Recommendations and Resources for the Control of Influenza and Pneumococcal Disease: 2015 – 2016

Everyone aged 6 months and older should receive flu vaccine every year.
Vaccination should not be delayed to procure a specific vaccine formulation.
Begin offering flu vaccine as soon as it is available.

Table of Contents

What's New for the 2015-2016 Flu Season?

- **Choice of influenza vaccine formulation**

New! This year there is **no** preferential recommendation for any one age-appropriate approved 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:

LAIV vs. IIV quadrivalent vs. trivalent high-dose vs. standard dose

- **Doses needed for children 6 months through 8 years of age**

New!
  - Children 6 months through 8 years who have previously received 2 or more total doses of trivalent or quadrivalent influenza vaccine as of July 1, 2015 need only 1 dose for the 2015-16 season. The 2 previous doses do not need to have been given during the same season or consecutive seasons.
  - Children 6 months through 8 years who have previously received only 1 dose or no doses of influenza vaccine need two doses of vaccine to be fully protected for the 2015-2016 season.

- **2015-2016 influenza vaccine formulations**

For 2015–16, U.S.-licensed influenza vaccines contain new two strains which are different from those in the 2014–15 vaccine.

  - Trivalent influenza vaccines contain:
    - an A/California/7/2009 (H1N1)pdm09-like virus
    - an A/Switzerland/9715293/2013 (H3N2)-like virus ***(New!)***
    - a B/Phuket/3073/2013-like (Yamagata lineage) virus ***(New!)***
  - Quadrivalent vaccines contain the above three viruses and a second influenza B strain, B/Brisbane/60/2008-like (Victoria lineage) virus.

- Most manufacturers began shipping 2015-2016 influenza vaccine in July 2015. There are delays affecting LAIV (FluMist), as well as some other formulations. However, it is expected that there will be adequate supplies of flu vaccine to meet the overall demand this flu season.

For complete guidance, see 2015-2016 Influenza Vaccine Recommendations from the Advisory Committee on Immunization Practices (ACIP).

Influenza Vaccination Rates in Massachusetts:

During the 2013-2014 flu season, 53% of Massachusetts residents received flu vaccine. The highest rate (87%) in Massachusetts was among children 6 months - 4 years of age, where we ranked 2nd in the nation. The lowest rate (45%) was among adults 18-64 years of age. As you can, see no significant improvements were achieved.

Age Group	MA 2012-13	MA 2013-2014	Change in Percentage Points between 2012-2013 and 2013-2014
Everyone 6 mos +	58%	53%	-5
Children 6 mos – 17 yrs	75%	72%	-3
• Children 6 mos – 4 yrs	83%	87%	+4
• Children 5 – 12 yrs	78%	72%	-6
• Adolescents 13 – 17 yrs	67%	61%	-6
Adults 18 yrs +	53%	49%	-4
• Adults 18 – 64 yrs	49%	45%	-4
• Adults, 18-64 yrs, High Risk	58%	58%	0
• Adults 65 yrs +	71%	64%	-7

Your recommendation and offer of vaccine are the most important determinants of whether or not your patient gets vaccinated.

According to the 2010-2011 Pregnancy Risk Assessment Monitoring System (PRAMS), 75% of pregnant women in Massachusetts whose provider offered them flu vaccine received the vaccine, compared with only 35% of pregnant women whose provider did not offer vaccine. These data underscore the importance of providers not only strongly recommending vaccination, but also **offering vaccine on site.**

Influenza Vaccine Recommendations:

The ACIP's 2015-2016 Influenza Vaccine Recommendations are summarized below.

Timing of Flu Vaccination:

To avoid missed opportunities for vaccination, providers should offer flu vaccination during routine health-care visits and hospitalizations as soon as vaccine is available. However, as long as flu viruses are circulating, **vaccination should continue to be offered throughout the flu season**, even in January or later. 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 lasts usually through April and May.

