



Massachusetts Department of Public Health Bureau of Infectious Disease and Laboratory Sciences



MDPH Influenza Update

9-27-2017

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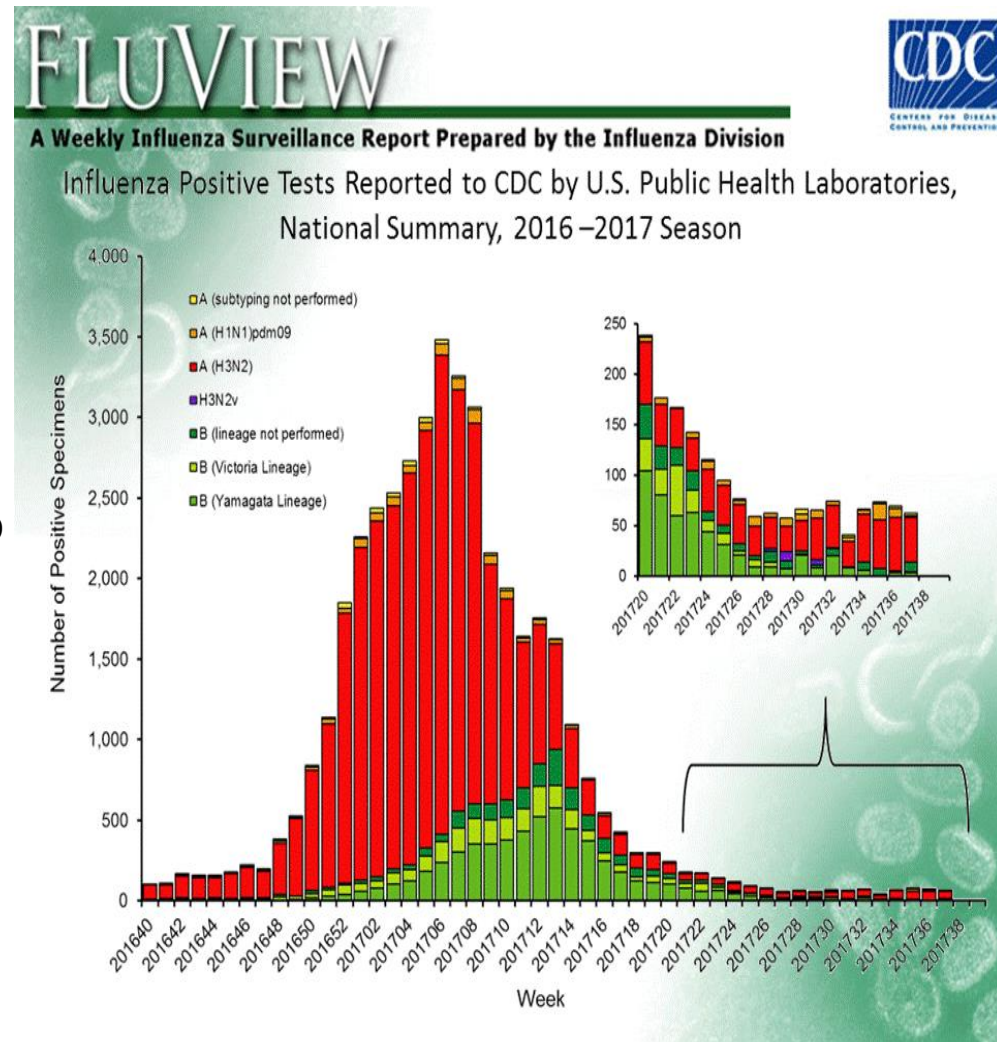
Outline

- 2016-2017 Influenza Season Summary
- Influenza Immunization Rates
- 2017-2018 Influenza Vaccine Recommendations

