtypes or seasons. The relative contribution of potential waning of immunity compared with those of other determinants of the impact of vaccination (e.g., timing, severity of the influenza season, emergence of drifted antigenic strains) and in particular the impact of missed opportunities when individuals delaying vaccination fail to return later in the season is **not** known. In addition, the ability to vaccinate a large population within a more constrained time period may result in decreased coverage rates. Vaccination programs need to balance maximizing likelihood of persistence of vaccine-induced protection through the season with avoiding missed opportunities to vaccinate or vaccinating after onset of influenza circulation occurs in a community. Revaccination later in the season of persons who have already been fully vaccinated is not recommended.

Vaccination should continue to be offered in November and throughout the flu season as long as flu viruses are circulating. While seasonal influenza outbreaks can happen as early as October, most of the time influenza activity peaks in January or later. Since it takes about two weeks after vaccination for antibodies to develop in the body that protect against influenza virus infection, it is best that people get vaccinated so they are protected before influenza begins spreading in their community. In New England, flu activity usually lasts usually April and May.

As additional data about the duration of immunity and potential programmatic impact become available, ACIP will review them to determine if any changes in this policy should be made. For additional information, see page 6 in the ACIP [Recommendations](#) and pages 28-31 in the [Background](#) document.

Vaccination of Residents and Staff

Use a systematic approach to vaccination, with checklists, to increase immunization levels:

- Vaccinate all staff and residents against influenza every year.
- **CDC, the Advisory Committee on Immunization Practices (ACIP), MDPH and the Healthcare Infection Control Practices Advisory Committee (HICPAC) recommend that all U.S. health care workers get vaccinated annually against influenza.** Health care workers include (but are not limited to) physicians, nurses, nursing assistants, therapists, technicians, emergency medical service personnel, dental personnel, pharmacists, laboratory personnel, autopsy personnel, students and trainees, contractual staff not employed by the health-care facility, and persons (e.g., clerical, dietary, housekeeping, laundry, security, maintenance, administrative, billing, and volunteers) not directly involved in patient care but potentially exposed to infectious agents that can be transmitted to and from health care workers and patients.
- As a condition of licensure, DPH regulations require health care facilities, including hospitals, ambulatory surgical centers, dialysis centers, clinics, nursing homes, rest homes, and adult day health programs to offer free-of-charge, annual influenza vaccine to all personnel (full and part-time employees, contracted employees, volunteers, house staff and students) and document receipt of influenza vaccine administered and declination of immunization. Licensed facilities are also required to report information to DPH documenting compliance with the vaccination requirement, in accordance with reporting and data collection guidelines of the Commissioner (105 CMR).

The long term care facility and adult day health program regulations are available at the following links:

- Licensure of Long Term Care Facilities: 105 CMR 150.002(D)(8), <http://www.mass.gov/eohhs/docs/dph/regs/105cmr150.pdf>
- Licensure of Adult Day Health Programs: 105 CMR 158.030(L)(8) <http://www.mass.gov/courts/docs/lawlib/104-105cmr/105cmr158.pdf>
- 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 vaccines (PPSV23 and PCV13) and Tdap vaccination for residents.
- Include Vaccine Information Statements (VIS) for PPSV23, PCV13, 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, PCV13, PPSV23 and Tdap vaccines. Remember, doses of PCV13 and PPSV23 should be administered in a series and not on the same day. (If given at the same time, or at shorter than the recommended interval, those doses do not need to be repeated.) Other routine vaccines for adults 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 PPSV23, PCV13, and Tdap 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.

Healthcare Provider Influenza Vaccination Rates

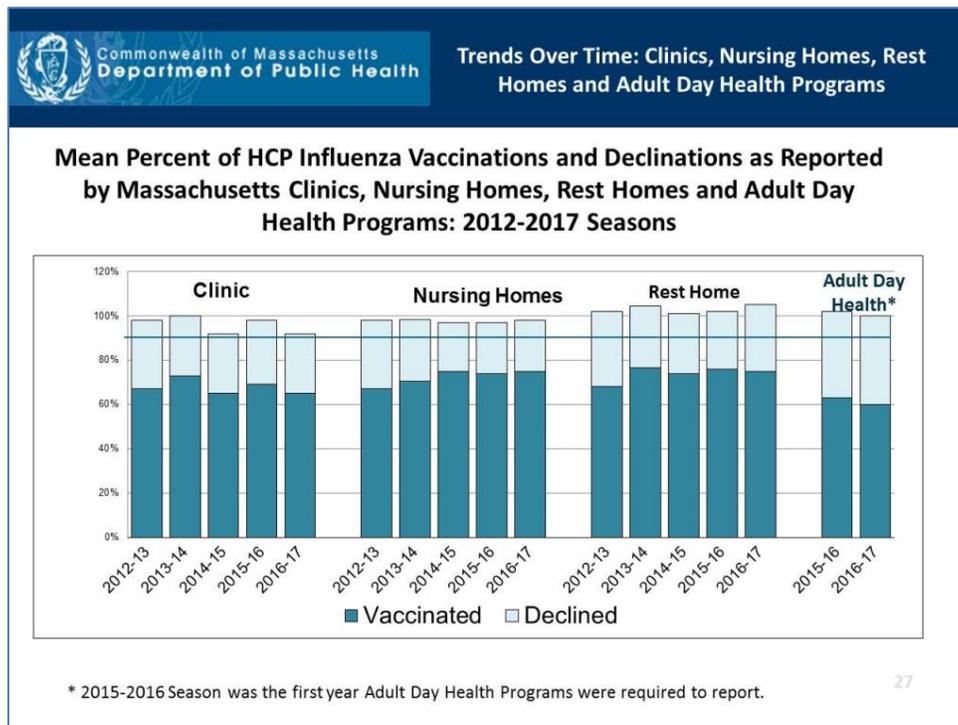
Healthcare personnel are at high risk for influenza exposure and illness, and may be a source of influenza virus transmission in healthcare settings. Annual influenza vaccination is the best method of preventing influenza and potentially serious complications. The current Healthy People 2020 goal for influenza vaccination among healthcare personnel is 90%.