Use Flu Season to Assess Patients for the Need for Pneumococcal and Other Vaccines:
Use annual flu vaccination to assess patients for the need for other vaccines, including Tdap and pneumococcal conjugate (PCV13) and pneumococcal polysaccharide (PPSV23) vaccines.

New!

Use IIV or LAIV in Children 2 through 8 Years of Age:
For 2015-16 flu season, CDC and ACIP recommend annual influenza vaccination for children 2 through 8 years of age with **either** nasal spray flu vaccine (i.e., LAIV) or injectable flu vaccine (i.e., IIV), with no preference expressed for either vaccine when either one is otherwise appropriate and available.

Please note: the 2014-2015 preference for using the nasal spray flu vaccine (LAIV) instead of injectable flu vaccine (IIV) for healthy children 2 through 8 years of age was **not** renewed. More information is available at: http://www.cdc.gov/media/releases/2015/s0226-acip.html and the 2015-2016 Influenza Vaccine Recommendations.

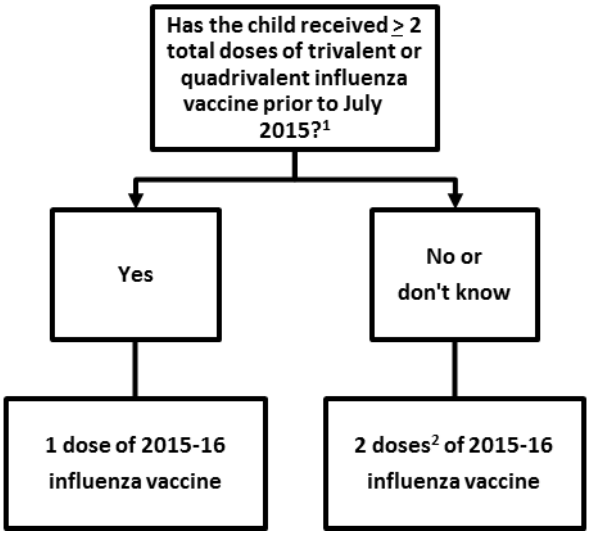
Vaccine Dose Considerations for Children 6 Months through 8 Years of Age:
A new algorithm for determining the appropriate number of doses for children aged 6 months through 8 years has been developed. This guidance reflects the thinking that H1N1 pandemic vaccine strain is no longer believed to be antigenically novel and that we have 2 other new vaccine strains for the A/H3N2 and B/Yamagata vaccine components.

New!

- Children 6 months through 8 years who have previously received 2 or more total doses of trivalent or quadrivalent influenza vaccine as of July 1, 2015 need only 1 dose for the 2015-16 season. The two previous doses do not need to have been given during the same season or consecutive seasons.

- Children 6 months through 8 years who have previously received only 1 dose or no doses of influenza vaccine need two doses of vaccine to be fully protected for the 2015-2016 season.

Figure 1: Flu vaccine dosing algorithm for children 6 months through 8 years of age, 2015-2016



[1] The 2 doses need not have been received during the same season or consecutive seasons.
[2] Doses should be administered ≥ 4 weeks apart.

Note: Children 6 months through 8 years of age who have not received 2 or more doses in any previous season as described above require 2 doses in 2015-16.

Information for Travelers:
The Southern Hemisphere experiences its flu season from April through September, and flu activity can occur year-round in the tropics. People traveling to parts of the world where flu activity is ongoing, and who have not received flu vaccine for the current season, should get vaccinated. This is particularly important for people at risk for flu-related complications. This also applies to people who are traveling in the temperate regions of the Northern Hemisphere as part of tourist groups (e.g., on cruise ships) that may include people from other parts of the world where flu activity is ongoing. For more information, go to: www.cdc.gov/flu/travelers/travelersfacts.htm

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 within 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:

- Annual vaccination of residents and staff, and rapid outbreak response can prevent serious illness and death.
- During flu season it can be challenging to coordinate a response in a timely manner. Therefore, proactive development of an influenza outbreak response protocol within agencies serving vulnerable populations, facilitates a rapid response when an outbreak occurs. For more information see http://www.cdc.gov/ncbddd/developmentaldisabilities/features/keyfinding-flu-vaccine-neurologic.html
- Notification of MDPH and other appropriate agencies immediately is essential (see pages 7 and 8).