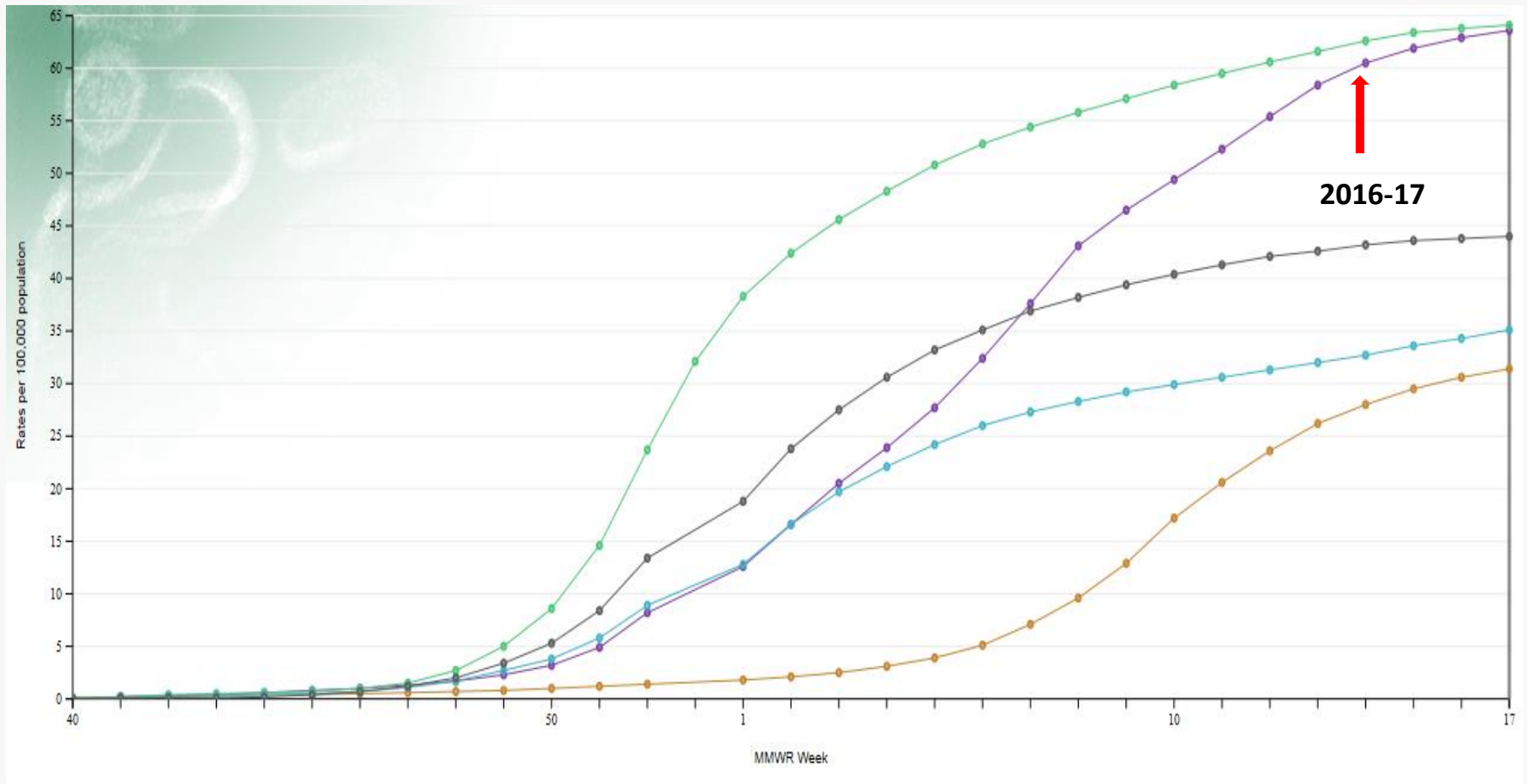


2016-2017 Influenza Season National Summary

- Moderate season with severity indicators within range of what has been seen in H3N2 season
- Peak in February but there were regional differences
- Influenza A (H3N2) predominated worldwide and in the US
 - 2nd peak in US and MA with B strain
- Majority of circulating strains similar to those in the vaccine
- Vaccine Efficacy Overall: 42%
 - 34% A(H3N2)
 - 56 %: B viruses
- Flu vaccination rates among children steady at 59%. For adults there was a 2% increase to 43%.



Laboratory-Confirmed Influenza-Associated Hospitalizations, Cumulative, 2016-2017 and Previous 4 Seasons



Age group: Overall, Week: 17

Rates per 100,000 by Age Group

— 2016-17 **63.6** — 2015-16 **31.4** — 2014-15 **64.1** — 2013-14 **35.1** — 2012-13 **44**

Influenza Immunization Rates



MA Flu Vaccination Rates vs. US

	MA 2015-16	MA 2016-17	US 2016-17
Everyone 6 mos+	50%	50%	47%
Children 6 mos – 17 yrs	75%	#3 72%	59%
○ Children 6 mos – 4 yrs	85%	82%	70%
○ Children 5 – 12 yrs	79%	71%*	60%
○ Adolescents 13 – 17 yrs	63%	#2 65%	49%
Adults 18 +	44%	45%	43%
○ Adults 18 – 64 y/o	40%	41%	38%
○ Adults HR 18 – 64 y/o	48%	49%	46%
○ Adults 50 – 64 y/o	46%	47%	45%
○ Adults 65+	60%	59%	65%

2015-16 and 2016-17 National Immunization Survey (NIS) and Behavioral Risk Factor Surveillance System (BRFSS)