The table on the next page outlines influenza vaccination rates for different groups of healthcare workers. Vaccination rates in acute care hospitals, both nationally and in MA have surpassed the Healthy People 2020 goal and should be congratulated. However, rates for healthcare workers in general and in long term care are much lower.

Healthcare Personnel Setting	MA 2015-16	MA 2016-17	US 2015-16 ³	US 2016-17 ⁴
All Healthcare Personnel	62% ¹	N/A ¹	79%	79%
Acute Care Hospitals	92% ²	94% ²	91%	92%
Nursing Homes/Long Term Care Facilities	73% ²	75% ²	69%	68%

Source: ¹MA BRFSS ²Influenza Vaccination of Health Care Personnel in MA Nursing Homes and Acute Care Hospitals ³CDC Health Care Personnel Influenza Survey, MMWR 2016 ⁴CDC Health Care Personnel Influenza Survey, MMWR 2017

Similarly, healthcare provider vaccination data for the past five flu seasons, when viewed by selected settings (nursing homes, rest homes, and adult day care), highlight the need for increased vaccination in nursing homes, rest homes, and adult day care centers.



Improvement needed: MDPH encourages facilities to review current healthcare personnel influenza policies implement processes to maximize vaccination coverage. All healthcare facilities should strive to reach the goal of having 90% of healthcare personnel vaccinated annually against influenza in order to best protect patients, family members, and staff from influenza illness.

Please see the following resources to assist in improving influenza vaccination among healthcare personnel:

- CDC Influenza Resources for Health Care Professionals: <https://www.cdc.gov/flu/professionals/index.htm>
- CDC toolkit for Increasing Influenza Vaccination among Health Care Personnel in Long-term Care Settings: <https://www.cdc.gov/flu/toolkit/long-term-care/index.htm>
- Seasonal Influenza (Flu)-Free Resources: www.cdc.gov/flu/freeresources/index.htm
- Providing a Safer Environment for Health Care Personnel and Patients through Influenza Vaccination Strategies from Research and Practice: https://www.jointcommission.org/assets/1/18/Flu_Monograph.pdf
- Strategies to Achieve the Healthy People 2020 Annual Influenza Vaccine Coverage Goal for Health-Care Personnel: Recommendations from the National Vaccine Advisory Committee: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3514716/pdf/phr128000007.pdf>
- MDPH Influenza Resources for Health Care Professionals: <http://www.mass.gov/flu>

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 healthcare provider or local board of health, visit <https://www.mylocalclinic.com/fcss/> for a list of flu vaccination clinics by town.

Live Attenuated Influenza Vaccine (LAIV) Not Recommended for the 2017-2018 Season

In light of low effectiveness against influenza A(H1N1)pdm09 in the United States during the 2013–14 and 2015–16 seasons, for the 2017–18 season, ACIP continues the recommendation that LAIV4 should **not** be used. In February 2017, ACIP reviewed information from the manufacturer about their research plan. Results from additional studies as well as data from LAIV use in other countries will be reviewed by the Committee as they become available. For more information, see pages 1, 4, 5, 7, and 15 in the ACIP [Recommendations](#) and pages 26-28 in the [Background](#) document.

Guidance Related to the Management of Egg Allergic Persons

Last season the ACIP modified its guidance for the management of egg allergic persons receiving flu vaccine. This season, their recommendations for this management are **unchanged**.

Background: Anaphylaxis after influenza vaccine is rare, about 1.3 to 1.5 events per million doses, about the same rate as anaphylaxis after other childhood vaccines. As is the case with other vaccines, influenza vaccines contain various different components that may cause allergic reactions. Reviews of studies of experience with the use of IIV, and more recently LAIV, indicate that **severe allergic reactions** to the currently available egg-based influenza vaccines in persons with **egg allergy of any severity are unlikely**.

Severe allergic reactions to vaccines, although rare, can occur at any time, despite a recipient's allergy history. Therefore, all vaccine providers should be familiar with the office emergency plan, and be certified in cardiopulmonary resuscitation.

Recommendation:

Although history of severe allergic reaction is a labeled contraindication to influenza vaccines, the ACIP recommends that **any** licensed influenza vaccine formulation may be administered to persons with egg allergy of **any** severity. To ensure safety, providers should follow the guidance outlined below:

- a. Persons with a history of egg allergy who have experienced only hives after exposure to egg should receive influenza vaccine. Any licensed and recommended influenza vaccine (i.e., any age-appropriate IIV or RIV) that is otherwise appropriate for the recipient's age and health status may be used.
- b. Persons who report having had reactions to egg involving symptoms other than hives, such as angioedema, respiratory distress, lightheadedness, or recurrent emesis; or who required epinephrine or another emergency medical intervention, may similarly receive any licensed and recommended influenza vaccine (i.e., any age-appropriate IIV or RIV) that is otherwise appropriate for the recipient's age and health status. The selected vaccine should be administered in an inpatient or outpatient medical setting (including but not necessarily limited to hospitals, clinics, and physician offices). **Vaccine administration should be supervised by a healthcare provider who is able to recognize and manage severe allergic conditions.** Clinics and practices will need to determine if they have the trained staff, protocols and equipment in place to safely vaccinate those with severe egg allergy or refer them to their medical home or another provider.
- c. A previous severe allergic reaction to influenza vaccine, regardless of vaccine component suspected of being responsible, is a contraindication to future receipt of the vaccine.
- d. The ACIP does not express a preference for the use of egg-free flu formulations in egg-allergic patients. However, an egg-free recombinant flu vaccine (RIV), Flublok, is available for those ≥ 18 years of age and some providers may choose to administer RIV to their severely egg-allergic patients. For the cell culture vaccine, Flucelvax, viruses are propagated in mammalian cells rather than eggs, so it has a much smaller amount of egg protein. However, some of the viruses provided by the manufacturer are egg-derived, and therefore egg protein may potentially be introduced at the start of the manufacturing process. Once these viruses are received by the manufacturer, no eggs are used and dilutions at various steps during the manufacturing process result in a theoretical maximum of 5×10^{-8} μg per 0.5 mL dose of total egg protein.

Observation Period after Vaccination

No period of postvaccination observation is recommended specifically for egg-allergic patients. However, providers should continue with the general best practice recommendation to observe all patients for 15 minutes after any vaccination to decrease the risk for injury should they experience syncope.

For full guidance on management of those with egg allergy, see pages 10-12 in the ACIP [Recommendations](#) and pages 48-49 in the [Background](#) document. Also see pages 66-81 'Preventing and Managing Adverse Events' of the General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP) at: <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf>.

General Plan for Response to Acute Vaccine Reactions

Although anaphylactic reactions are rare after vaccination, their immediate onset and life-threatening nature require that all personnel and facilities providing vaccinations have procedures in place for anaphylaxis management. All vaccination providers should be familiar with the office emergency plan and be currently certified in cardiopulmonary resuscitation. Epinephrine and equipment for maintaining an airway should be available for immediate use.

Tdap Vaccine

During 2001 through 2008, 49% of tetanus cases in the U.S. were among persons 50 years of age or older. The risk of dying from tetanus was five times greater in patients >65 years. Across the nation, including in Massachusetts, there has been an increase in the number of cases of pertussis (whooping cough). **Adults aged 19 years and older, including those older than 65, who have not yet received a dose of Tdap should receive a single dose.** Currently, Tdap is recommended only for a single dose across all age groups, except in pregnant women, who should get a dose during every pregnancy.

When feasible, Boostrix should be used for adults aged 65 years and older; however, ACIP concluded that either vaccine (Boostrix or Adacel) administered to a person 65 years or older is immunogenic and would provide protection. Providers should not miss an opportunity to vaccinate persons aged 65 years and older with Tdap. Therefore, providers may administer the Tdap vaccine they have available. A dose of either vaccine may be considered valid. 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.

Influenza Prevention and Control Recommendations:

Influenza, Neurologic and Neuromuscular Conditions, and Congregate Housing

Children and adults with neurological and neuromuscular conditions (including disorders of the brain, spinal cord, peripheral nerve, and muscle such as cerebral palsy, epilepsy [seizure disorders], stroke, intellectual disability [mental retardation], moderate to severe developmental delay, muscular dystrophy, or spinal cord injury) are at increased risk of complications from influenza. These conditions can compromise respiratory function, handling of secretions and increase the risk of aspiration. Like everyone else six months of age and older, they should receive influenza vaccine every year. A [CDC study](#) found that in 2011-2012, only about half of children and young adults with in this high risk group received influenza vaccine.

People with neurological and neuromuscular conditions who live in congregate housing (e.g., group homes) and/or attend day programs may be exposed to influenza throughout the season. **They should receive flu vaccine as soon as it is available. Staff at these facilities should be vaccinated as well. In addition, when outbreaks of influenza-like illness (fever with cough and/or sore throat) occur in a group home or day program serving vulnerable populations, healthcare providers should be immediately notified and should consider rapid antiviral treatment of ill individuals as well as antiviral prophylaxis of individuals who were exposed.**

Outbreaks across the age spectrum in these settings have occurred annually in Massachusetts and have resulted in serious illness and even death. So, MDPH recommends proactive development of an influenza outbreak response protocol within agencies serving vulnerable populations, to facilitate a rapid response when an outbreak occurs, as well as immediate notification of MDPH and other appropriate agencies.

Influenza Surveillance:

Throughout the year, and especially during flu season, conduct surveillance for respiratory illness with fever and use influenza testing to identify outbreaks so infection control measures can be promptly initiated in all settings, including inpatient and outpatient settings.

Influenza Reporting:

All positive laboratory findings indicative of influenza virus infection (except teleform reporting of rapid influenza test results which has been discontinued) are reportable directly to MDPH, in accordance with 105 CMR 300.000 (Reportable Diseases, Surveillance and Isolation and Quarantine Requirements).