See the table on next page for the Approved Influenza Vaccines for Different Ages 2015-2016.

Table 4. Approved Influenza Vaccines for Different Ages 2015-2016[1]

Vaccine	Trade Name	Manufacturer	Presentation	Mercury Content from Thimerosal (µg Hg/0.5 mL)	Ovalbumin Content (µg/0.5 mL)	Age Indication	Route
Inactivated Quadrivalent (IIV4) Standard Dose	Fluarix Quadrivalent	GSK	0.5 mL PFS	0.0	≤ 0.05	≥ 3 yrs	IM
	FluLaval Quadrivalent	ID Biomedical (distributed by GSK)	5.0 mL MDV	< 25.0	≤ 0.3	≥ 3 yrs	IM
	Fluzone Quadrivalent	Sanofi Pasteur	0.25 mL PFS	0.0	0.01-0.02 mcg/ 0.25 mL[2]	6 - 35 mos	IM
			0.5 mL PFS	0.0	0.02-0.04[2]	≥ 36 mos	IM
			0.5 mL SDV	0.0		≥ 36 mos	IM
			5.0 mL MDV	25		≥6 mos	IM
	Fluzone Intradermal[3]	Sanofi Pasteur	0.1 mL prefilled microinjection	0.0	0.02mcg/ 0.1 mL[2]	18-64 yrs	ID
Inactivated Influenza Vaccine, Trivalent (IIV3) Standard Dose	Afluria	bioCSL	0.5 mL PFS	0.0	< 1	≥ 9 yrs via needle[4]	IM
			5.0 mL MDV	24.5		≥ 9 yrs via needle[4]; 18-64 yrs via jet injector[4]	IM
	Fluvirin	Novartis	0.5 mL PFS (Tip cap may contain natural rubber latex)	≤ 1	≤ 1	≥4 yrs	IM
			5.0 mL MDV	25.0			IM
	Fluzone	Sanofi Pasteur	5.0 mL MDV	25.0	0.1[2]	≥ 6 mos	IM
IIV3 Cell Culture Based (ccIIV3) Standard Dose	Flucelvax	Novartis	0.5 mL PFS (Tip cap may contain natural rubber latex)	0.0	See Footnote 5	≥ 18 yrs	IM
IIV3 High Dose[6]	Fluzone High Dose	Sanofi Pasteur	0.5 mL PFS	0.0	0.1[2]	≥ 65 yrs	IM
Recombinant Trivalent (RIV3)	Flublok	Protein Sciences	0.5 mL SDV	0.0	0.0	≥18 yrs	IM
Live attenuated influenza virus (LAIV)	FluMist Quadrivalent	Medimmune	.2 mL single dose prefilled intranasal sprayer	0.0	<0.24 (per 0.2mL)	2 – 49 years, healthy, non-pregnant	IN

Abbreviations: IM= intramuscular, ID=intradermal, IN=intranasal; MDV= multi-dose vial, PFS= (single-dose) prefilled syringe, SDV= single-dose vial

(See next page for footnotes.)

[1] Check Food and Drug Administration for approved prescribing information for 2015-16 influenza vaccines for the most updated information, including (but not limited to) indications, contraindications, and precautions. Package inserts are available at www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/ucm093833.htm

[2] Personal communication Sanofi Pasteur. Concentration of ovalbumin in 0.25 mL PFS presentation of Fluzone Quadrivalent is extrapolated from the concentration in 0.5 mL presentation.

[3] Quadrivalent inactivated vaccine, intradermal: A 0.1-mL dose contains 9 µg of each vaccine antigen (36 µg total).