*Statistically significant

Healthcare Provider Influenza Vaccination Rates

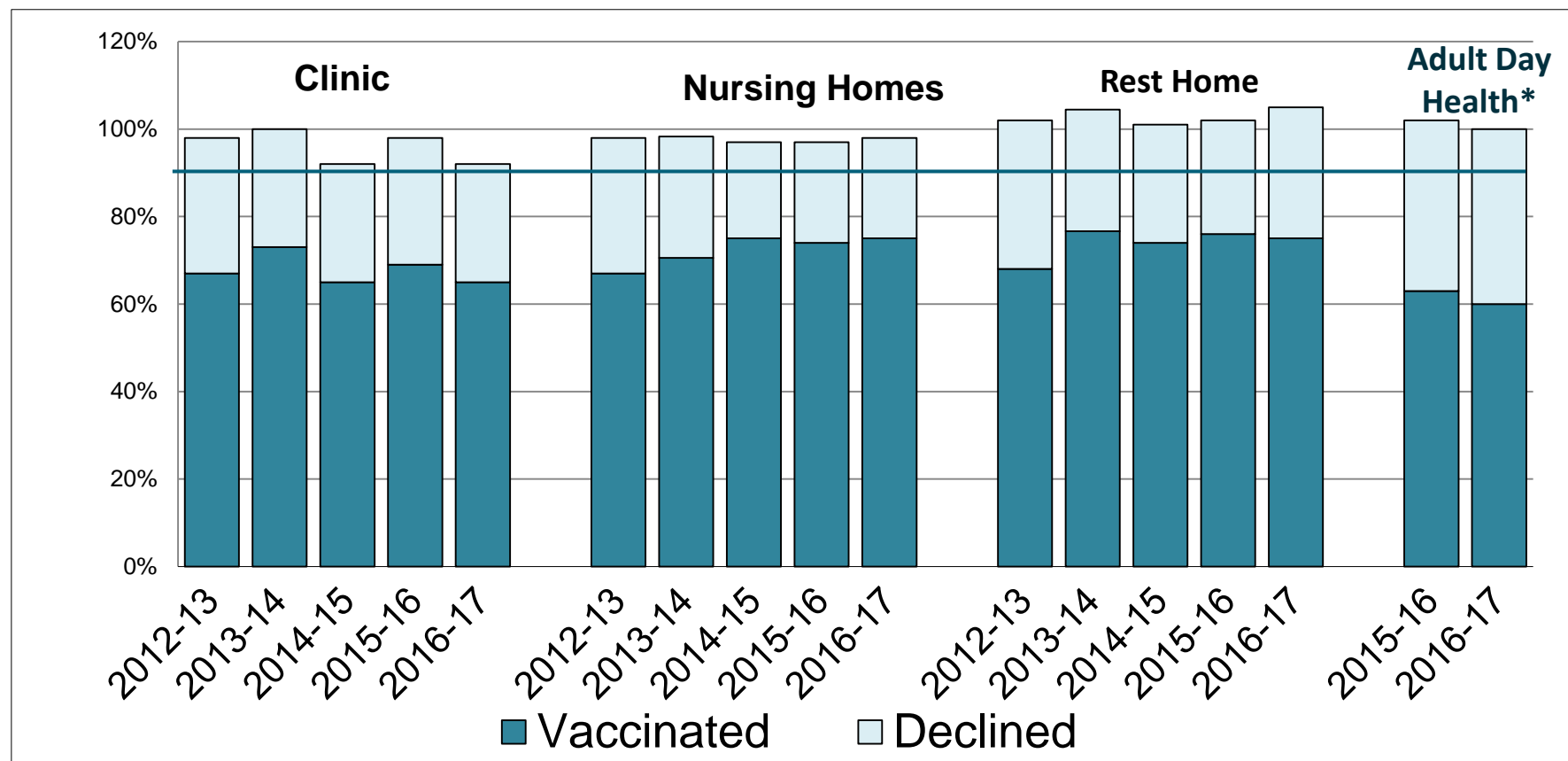
Annual influenza vaccination is the best method of preventing influenza and potentially serious complications. The current Healthy People 2020 goal for influenza vaccination among healthcare personnel is 90%.

The table below 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
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: ¹[MA BRFSS](#) ²[Influenza Vaccination of Health Care Personnel in MA Nursing Homes and Acute Care Hospitals](#) ³[CDC Health Care Personnel Influenza Survey, MMWR 2016](#)

Mean Percent of HCP Influenza Vaccinations and Declinations as Reported by Massachusetts Clinics, Nursing Homes, Rest Homes and Adult Day Health Programs: 2012-2017 Seasons



* 2015-2016 Season was the first year Adult Day Health Programs were required to report.

Vaccine Recommendations: Key Updates for 2017-18

- 1) Composition of U.S. influenza Vaccines for 2017-18
- 2) LAIV **not** Recommended for Use During the 2017-18 Season
- 3) New Licensure /Approvals
- 4) Updated Recommendations for Influenza Vaccination of Pregnant Women



Main Flu CDC Website
www.cdc.gov/flu



ACIP Recommendation for Influenza Vaccine the 2017-2018 Season

Recommendations published in 3 separate documents:

- **2017-2018 ACIP influenza recommendations:**

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

- See pages 5 and 6 for the primary changes and updates, which are not extensive this year.

- New** • **Summary of this year's recommendations:**

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

- This 4 page 'Job Aid' is a new document that contains all the critical recommendations, tables and flow charts.

- **Background document for this year's recommendations:**

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

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP)—United States, 2017-18

Summary of Recommendations
For additional information: *MMWR Recomm Rep* 2017;66(RR-2):1-20
<https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html>

GROUPS RECOMMENDED FOR VACCINATION

- Routine annual influenza vaccination is recommended for all persons aged ≥6 months who do not have contraindications.
- Emphasis should be placed on vaccination of high-risk groups and their contacts and caregivers (no hierarchy is implied by order of listing):
 - Children aged 6-59 months;
 - Adults aged ≥50 years;
 - Persons with chronic pulmonary (including asthma), cardiovascular (except isolated hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus);
 - Persons who are immunocompromised due to any cause, (including medications or HIV infection);
 - Women who are or will be pregnant during the influenza season;
 - Children and adolescents (aged 6 months through 18 years) receiving aspirin- or salicylate-containing medications and who might be at risk for Reye syndrome;
 - Residents of nursing homes and other long-term care facilities;
 - American Indians/Alaska Natives;
 - Persons who are extremely obese (BMI ≥40); and
 - Caregivers and contacts of those at risk:
 - Health care personnel in inpatient and outpatient care settings, medical emergency-response workers, employees of nursing home and long-term care facilities who have contact with patients or residents, and students in these professions who will have contact with patients;
 - Household contacts and caregivers of children aged ≤59 months (i.e., <5 years), particularly contacts of children aged <6 months, and adults aged ≥50 years; and
 - Household contacts and caregivers of persons who are in one of the high-risk categories listed above.