1) Immediately report the following influenza-related cases by phone to the Division of Epidemiology and Immunization at 617-983-6800 and to your local board of health. Providers in the city of Boston should report these cases directly to the Boston Public Health Commission at 617-534- 5611. This applies to all strains of influenza:

- ☎ Suspected and confirmed deaths related to influenza in children under 18 and in pregnant women
- ☎ Unusual or unusually severe cases of influenza or influenza-like illness (ILI), e.g., with encephalopathy, myocarditis, or pericarditis. ILI is defined as fever with cough and/or sore throat.
- ☎ **Case(s) or clusters of ILI in long-term care facilities, group homes, shelters, prisons or other high risk settings**
- ☎ Unusual clusters of ILI in daycare and elementary schools
- ☎ Cases of suspected or proven antiviral treatment or prophylaxis failure
- ☎ Suspect novel or variant influenza, e.g., travel-associated, animal-associated, avian influenza A H5N1 or H7N9, influenza A H3N2v, other avian influenza
- ☎ ILI in employees of swine or poultry farms

Clusters in hospitals and long-term care: Report clusters of influenza-like illness to MDPH via faxed teleform. Teleforms are available by calling 617-983-6801, and at <http://www.mass.gov/eohhs/docs/dph/cdc/reporting/case-report-forms/resp-cluster-reporting-form.pdf>. Please provide as much detail on these forms as possible. Upon receipt of the teleform, an epidemiologist will contact you to provide guidance concerning testing, prophylaxis and infection control. Clusters in hospitals, long term care facilities and other entities licensed by the Division of Healthcare Quality (DHCQ) should also be reported to DHCQ by using the web-based Health Care Facility Reporting System (HCFRS) via the Virtual Gateway <https://sso.hhs.state.ma.us>. All Reportable Assisted Living Incident Reports are submitted to the Executive Office of Elder Affairs via the Automated Quickbase Reporting system which is accessed at <http://alrir.800ageinfo.com/>. Group homes, prisons or other settings should also contact the appropriate oversight agency for your facility.

2) More about reporting: For specific information about reporting, see the MDPH 105 CMR 300.000: Reportable Diseases, Surveillance and Isolation and Quarantine Requirements at www.mass.gov/eohhs/docs/dph/cdc/reporting/rdq-reg-summary.rtf. Please note that additional jurisdiction-specific reporting requirements may also apply. For example, 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).

Infection Control:

To prevent the transmission of **all** respiratory infections, including influenza, in health care settings, implement the following infection control measures at the first point of contact with a potentially infected person. Tools to help promote and implement these recommendations are available at www.cdc.gov/flu/professionals/infectioncontrol. Providers should routinely check for updates at www.mass.gov/flu and www.cdc.gov/flu/professionals/.

When you suspect that flu is circulating in your facility:

1) Treat ill residents promptly and empirically. Antiviral drugs are an adjunct to, not a substitute for, vaccination for preventing and controlling influenza. The neuraminidase inhibitors oseltamivir (Tamiflu[®]), zanamivir (Relenza[®]), and peramivir (Rapivab[®]) 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 influenza viruses.

Prompt empiric antiviral treatment: Clinical judgment 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, and/or
- Increased risk for severe disease.

Antiviral treatment, when clinically indicated, should **not be delayed pending definitive laboratory confirmation of influenza**. Influenza antiviral medications are most effective when initiated within the first 2 days of illness, but these medications may also provide benefits for severely ill patients when initiated even after 2 days. Guidance on use of antivirals may change depending upon resistance data. Consult CDC's latest recommendations on antiviral use at www.cdc.gov/flu/professionals/antivirals/.

2) Test promptly for influenza and other causes of febrile respiratory illness. Respiratory specimens should ideally be collected as early as possible (ideally within three days after illness onset when influenza viral shedding is highest). See below for more information about influenza testing.

3) Isolate and /or cohort ill patients. Restrict staff floating and consider limiting resident activities within the facility. Exclude symptomatic staff and patients until at least 24 hours after they no longer have a fever.

4) Immediately report clusters via faxed teleform as described above under "Influenza Reporting."

5) Use droplet precautions (www.cdc.gov/hicpac/2007IP/2007ip_part3.html#b) in addition to standard precautions when caring for patients with suspected or confirmed seasonal influenza. Use standard precautions (www.cdc.gov/hicpac/2007IP/2007ip_part3.html#a) with all patients.

6) Conduct daily active surveillance and testing for new illness and cases: Educate staff about the signs and symptoms of influenza-like illness.

7) Encourage respiratory hygiene/cough etiquette/hand hygiene: Provide staff reminders or retraining if necessary. Post visual alerts (in appropriate languages) at the entrance to the facility. Posters, brochures and fact sheets promoting **cough etiquette** and **handwashing** in multiple languages are available from the Massachusetts Health Promotion Clearinghouse at <https://massclearinghouse.ehs.state.ma.us/>

8) Use 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 when three or more residents have influenza-like illness (fever with cough and/or sore throat) in a facility or area of the facility.**

- When antiviral agents are used for outbreak control, they should be administered to all residents regardless of immunization status. Priority should be given to residents living on the same unit or floor as an ill resident.
- 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 continuing for at least 7 days after the last known case was identified.
- The antiviral dose for each resident is determined based on age, renal function, liver function and other pertinent characteristics.
- 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.
- Additional CDC guidance concerning control of influenza in LTCFs is available at <http://www.cdc.gov/flu/professionals/infectioncontrol/ltc-facility-guidance.htm>
- Clinicians should be alert to changes in antiviral recommendations that might occur as additional antiviral resistance data becomes available during the 2017-2018 season. For more information go to <http://www.cdc.gov/flu/professionals/antivirals/antiviral-infection-control.htm>

9) Offer vaccine to unvaccinated staff. They should also be offered chemoprophylaxis if they care for persons at high risk for complications.

10) Immediately report unusual or unusually severe cases, suspected and confirmed pediatric flu-related deaths, deaths in pregnant women, and suspected cases of novel or variant flu as described above under "Influenza Reporting."