[4] Age indication per package insert is ≥ 5 years; however, the ACIP recommends Afluria not be used in children aged 6 months through 8 years because of increased risk of febrile reactions noted in this age group with bioCSL's 2010 Southern Hemisphere IIV3 formulation. If no other age-appropriate, licensed inactivated seasonal influenza vaccine is available for a child aged 5 - 8 years who has a medical condition that increases the child's risk for influenza complications, Afluria can be used. Discuss with the parents or caregivers the benefits and risks of influenza vaccination with Afluria before administering this vaccine. Afluria may be used in persons ≥9 years.

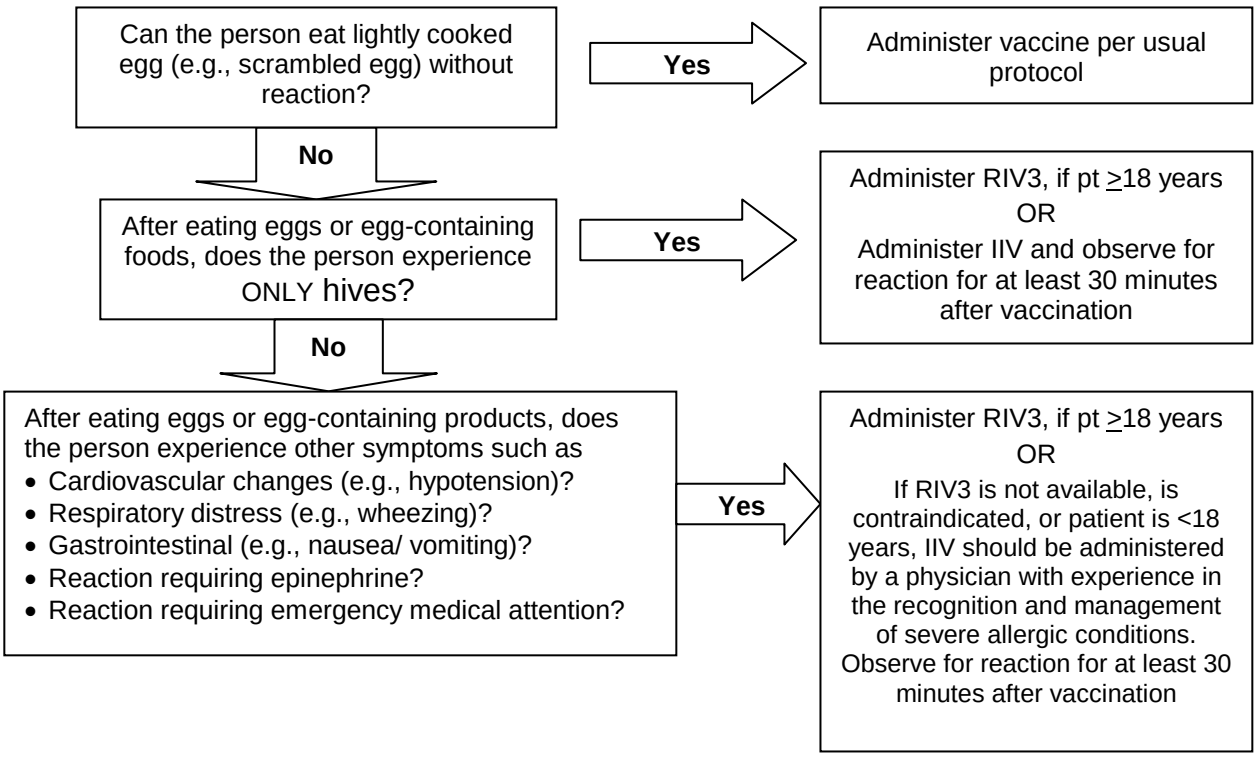
[5] For Flucelvax this information is not included in package insert. The total egg protein is estimated to be less than 50 femtograms ($5x10^{-8}$µg) total egg protein (and less ovalbumin) per 0.5 mL dose of Flucelvax.

[6] Trivalent inactivated vaccine, high-dose: A 0.5-mL dose contains 60 µg of each vaccine antigen (180 µg total).