INFLUENZA VACCINE COMPOSITION FOR 2017-18

- All 2017-18 influenza vaccines licensed in the United States will contain hemagglutinin (HA) derived from influenza viruses antigenically similar to those recommended by FDA.
- 2017-18 trivalent vaccines:
 - an A/Michigan/45/2015 (H1N1)pdm09-like virus;
 - an A/Hong Kong/4801/2014 (H3N2)-like virus; and
 - a B/Brisbane/60/2008-like virus (Victoria lineage).
- 2017-18 quadrivalent vaccines:
 - the same three HA antigens as trivalent vaccines, plus
 - a B/Phuket/3073/2013-like virus (Yamagata lineage).

TIMING OF VACCINATION

- Optimally, vaccination should occur before onset of influenza activity in the community.
 - Vaccination should be offered by end of October, if possible.
 - Vaccination should be offered as long as influenza viruses are circulating and unexpired vaccine is available.
- Children 6 months through 5 years who require 2 doses should receive their first dose as soon as possible after vaccine becomes available, and the second dose ≥4 weeks later.

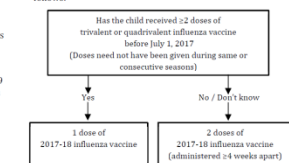
GUIDANCE FOR USE IN SPECIFIC SITUATIONS

Volume per Dose for Children and Adults

- Children aged 6 through 35 months may receive either:
 - 0.5mL Flulaval Quadrivalent (IV4) intramuscularly, or
 - 0.25mL Fluzone Quadrivalent (IV4) intramuscularly.
- Note that dose volume differs for these two brands. Care should be taken to administer the correct dose.
- Children aged 3 through 17 years may receive 0.5mL intramuscularly of an age-appropriate IV formulation.
- Adults aged 18 years and older may receive 0.5mL intramuscularly of an age-appropriate IV or RIV.
- Alternatively, adults aged 18 through 64 years may receive 0.1mL intradermally of Fluzone Intradermal Quadrivalent (administered using the included delivery device).
- If a smaller intramuscular dose (e.g., 0.25mL) is administered to an adult, an additional dose should be administered to provide a full 0.5mL dose. If the error is discovered later (after the recipient has left the vaccination setting), a full 0.5mL dose should be administered as soon as the recipient can return.

Number of Doses for Children Aged 6 Months through 8 Years

- Determine the number of doses needed for this age group as follows:



Pregnant Women

- All women who are pregnant or who might be pregnant during the influenza season should receive influenza vaccine.
 - Any licensed, recommended, and age-appropriate, influenza vaccine may be used.
- **LAIV is not recommended for use in any population for 2017-18.** Providers who use it should note that LAIV should not be used during pregnancy.
- Influenza vaccine can be administered at any time during pregnancy, before and during the influenza season.

Adults Aged ≥65 years

- May receive any age-appropriate IV (standard- or high-dose, trivalent or quadrivalent, adjuvanted or unadjuvanted) or RIV.
- High-dose IV3 exhibited superior efficacy over comparator standard-dose IV3 in a large randomized trial, and may provide better protection than standard dose IV3 for this age group.
- However, vaccination should not be delayed to find a particular product if an appropriate one is available.

Available at: <https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html>

2017-18 Influenza Vaccine Composition

■ Trivalent vaccines:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus **(NEW)**;
- an A/Hong Kong/4801/2014 (H3N2)-like virus; and
- a B/Brisbane/60/2008-like virus.

■ Quadrivalent vaccines:

- The above three viruses, and
- a B/Phuket/3073/2013-like virus.

LAIV Not Recommended for 2017-18

- **LAIV4 not recommended for use during the 2017-18 season**
 - Recommendation extended from 2016-17 season
 - Due to concerns regarding low effectiveness against influenza A(H1N1)pdm09 viruses during 2013-14 and 2015-16
 - ACIP will consider new data concerning LAIV as it becomes available

Flublok Quadrivalent

- RIV4 (Protein Sciences)
- Licensed in October 2016 for persons aged ≥ 18 years, though not available until the 2017-18 season
- Hemagglutinin produced in insect cell line using a viral vector
- Egg-free
- Previous trivalent formulation of Flublok (RIV3) also expected to be available

FluLaval Quadrivalent

- Standard-dose IIV4 (GSK)
- **Previously licensed for ages ≥ 3 years; since November 2016 licensed for ≥ 6 months**
 - One of only two influenza vaccines approved for children 6 through 35 months of age
- **Dose volume is **same** for all ages (0.5mL)**
 - Previously 6 through 35 month-olds recommended to receive smaller doses of influenza vaccines than older persons
 - Recommendation based on increased reactogenicity of older, whole- virus vaccines
 - Split virus vaccines less reactogenic in this age group
 - FluLaval Quadrivalent 0.5mL safety comparable to 0.25mL Fluzone Quadrivalent

FluLaval Quadrivalent, cont.