Influenza Testing:

Diagnostic testing for influenza can aid clinical judgment and guide treatment decisions and control measures. Clinical testing services performed on specimens submitted to a state public health laboratory provide important diagnostic information to the clinician and also contribute to public health respiratory surveillance response and control measures. As a specific example, an influenza B strain submitted to the Massachusetts State Public Health Laboratory (MA SPHL) in March 2012 was the first identified isolate that later began to circulate widely and was then incorporated into the 2013-14 and 2014-15 influenza vaccines. Specific testing services provided by the MA SPHL may assist the clinician as follows:

- **Define the start of the influenza season:** Rapid influenza diagnostic tests vary in performance characteristics. False negative and false positive results can occur when flu prevalence is low in the community. For this reason, MA SPHL requests that clinical laboratories consider submitting their first influenza rapid positive original samples of the season to MA SPHL for confirmation. For more information: www.cdc.gov/flu/professionals/diagnosis/clinician_guidance_ridt.htm.
- **Diagnose influenza or other respiratory infections:** Diagnostic tests for influenza performed at the MA SPHL include a “respiratory panel” to identify seasonal and novel influenza types/subtypes followed by testing of influenza negative samples for the presence of adenovirus, respiratory syncytial virus (A/B), parainfluenza virus (1-4), coronavirus (HKU1, OC43, NL63, 229E), human metapneumovirus and rhinovirus/enterovirus using polymerase chain reaction (PCR). There is no charge for these tests. The turnaround time for results is usually a few days, but varies depending on the test performed.
- **Monitor trends in influenza antiviral resistance:** MA SPHL performs surveillance testing for influenza antiviral resistance and provides this information in its weekly influenza report. Diagnostic antiviral resistance testing is currently coordinated with CDC and is offered on a case-by-case basis.
- **Rapid identification of new or novel influenza or other viral infections:** MA SPHL is able to rapidly determine the presence of a novel or variant influenza strain using the CDC diagnostic panel. Rapid antigen testing and commercially-available RT-PCR tests may not detect novel or variant strains of influenza and most are unable to differentiate between seasonal, novel or variant influenza strains. Therefore, respiratory specimens should be collected from any patient suspected of having atypical or novel infections with H3N2v or avian influenza H7N9, for example.

Specimen Collection and Shipping to MA SPHL:

Flu specimens should be collected as soon as possible after onset of illness, preferably within three days (72 hours). Specimens collected after 72 hours are usually unsuitable for testing. Specimens should be submitted immediately after collection to MA SPHL in order to be tested within three days of collection. If samples will be shipped to MA SPHL ≥ 3 days from collection or on a Friday but are collected within 72 hrs, they should be frozen at $<-20^{\circ}\text{C}$ and shipped with ice packs on Monday. This variation must be noted on the specimen submission form to avoid an “unsatisfactory for testing” designation.

- For information on influenza specimen collection and transportation, or to speak with an immunization epidemiologist, call MDPH at 617-983-6800.
- Information of specimen collection and submission, including the respiratory surveillance specimen submission form may be found at: www.mass.gov/eohhs/docs/dph/laboratory-sciences/flu-virus-collection.pdf and www.mass.gov/eohhs/docs/dph/laboratory-sciences/flu-specimen-submission-form.pdf.

Rapid testing reminder:

Point of care rapid tests capable of detecting influenza A and B virus infections are available, **but healthcare 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, use RT-PCR and/or viral culture.

Pneumococcal Vaccine Recommendations:

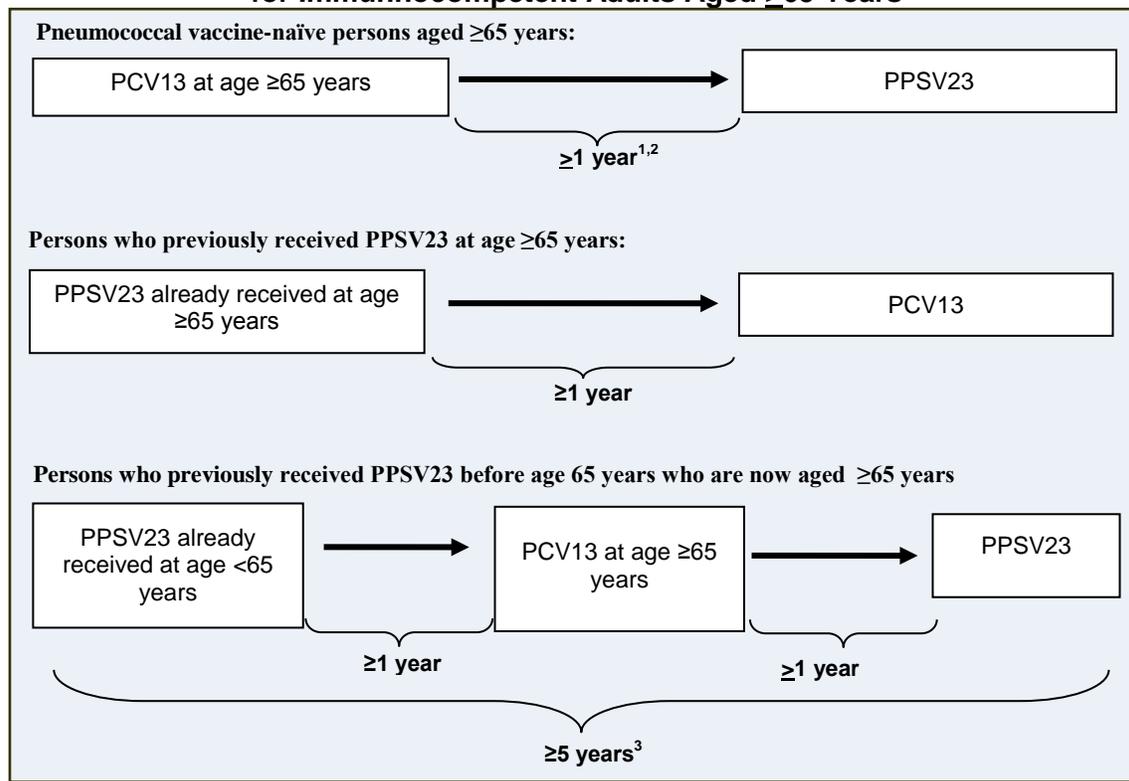
Since 2014, the ACIP recommends that PCV13 and PPSV23 should be administered routinely **in a series** to all immunocompetent adults aged ≥ 65 years. **PCV13** should be administered **only once** for all adults. [The recommended intervals between PCV13 and PPSV23 vaccines](#) were updated in 2015 and published in the MMWR.