Evaluation and Management of Those with a History of Egg Allergies:

- Persons with a history of egg allergy who experience only hives after exposure to egg should receive influenza vaccine. Because relatively fewer data are available for use of LAIV in this situation, use IIV or RIV. **RIV is egg-free** and may be used for persons aged ≥18 years who have no other contraindications. However, IIV (egg- or cell-culture based) may also be used, with the following additional safety measures:
  - Vaccine should be administered by a healthcare provider who is familiar with the potential manifestations of egg allergy; and
  - Observe vaccine recipients for at least 30 minutes for a reaction after administration of each dose.
- Persons who have had reactions to egg involving such symptoms as angioedema, respiratory distress, lightheadedness, or recurrent emesis; or who required epinephrine or another emergency medical intervention may receive RIV3, if aged ≥18 years and there are no other contraindications. If RIV3 is not available or recipient is not within the indicated age range, IIV should be administered by a physician with experience in the recognition and management of severe allergic conditions.
- Some persons who report allergy to egg might not be egg-allergic. Those who are able to eat lightly cooked egg (e.g., scrambled egg) without reaction are unlikely to be allergic. Egg-allergic persons might tolerate egg in baked products (e.g., bread or cake). Tolerance to egg-containing foods does not exclude the possibility of egg allergy. Confirm egg allergy with a consistent medical history of adverse reactions to eggs and egg-containing foods, plus skin and/or blood testing for immunoglobulin E antibodies to egg proteins.
- For individuals who have no known history of exposure to egg, but who are suspected of being egg-allergic on the basis of previously performed allergy testing, consultation with a physician with expertise in the management of allergic conditions should be obtained prior to vaccination. Alternatively, RIV3 may be administered if the recipient is aged ≥18 years.
- CDC is continuing to monitor the data available about the safety of giving IIV and LAIV to those with egg allergy.

The algorithm below summarizes these recommendations for management of persons who report an allergy to eggs.



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 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 ILI (e.g., with encephalopathy, myocarditis, or pericarditis)
- ☎ 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 highly pathologic 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. 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 at 800-462-5540 or 617-753-8150. Group homes, prisons or other settings should also contact the appropriate oversight agency for your facility.

2) Report rapid influenza flu test results by teleform: A teleform for reporting positive results of rapid influenza tests to MDPH is available by calling 617-983-6801.

3) 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/rdiq-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).

Influenza testing and infection control (including antiviral treatment), below: Providers should routinely check for updates at www.mass.gov/flu and www.cdc.gov/flu/professionals/.

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 antigen testing for detecting influenza A and B virus infections is widely available. 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 (beginning in October) 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. Results are returned electronically or by fax and mail to the submitting provider.

- **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. Providers are encouraged to submit samples from influenza cases with suspect antiviral drug resistance.

- **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. These suspicions may be based on travel history or animal exposure.

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 <-20ºC 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 A 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.

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. These should be incorporated into infection control practices as one component of standard precautions. Tools to help promote and implement these recommendations are available at www.cdc.gov/flu/professionals/infectioncontrol.

1) Assess the influenza and pneumococcal vaccination status of all patients and the flu vaccination status of all staff. Vaccinate all susceptible patients and staff.

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

3) Active surveillance and testing for new illness and cases: Educate staff about the signs and symptoms of influenza-like illness.

4) Respiratory hygiene/cough etiquette: Post visual alerts (in appropriate languages) at the entrance to outpatient facilities (e.g., emergency departments, physician offices, outpatient clinics) instructing patients and persons 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 the Massachusetts Health Promotion Clearinghouse at https://massclearinghouse.ehs.state.ma.us/ .