■ Potential for confusion

- The one other product licensed for 6-through 35 month olds is 0.25mL Fluzone—dose volumes are **different** for this age group.
- **Dose volume** is distinct from **number of doses** needed:
 - A child aged 6 months through 8 years who needs 2 doses (because they are receiving flu vaccine for the first time, OR had a total of only 1 dose in any previous season) will need 2 doses of the appropriate dose volume for age and formulation.
 - For example, a first-time vaccinee and who gets 0.5mL FluLaval Quadrivalent for a first dose
 - *Still* needs a second dose of influenza vaccine, ≥ 4 weeks later. The 2 doses do not need to be the same product.

Afluria Quadrivalent

- **Standard-dose IIV4 (Seqirus)**
- **Licensed in August 2016,**
 - Initially for persons aged ≥ 18 years
 - Now for persons aged ≥ 5 years
- **Intramuscular**
 - Like Afluria (trivalent), can be administered via jet injector (the Pharmajet Stratis), but only for those aged 18 through 64 years
- **Trivalent formulation of Afluria also available this season**
 - Both Afluria and Afluria Quadrivalent are licensed for ≥ 5 years

Influenza Vaccination of Pregnant Women

- **Influenza vaccination recommended by ACIP for women who will be pregnant during influenza season since 2004**
 - Increased risk for severe influenza illness in pregnant women, particularly during second and third trimesters;
 - Influenza disease may harmful to the developing fetus and might be associated with neural tube defects, congenital heart disease and oral clefts.
- **Influenza vaccine protects pregnant women and their infants during the first 6 months of life.**
- **Previous language stated pregnant women should receive inactivated influenza vaccine (IIV)**
- **2017-18, pregnant women may receive any licensed, recommended, age-appropriate influenza vaccine (IIV or RIV), **any** time during pregnancy**

Flu Vaccine and Miscarriage

• Study Findings

- Women vaccinated with a vaccine containing the pandemic H1N1 (H1N1pdm09) component and who also had been vaccinated the prior season with that same component had an increased risk of miscarriage in the 28 days after vaccination.
- This study does **not** quantify the risk of miscarriage and does **not** prove that flu vaccine was the cause of the miscarriage.
- Wide confidence intervals, long history of signals of increased miscarriages that have not proved true upon completion of analysis, cases older than controls.

• Influenza vaccines have a good safety record.

- Multiple studies have not found a link between flu vaccination and miscarriage.
- There is an ongoing investigation to study this issue. Results are anticipated in late 2018 or 2019.

- **CDC, ACOG and ACIP recommendations have **NOT** changed for influenza vaccination of pregnant women.**



Donahue, G., et.al. Vaccine 2017;35:5314-5322.
<http://dx.doi.org/10.1016/j.vaccine.2017.06.069>



Many countries recommend that pregnant women receive the flu vaccine.

New study finds link between flu vaccine and miscarriage. But is it real?

Science

By Jon Cohen | Sep. 13, 2017, 1:30 PM

[doi:10.1126/science.aap9515](https://doi.org/10.1126/science.aap9515)

Study shows miscarriage risk may have increased after flu shots, puzzling researchers

By HELEN BRANSWELL @HelenBranswell / SEPTEMBER 13, 2017



... Dr. Laura Riley, an ACIP member, is not convinced the finding is real. Riley, who is vice chair of obstetrics at Massachusetts General Hospital, said she doesn't think there's a biologically plausible explanation for why repeated flu shots would increase the risk of miscarriage. "I remain skeptical," she said, adding the question needs more study.

"It's not going to change my practice, that's for sure," Riley told STAT. "I feel like women should be vaccinated when the vaccine becomes available and when they're in my office. And if that's in the first trimester, second trimester, third trimester, I'm vaccinating."

She and other doctors will be doing a lot of that in the weeks to come. This is, after all, flu shot season in the Northern Hemisphere.

<https://www.statnews.com/2017/09/13/flu-vaccine-pregnancy-miscarriage/>

Unchanged for 2017-18

- 1) Many influenza Vaccine Available, But **No** Preference
- 2) Recommendations for Persons with Egg Allergy
- 3) Groups Recommended for Vaccination (See Extras)
- 4) Vaccination of Children 6 months through 8 years
(See Extras)