Specific recommendations are based on a person's previous pneumococcal vaccine history.

- **Persons who are pneumococcal vaccine-naïve.** Adults aged ≥ 65 years who have not previously received pneumococcal vaccine or whose previous vaccination history is unknown should receive a single dose of PCV13 first, followed by a dose of PPSV23. The dose of PPSV23 should be given ≥ 1 year after a dose of PCV13.
- **Persons previously vaccinated with PPSV23.** Adults aged ≥ 65 years who have previously received ≥ 1 doses of PPSV23 also should receive a single dose of PCV13 if they have not yet received it. A dose of PCV13 should be given ≥ 1 year after receipt of the most recent PPSV23 dose. For those for whom an additional dose of PPSV23 is indicated, this subsequent PPSV23 dose should be given ≥ 1 year after PCV13 and ≥ 5 years after the most recent dose of PPSV23.
- The two vaccines should not be co-administered. If doses of PPSV23 and PCV13 are inadvertently given on the same day or earlier than the recommended interval, those doses do not need to be repeated.
- Adults 19 years and older at increased risk for pneumococcal disease who have already received a dose of PCV13 at 64 years or younger should **not** receive another dose of PCV13 at 65 years or older.
- For adults ≥ 65 years with immunocompromising conditions, functional or anatomic asplenia, CSF fluid leaks or cochlear implants, the recommended interval between a dose of PCV13 and PPSV23 remains at ≥ 8 weeks. This interval minimized the risk window for invasive pneumococcal disease caused by serotypes unique to PPSV23 in these highly vulnerable groups.

For more details about the sequential schedule and intervals, please see the algorithm below.

Sequential Administration and Recommended Intervals for PCV13 and PPSV23 for Immunocompetent Adults Aged ≥ 65 Years



¹ If doses of PPSV23 and PCV13 are inadvertently given on the same day or earlier than the recommended interval, those doses do not need to be repeated.

² For adults in this age group with immunocompromising conditions, functional or anatomic asplenia, CSF fluid leaks or cochlear implants, the recommended interval is ≥ 8 weeks.

³ For those who previously received PPSV23 when aged <65 years and for whom an additional dose of PPSV23 is indicated when aged ≥65 years, this subsequent PPSV23 dose should be given ≥1 year after PCV13 and ≥5 years after the most recent dose of PPSV23.

The above figure only outlines pneumococcal vaccine recommendations for those ≥65 years of age. The CDC job aid [Pneumococcal Vaccine Timing for Adults](#) contains a number of algorithms and a summary table. It was developed to help providers understand the complex pneumococcal recommendation across both age and risk groups -- and is an outstanding resource.

The recommendations for routine PCV13 use among adults aged ≥65 years will be reevaluated and revised as needed. CDC's [Pneumococcal Frequently Asked Questions](#) was developed to help healthcare professionals address common questions patients ask regarding pneumococcal vaccination. Information and other resources can be found on CDC's [Pneumococcal Disease](#) and [Pneumococcal Vaccination](#) web pages.

Insurance Coverage and Pneumococcal Vaccines

Most private health insurance covers pneumococcal vaccines. Check with the insurance provider for details on whether there is any cost to your patient and for a list of in-network vaccine providers. Medicare Part B covers the cost of two recommended doses of pneumococcal vaccine when administered 1 year apart. (i.e., 11 full months have passed following the month in which the previous pneumococcal vaccine was administered). As with other preventive care and vaccines, Medicare beneficiaries may not need to pay for the immunization if the doctor or other qualified healthcare provider accepts assignment (Medicare payment) for giving the vaccine. However, patients should check with their provider and plan to review the details of their coverage. Guidance for providers about Medicare Part B billing for pneumococcal vaccines can be found at: <http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNMattersArticles/Downloads/MM9051.pdf>

CMS does have a free subscription service, which allows subscribers to receive notification by e-mail when new information is available. Subscribers select from a list of topics. **Please note that there is not a specific category regarding immunizations.** It can be found at: <http://www.cms.gov/About-CMS/Agency-Information/Aboutwebsite/EmailUpdates.html>. For questions, call the Medicare Call Center at 1-800-MEDICARE (1-800-633-4227).

Regulations, Requirements and Reimbursement

Massachusetts Regulation requires LTC facilities to offer flu vaccine to all personnel. 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. Healthcare provider vaccination reduces mortality in elderly patients.