5) Novel strains of influenza: If you suspect any novel strain of influenza, please contact your local board of health and MDPH immediately at 617-983-6800. Highly-pathogenic avian influenza (HPAI) A H5 viruses have been identified in birds in the United States since December 2014. The majority of these infections have occurred in poultry, including backyard and commercial flocks. There have been no cases identified in Massachusetts birds to date; these HPAI A H5 viruses are not known to have caused disease in humans. Providers should check for updates at http://www.cdc.gov/flu/avianflu/index.htm, http://www.cdc.gonbnnv/flu/avianflu/h7n9-virus.htm and at http://www.cdc.gov/flu/swineflu/prevention-strategies.htm.

6) 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/.

Clinicians should be alert to changes in antiviral recommendations that might occur as additional antiviral resistance data becomes available during the 2015-2016 season.

7) Rapid testing reminder: 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, use RT-PCR and/or viral culture.

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/eohhs/docs/dph/disease-reporting/guide/influenza.rtf.

Vaccine Ordering and Locating Clinics:

Some resources for providers and patients can be found below.

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.

For questions about influenza 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.

Pneumococcal Vaccine Recommendations: *New!*

Background: Beginning last season, PCV13 and PPSV23 are recommended to be administered routinely **in a series** to all healthy adults aged ≥65 years. This year, the optimal interval between doses PCV13 and PPSV23 for immunocompetent adults in this age group was **updated** to be **≥1year** (changed from 6-12 months). This change in recommendation was based on the considerations summarized below.

1) Shorter intervals (e.g. 8 weeks) may be associated with increased reactogenicity.
2) Longer intervals (≥1 year) may lead to an improved immune response.
3) Changing interval for the PCV13-PPSV23 sequence to ≥1 year simplifies and harmonizes the recommendation. It allows the intervals to be the same, regardless of the order in which the two vaccines are given, in immunocompetent adults aged ≥65 years.
4) The recently revised CMS regulations for pneumococcal vaccines allow for Medicare coverage of a different, second pneumococcal vaccine one year after the first vaccine was given. The change in the ACIP recommended interval for the PCV13-PPSV23 sequence would make ACIP recommendations consistent with the current Medicare policy.

Current Recommendations:

The latest ACIP recommended intervals between PCV13 and PPSV23 vaccines have been published in the MMWR.