TABLE 1. Influenza vaccines — United States, 2017–18 influenza season*

Trade name	Manufacturer	Presentation	Age indication	Mercury (from thimerosal, µg/0.5 mL)	Latex	Route
Inactivated Influenza vaccines, quadrivalent (IIV4s), standard-dose [†]						
Afluria Quadrivalent	Seqirus	0.5 mL prefilled syringe	≥18 years	NR	No	IM [§]
		5.0 mL multidose vial	≥18 years (by needle/syringe) 18 through 64 years (by jet injector)	24.5	No	IM
Fluarix Quadrivalent	GlaxoSmithKline	0.5 mL prefilled syringe	≥3 years	NR	No	IM
FluLaval Quadrivalent	ID Biomedical Corp. of Quebec (distributed by GlaxoSmithKline)	0.5 mL prefilled syringe	≥6 months	NR	No	IM
		5.0 mL multidose vial	≥6 months	<25	No	IM
Fluzone Quadrivalent	Sanofi Pasteur	0.25 mL prefilled syringe	6 through 35 months	NR	No	IM
		0.5 mL prefilled syringe	≥3 years	NR	No	IM
		0.5 mL single-dose vial	≥3 years	NR	No	IM
		5.0 mL multidose vial	≥6 months	25	No	IM
Inactivated Influenza vaccine, quadrivalent (cIIV4), standard-dose, [†] cell culture-based						
Fluceivax Quadrivalent	Seqirus	0.5 mL prefilled syringe	≥4 years	NR	No	IM
		5.0 mL multidose vial	≥4 years	25	No	IM
Inactivated influenza vaccine, quadrivalent (IIV4), standard-dose, intradermal [¶]						
Fluzone Intradermal Quadrivalent	Sanofi Pasteur	0.1 mL single-dose prefilled microinjection system	18 through 64 years	NR	No	ID**
Inactivated Influenza Vaccines, trivalent (IIV3s), standard-dose [†]						
Afluria	Seqirus	0.5 mL prefilled syringe	≥5 years	NR	No	IM
		5.0 mL multidose vial	≥5 years (by needle/syringe) 18 through 64 years (by jet injector)	24.5	No	IM
Fluvirin	Seqirus	0.5 mL prefilled syringe	≥4 years	≤1	Yes ^{††}	IM
		5.0 mL multidose vial	≥4 years	25	No	IM
Adjuvanted inactivated influenza vaccine, trivalent (aIIV3), [†] standard-dose						
Fluad	Seqirus	0.5 mL prefilled syringe	≥65 years	NR	Yes ^{††}	IM
Inactivated Influenza Vaccine, trivalent (IIV3), high-dose ^{§§}						
Fluzone High-Dose	Sanofi Pasteur	0.5 mL prefilled syringe	≥65 years	NR	No	IM
Recombinant Influenza Vaccine, quadrivalent (RIV4) ^{¶¶}						
Flublok Quadrivalent	Protein Sciences	0.5 mL prefilled syringe	≥18 years	NR	No	IM
Recombinant Influenza Vaccine, trivalent (RIV3) ^{¶¶}						
Flublok	Protein Sciences	0.5 mL single-dose vial	≥18 years	NR	No	IM
Live Attenuated Influenza Vaccine, quadrivalent (LAIV4) ^{***} (not recommended for use during the 2017–18 season)						
FluMist Quadrivalent	MedImmune	0.2 mL single-dose prefilled intranasal sprayer	2 through 49 years	NR	No	NAS

Abbreviations: ACIP = Advisory Committee on Immunization Practices; ID = intradermal; IM = intramuscular; NAS = intranasal; NR = not relevant (does not contain thimerosal).

* Immunization providers should check Food and Drug Administration–approved prescribing information for 2017–18 influenza vaccines for the most complete and updated information, including (but not limited to) indications, contraindications, warnings, and precautions. Package inserts for U.S.-licensed vaccines are available at <https://www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/ucm093833.htm>. Availability of specific products and presentations might change and differ from what is described in this table and in the text of this report.

† Standard dose intramuscular IIVs contain 15 µg of each vaccine HA antigen (45 µg total for trivalents and 60 µg total for quadrivalents) per 0.5 mL dose.

§ For adults and older children, the recommended site for intramuscular influenza vaccination is the deltoid muscle. The preferred site for infants and young children is the anterolateral aspect of the thigh. Specific guidance regarding site and needle length for intramuscular administration is available in the ACIP General Best Practice Guidelines for Immunization, available at <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html>.

¶ Quadrivalent inactivated influenza vaccine, intradermal: a 0.1-mL dose contains 9 µg of each vaccine HA antigen (36 µg total).

** The preferred injection site is over the deltoid muscle. Fluzone Intradermal Quadrivalent is administered per manufacturer's instructions using the delivery system included with the vaccine.

†† Syringe tip cap might contain natural rubber latex.

§§ High-dose IIV3 contains 60 µg of each vaccine antigen (180 µg total) per 0.5 mL dose.

¶¶ RIV contains 45 µg of each vaccine HA antigen (135 µg total for trivalent 180 µg total for quadrivalent) per 0.5 mL dose.

*** ACIP recommends that FluMist Quadrivalent (LAIV4) not be used during the 2017–18 season.

Many Different Flu Vaccines

No Preferences for Any Type (LAIV Not Recommended)

- ACIP/CDC express **no** preferences for any one type of influenza vaccine over another, where more than one is appropriate and available
- Due to concern about missed opportunities, vaccination should **not** be delayed in order to obtain a specific product.