Regulation [105 CMR 150.002(D)[8]] requires LTC facilities and 105 CMR 158.030(L)(8) require Adult Day Health Programs to provide information about the risks and benefits of flu vaccine and flu vaccine at no cost to all personnel. All LTC facilities and Adult Day Health Programs are also required to report information to MDPH documenting compliance with the vaccination requirement, in accordance with the reporting and data collection guidelines of the Commissioner (105 CMR). MDPH Circular Letter DHCQ 15-12-650 is available at the following: <http://www.mass.gov/eohhs/docs/dph/quality/hcq-circular-letters/2015/dhcq-650.pdf>. For questions regarding the reporting requirements, please contact Eileen McHale at the Bureau of Healthcare Safety and Quality at 617-753-7324 or eileen.mchale@state.ma.us.

The Centers for Medicaid and Medicare Services (CMS) require nursing homes to offer all residents flu and pneumococcal vaccines. See the following link: <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Downloads/MDS-30-QM-Users-Manual-V10.pdf>

Medicare reimbursement for influenza and pneumococcal vaccination:

At this time, a complete list of Medicare B reimbursement rates for the cost of influenza and pneumococcal vaccines in our state is not available. The reimbursement rate for the cost of administration is \$29.25 for Middlesex, Norfolk and Suffolk Counties, and \$27.20 for the rest of the state. For more information on Medicare Part B reimbursement for vaccines, see:

- Influenza Vaccine Payment Allowances - Annual Update for 2017-2018 Season: <https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network->

[MLN/MLNMattersArticles/Downloads/MM10224.pdf](#) (including information on standard payment allowances vs vaccines reimbursed when determined reasonable and necessary by the MAC)

- Seasonal Influenza Vaccine Prices: <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Part-B-Drugs/McrPartBDrugAvgSalesPrice/VaccinesPricing.html>
- Center for Medicaid and Medicare Services Medical Learning Network site: <http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/>.

If you have questions regarding pricing and reimbursement under Medicare Part B, including pneumococcal vaccines, please call the Medicare Call Center at 1-800-MEDICARE (1-800-633-4227).

Vaccine Ordering and Locating Clinics:

Providers Wishing to Order Flu Vaccine for Private Purchase: The national Influenza Vaccine Availability Tracking System (IVATS) assists providers wishing to privately purchase flu vaccine. IVATS identifies available doses of influenza vaccine by formulation and distributor/vendor throughout the season.

Location of Flu and Adult Vaccination Services:

Flu vaccination clinics are listed on the mylocalclinic.com website sponsored by the Massachusetts Health Officers Association (MHOA). MDPH urges agencies to post their clinics on this website. Many boards of health (BOHs) may have clinics that make flu and other vaccines available to both adults and children. BOHs can be contacted individually for questions about possible flu vaccination clinics in Massachusetts municipalities, including the age groups served.

[HealthMap Vaccine Finder](#) assists the public with locating influenza and adult vaccination services within their communities. It is a free, online service where users can search for locations that offer immunizations. Its staff works with partners such as clinics, pharmacies, and health departments to provide accurate and up-to-date information about vaccination services. MDPH urges providers and other agencies to [register their locations](#) on the HealthMap Vaccine Finder site too.

Guidance and Resources for Large Scale Immunization Clinics:

MDPH Guidelines for Immunization Clinics. These guidelines were developed to assist in the planning and operation of vaccination clinics, including annual flu clinics, school-based clinics, and vaccination clinic in response to small-scale emergencies. This document summarizes key points in running a successful clinic, and provides links to many other useful resources.

Guidelines for Large-Scale Influenza Vaccination Clinic Planning. This webpage provides guidelines and recommendations to assist with planning influenza vaccination clinics. Topics include clinic logistics as well as vaccine storage, handling, and administration.

Tools to Assist Satellite, Temporary, and Off-Site Vaccination Clinics. Outlines CDC's Best Practices that are essential for patient safety and vaccine effectiveness in these settings.

CDC At-A-Glance Resource Guide - Vaccine Administration and Storage and Handling. This is a quick guide to key web resources on immunization, vaccine administration, and vaccine storage and handling. The guide includes CDC guidelines, an immunization checklist, educational webinars, and standing orders.

CDC Vaccine Administration Site. This is CDC's main vaccine administration web page with resources for providers about screening for contraindications, vaccine administration, job aids, videos, e-learning and self-study on-line materials.

General Best Practice Guidelines for Immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP). This comprehensive website and report provides evidence-based guidance for healthcare providers related to a broad range of immunization practices and vaccine administration.

MDPH Influenza Vaccine Guidelines and Tools. This webpage contains information about influenza vaccine and links to guidance about planning flu and other mass immunization campaigns, standing orders, screening forms, consent forms, and MDPH-specific vaccine management guidance.

One & Only Campaign. The One & Only Campaign is a public health campaign, led by the Centers for Disease Control and Prevention (CDC) and the Safe Injection Practices Coalition (SIPC), to raise awareness among patients and healthcare providers about safe injection practices.

- **Frequently Asked Questions** Regarding Safe Practices for Medical Injections
- **Pocket Card** on Injection Safety Guidelines from CDC
- **Infographic** describes the impact of unsafe medical injection practices

References and Resources:

For complete guidance, see ACIP's 2017-2018 Recommendations for Prevention and Control of Influenza with Vaccines at <http://www.cdc.gov/mmwr/volumes/65/rr/pdfs/rr6505.pdf>. CDC will be updating its flu website to reflect the new recommendations, including those about LAIV for both providers and patients. So please check their website: www.cdc.gov/flu. The MDPH Flu website at www.mass.gov/flu has information for providers and the general public. Click on '[Information for Healthcare Professionals](#)' for provider resources such as clinical advisories and control guidance, model standing orders, screening forms and planning clinics and campaigns.