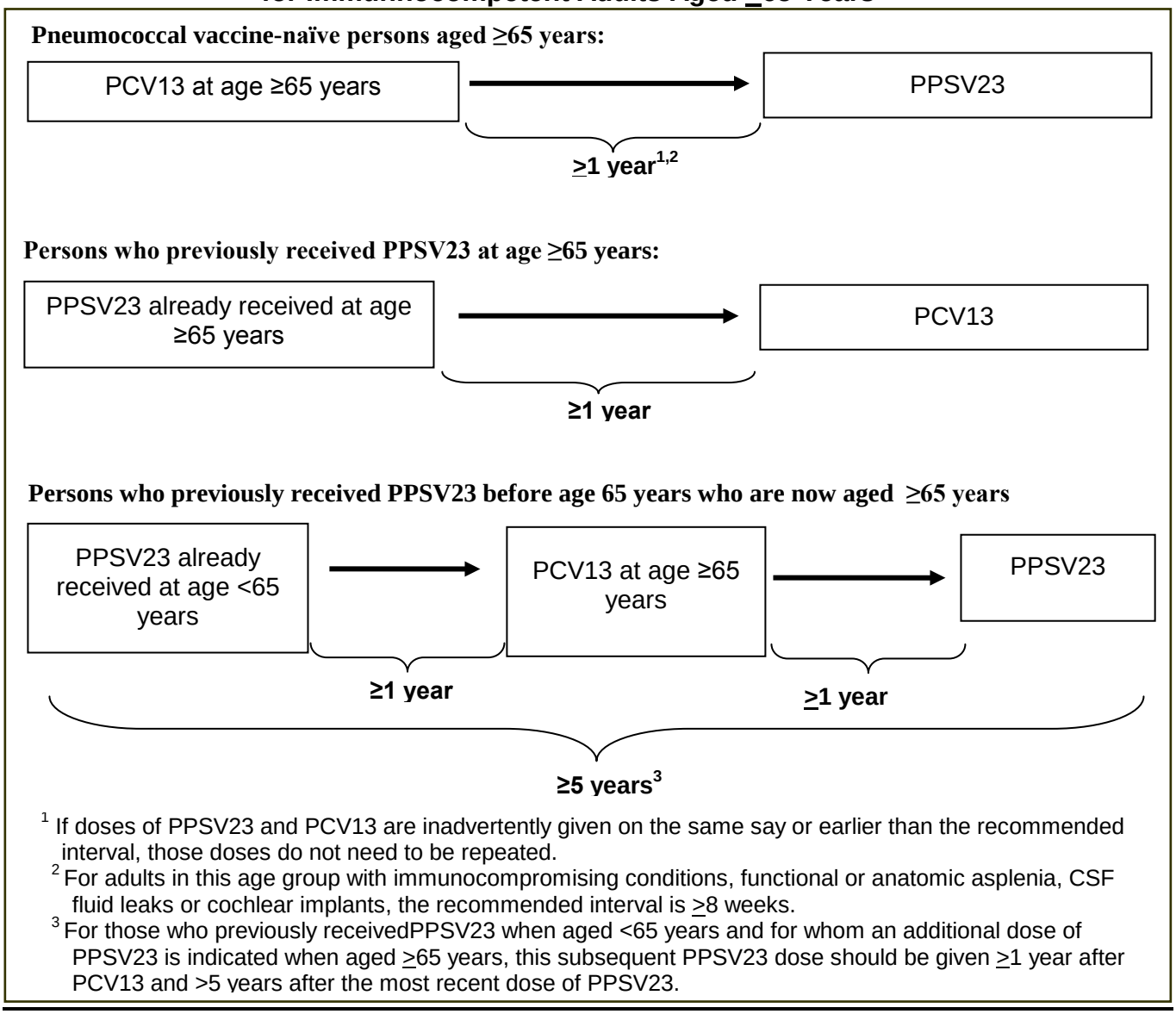
PCV13 and PPSV23 are recommended to be administered routinely **in a series** to all immunocompetent adults aged ≥65 years. **PCV13** should be administered **only once** for all adults. Specific recommendations are based on a person's previous pneumococcal vaccine history.

- **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. If PPSV23 cannot be given during this time window, the dose of PPSV23 should be given during the next visit.
- **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 received a dose of PCV13 at 64 years or younger should **no**t 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 Immunnocompetent Adults Aged ≥65 Years



[1] If doses of PPSV23 and PCV13 are inadvertently given on the same say 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 receivedPPSV23 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 recommendations for routine PCV13 use among adults aged ≥65 years will be reevaluated in 2018 and revised as needed. CDC's Pneumococcal Frequently Asked Questions was developed to help healthcare professionals address common questions patients ask regarding pneumococcal vaccination. Also, information can be found on CDC's Pneumococcal Disease and Pneumococcal Vaccination web pages. MDPH's Control of Influenza and Pneumococcal Disease in Long-Term Care Facilities contains additional guidance and will be posted at www.mass.gov/flu.

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 health care 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

References and Resources:

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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

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CDC. Prevention and Control of Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP) - United States, 2013-14. MMWR 2013;62(No.7):1-43. http://www.cdc.gov/mmwr/pdf/rr/rr6207.pdf

CDC. Antiviral Agents for the Treatment and Prophylaxis of Influenza - Recommendations of the ACIP. MMWR 2011;60(RR-1):1-24. http://www.cdc.gov/mmwr/pdf/rr/rr6001.pdf

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. 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

CDC. Influenza Vaccination of Health-Care Personnel: Recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Advisory Committee on Immunization Practices (ACIP) 2006:55(No. RR-2). www.cdc.gov/mmwr/preview/mmwrhtml/rr5502a1.htm.

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

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

Visit the MDPH web site (www.mass.gov/flu). Hard copies and technical consultation are available by calling MDPH at 617-983-6800 or 888-658-2850.