Inactivated (IIV) vs. Recombinant (RIV) vs. Live Attenuated (LAIV)

■ IIV:

- Contain inactivated virus, split or subunit
 - High Dose or Standard Dose,
 - Trivalent or quadrivalent,
 - Unadjuvanted or adjuvanted
- Many brands, some approved for those as young as 6 months of age
- Most are intramuscular; one intradermal (for 18 through 64 years)
 - Egg- or cell culture-based

■ RIV:

- Contain recombinant HA
- Egg-free
- Trivalent or (starting in 2017-18) quadrivalent

LAIV (live attenuated virus) is **not recommended for use** in 2017-18

High-Dose vs. Standard-Dose (IIVs Only)

- **SD-IIV3 and IIV4:**
 - Contain 15µg of HA total per virus (45µg total for trivalents and 60µg total for quadrivalents)

- **HD-IIV3 (Fluzone High Dose):**
 - Approved for use in those ≥ 65 years
 - Contain 60µg of HA total per virus (180µg total).
 - Observed to provide stronger immune response and have greater efficacy in persons aged ≥ 65 years

Unadjuvanted or adjuvanted (IIVs Only)

- **Currently licensed U.S. influenza vaccines are unadjuvanted, with one exception**
- **aIIV3 (Fluad first available in U.S. for 2016-17)**
 - Approved for use in those ≥ 65 years
 - Contains MF59, an oil-in-water adjuvant
 - Intended to provide better immune response
 - Non-inferior response compared with IIV3 in pre-licensure studies
- **Safety established in multiple clinical and observational studies (more injection site reactions versus standard-dose vaccine)**
- **>60 million doses distributed worldwide for use in adults age 65 years and older by 2013**

Egg-Based vs. non Egg-Based

- For most influenza vaccines, viruses are propagated in eggs. Two exceptions:
 - **cclIV4 (Flucelvax Quadrivalent):**
 - Viruses are propagated in canine kidney cells rather than eggs
 - However, some of the initial viruses supplied to the manufacturer are egg- derived (for 2017-18, only the H3N2 is cell-derived), so not considered egg-free
 - **RIV3/RIV4 (Flublok):**
 - HA is produced without viruses, by introduction of HA genetic sequence into an insect cell line (*Spodoptera frugiperda*) using a *Baculovirus* vector
 - Considered egg-free

Influenza Vaccination of Persons with Egg Allergy

- ❑ **Unchanged from 2016-17**
- ❑ **Egg allergic persons can receive any licensed, recommended vaccine that is otherwise appropriate (IIV or RIV)**
 - However, RIV not licensed for persons under 18 years of age)
- ❑ **One additional measure remains for persons with a history of severe allergic reaction to egg (i.e., any symptom other than hives)**
 - “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 health care provider who is able to recognize and manage severe allergic conditions.”
- ❑ **No specific post-vaccination observation period recommended**
 - However, per the ACIP General Best Practices guidelines, providers should consider observing all recipients of any vaccine for 15 minutes to avoid injury due to syncope

MDPH Immunization Program

Contact Information



Immunization Program Main Number

For questions about immunization recommendations, disease reporting, etc.

- **Phone:** 617-983-6800
- **Fax:** 617-983-6840
- **Website:** www.mass.gov/dph/imm

MIIS Help Desk

- **Phone:** 617-983-4335
- **Fax:** 617-983-4301
- **Email:** miishelpdesk@state.ma.us
- **Websites:** www.contactmiis.info | www.mass.gov/dph/miis

MDPH Vaccine Unit

- **Phone:** 617-983-6828
- **Fax:** 617-983-6924
- **Email:** dph-vaccine-management@state.ma.us
- **Website:** www.mass.gov/dph/imm (click on Vaccine Management)