For questions about influenza and technical consultation, please call the Massachusetts Department of Public Health Immunization Program at 617-983-6800 or your local board of health. For questions about state-supplied influenza vaccine, please call the Vaccine Unit at 617-983-6828.

CDC Influenza Toolkit for Long-Term Care Employers (resources for increasing vaccination rates among healthcare personnel in LTCFs): <http://www.cdc.gov/flu/toolkit/long-term-care/>

CDC. Prevention and Control of Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP) - United States, 2017-18 Season. MMWR 2017 66(RR-2):1-20.

<https://www.cdc.gov/mmwr/volumes/66/rr/pdfs/rr6602.pdf>

CDC. Prevention and Control of Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization (ACIP) – United States, 2017-2018, Summary of Recommendations. Available at:

<https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/downloads/ACIP-recs-2017-18-summary.pdf>

Background Document for "Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices—United States, 2017-18 Influenza Season." Available at <https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/downloads/ACIP-recs-2017-18-bkgd.pdf>

CDC. Intervals between PCV13 and PPSV23 Vaccine Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2015;64;944-947.

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6434a4.htm?s_cid=mm6434a4_e

CDC. Use of 13-Valent Pneumococcal Conjugate Vaccine and 23-Valent Pneumococcal Polysaccharide Vaccine Among Adults Aged ≥65 Years: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR, 2014, 63;822-825. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6337a4.htm?s_cid=mm6337a4_w

CDC. Interim Guidance for Infection Control Within Healthcare Settings When Caring for Patients with Confirmed, Probable, or Cases Under Investigation of Novel Influenza A Associated with Severe Disease, January 2014. <http://www.cdc.gov/flu/avianflu/h7n9-infection-control.htm>

CDC. Influenza Vaccination Practices of Physicians and Caregivers of Children with Neurologic and Neurodevelopmental Conditions – United States, 2011 – 12 Influenza Season. MMWR 2013;62:744-746. <http://www.cdc.gov/mmwr/pdf/wk/mm6236.pdf>

CDC. Antiviral Drugs: Information for Healthcare Professionals. <https://www.cdc.gov/flu/professionals/antivirals/index.htm>

CDC. Injection Safety and Vaccine Administration Errors at an Employee Influenza Vaccination Clinic, New Jersey, 2015. MMWR 2016:1363-1364. <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6449a3.htm>

Prevention Strategies for Seasonal and Influenza A (H3N2)v in Health Care Settings. Web page last reviewed 8/30/2014. <http://www.cdc.gov/flu/swineflu/prevention-strategies.htm>

CDC. Interim Guidance for Infection Control Within Healthcare Settings When Caring for Patients with Confirmed, Probable, or Cases Under Investigation of Novel Influenza A Associated with Severe Disease, January 2014. <http://www.cdc.gov/flu/avianflu/h7n9-infection-control.htm>

CDC. Immunization of Health-Care Personnel: Recommendations of the ACIP. MMWR November 25, 2011, 2011:1-45. <http://www.cdc.gov/mmwr/PDF/rr/rr6007.pdf>

Vaccine Information Statements (VISs) for all vaccines in many languages: www.immunize.org/vis.

Standing orders for IIV, pneumococcal vaccine, Tdap and other vaccines are available at www.immunize.org or www.mass.gov/dph/imm

CDC's Know the Site Get It Right vaccine safety infographic: <https://www.cdc.gov/vaccines/hcp/infographics/call-the-shots.pdf>

References for Immunization Rates:

Influenza Vaccination Coverage Among Health Care Personnel — United States, 2016–17 Influenza Season, Morbidity and Mortality Weekly Report Weekly / Vol. 66 / No. 38 September 29, 2017
<https://www.cdc.gov/mmwr/volumes/66/wr/pdfs/mm6638a1.pdf>

Influenza Vaccination Coverage Among Pregnant Women — United States, 2016–17 Influenza Season, Morbidity and Mortality Weekly Report, September 29, 2017 / 66(38);1016–1022.
<https://www.cdc.gov/mmwr/volumes/66/wr/pdfs/mm6638a2.pdf>

2015-2016 Influenza Season Vaccination Coverage Reports
<https://www.cdc.gov/flu/fluview/reportshtml/report1516/reporti/index.html>

CDC. Influenza Vaccination Coverage Among Health Care Personnel — United States, 2015–16 Influenza Season.
<https://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6538a2.pdf>

CDC. Influenza Vaccination Coverage Among Pregnant Women – United States:
https://www.cdc.gov/flu/fluview/pregnant-coverage_1516estimates.htm

MDPH. Massachusetts Behavioral Risk Factor Surveillance System:
<http://www.mass.gov/eohhs/gov/departments/dph/programs/admin/dmoa/health-survey/brfss/statewide-reports-and-presentations.html>

MDPH: MA Pregnancy Risk Assessment Monitoring System (PRAMS).
<http://www.mass.gov/eohhs/gov/departments/dph/programs/family-health/pregnancy-risk-assessment-monitoring-system.html>

MDPH. Influenza Vaccination of Health Care Personnel in Massachusetts Clinics, Nursing Homes, Rest Homes, and Adult Day Health Centers 2015-2016 Influenza Season, and Healthcare Associated Infection Data Summaries – Acute Care Hospitals. Accessed July 28, 2017.
<http://www.mass.gov/eohhs/gov/departments/dph/programs/hcq/healthcare-quality/health-care-facilities/flu-vac-hc-personnel/flu-vaccination-reports.html>