EXTRAS

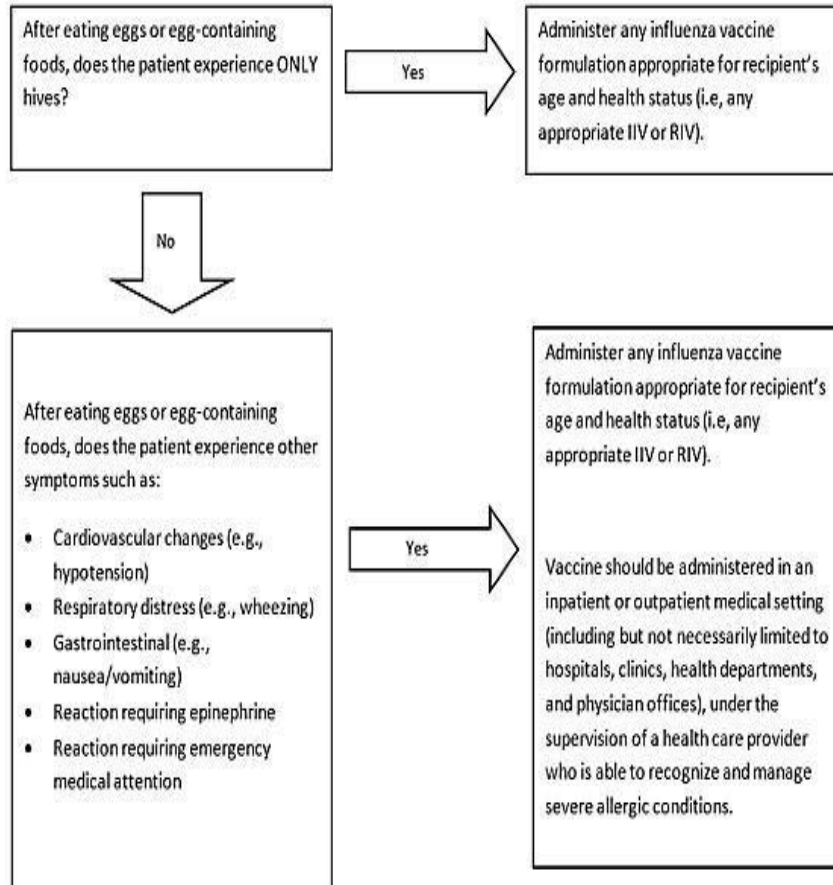
Groups Recommended for Vaccination

- **Routine annual influenza vaccination is recommended for all persons ≥ 6 months of age who do not have contraindications**
- **While vaccination is recommended for everyone in this age group, there are some for whom it is particularly important:**
 - People aged ≥ 6 months who are at high risk of complications and severe illness
 - Contacts and caregivers of these people, and of infants under age 6 months (because there is no vaccine approved for children this age)

Groups at Increased Risk for Influenza Complications and Severe Illness

- Children aged 6 through 59 months and adults aged ≥ 50 years (children under 6 months of age are also at high risk, but cannot be vaccinated);
- Persons with chronic pulmonary (including asthma) or cardiovascular (except isolated hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus);
- Immunosuppressed persons;
- Women who are or will be pregnant during the influenza season;
- Children and adolescents (aged 6 months–18 years) who are receiving aspirin therapy and who might be at risk for experiencing Reye syndrome after influenza virus infection;
- Residents of nursing homes and other long-term care facilities;
- American Indians/Alaska Natives; and
- Persons who are extremely obese (BMI ≥ 40).

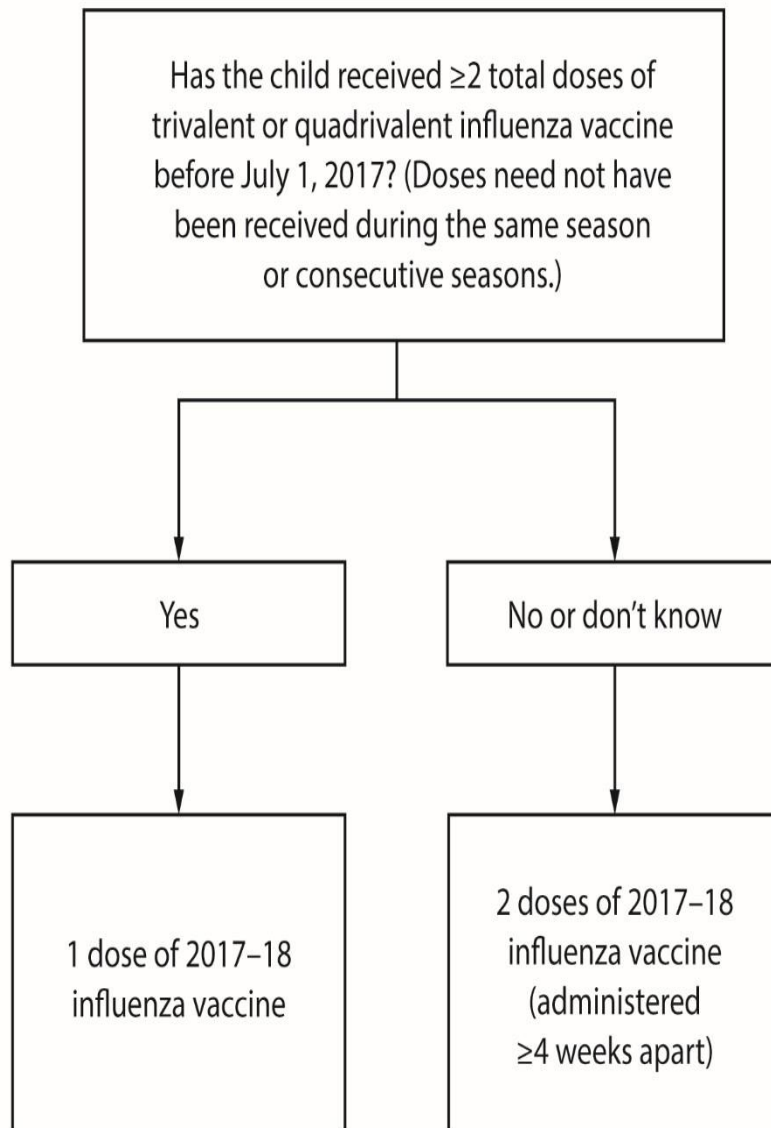
NOTE: Regardless of a recipient's allergy history, all vaccination providers should be familiar with the office emergency plan and be currently certified in cardiopulmonary resuscitation. Epinephrine and equipment for maintaining an airway should be available for immediate use. (CDC. General recommendations on immunization—recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Recomm Rep 2011;60(No. RR-2)



IIV=Inactivated Influenza Vaccine; RIV=Recombinant Influenza Vaccine.

Egg Allergy Algorithm

- ❑ No longer printed in the MMWR
- ❑ Available on the CDC Web Pages at: <http://www.cdc.gov/flu/protect/vaccine/egg-allergies.htm>



Dosing Algorithm for Children aged 6 months through 8 years, 2017-18

- ❑ **Similar to past two seasons**
- ❑ **If two cumulative doses received prior to July 1, 2017, only one dose needed for 2017-18**