



Give it Your Best Shot: Which Flu Shot is Best?

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The 2016-2017 flu season is here, and people are going to their doctor's office or local pharmacy to get their annual flu shot. This year the Centers for Disease Control and

Prevention (CDC) recommends use of injectable influenza vaccines, including inactivated influenza vaccines and recombinant influenza vaccines. Both trivalent and quadrivalent flu vaccines are available, so which one should patients get?

All persons 6 months and older without contraindications should receive an annual influenza vaccination. There is no recommendation for one influenza vaccine product over another for people where more than one is appropriate. The flu shot is especially important for people who are at high-risk for serious complications from influenza. People who are at high-risk include children under five years old, adults 65 years and older, pregnant women, residents in nursing homes and long-term care facilities, and people with certain medical conditions including asthma, heart disease, diabetes mellitus, HIV, and cancer.

There are a few new recommendations for the 2016-2017 flu season:

- Due to low effectiveness during the 2013-2014 and 2015-2016 seasons, the Advisory Committee on Immunization Practices (ACIP) recommends that the live influenza vaccine, FluMist[®], should not be used during the 2016-2017 flu season.
- People who have experienced only hives after exposure to eggs can get a licensed and recommended flu vaccine that is otherwise indicated for their appropriate age and health.
- People who had other symptoms such as angioedema, respiratory distress, lightheadedness, and recurrent emesis, or who needed epinephrine or another emergency intervention after exposure to egg, can get a licensed and recommended flu vaccine appropriate for their age and health. These people should be immunized in a medical setting and supervised by a health care provider who is able to recognize and manage severe allergic reactions.

- Providers should observe all patients for 15 minutes after vaccination to decrease the risk of injury if syncope is experienced. The recommendation to observe egg allergic recipients for 30 minutes post-vaccination has been removed.

There have also been new influenza vaccine products introduced to the market this year. These include:

- The 2016-2017 trivalent vaccines contain an A/California/7/2009 (H1N1)-like virus, an A/Hong Kong/4801/2014 (H3N2)-like virus, and a B/Brisbane/60/2008-like virus (Victoria lineage). Quadrivalent vaccines include an additional virus strain, a B/Phuket/3073/2013-like virus (Yamagata lineage).
- An adjuvanted trivalent inactivated influenza vaccine (aIIV3), Fluvad[™], was approved by the FDA in November 2015 for people ≥ 65 years old. Adjuvants can be added to vaccines to create a stronger immune response to the vaccination. This is an alternative to other vaccines approved for this age group, but ACIP and CDC do not state a preference for this age group.
- A quadrivalent, cell culture-based inactivated influenza vaccine, Flucelvax[®], was approved in May 2016 for people ≥ 4 years old. It is an alternative to other vaccines approved for this age group, but there is no preference for any particular vaccine.

There are many vaccine options available, but what is important is that everyone 6 months and older receive a flu shot every year, regardless if it is inactivated or recombinant. The flu vaccine not only protects against the flu, but it also can prevent doctors' visits, missed school and work due to the flu, and flu-related hospitalizations. It is important to recommend the flu vaccine to patients to not only protect themselves, but to also protect their loved ones who are more susceptible to serious flu complications.

References:

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CDC. Key facts about seasonal flu vaccine. Centers for Disease Control and Prevention. <http://www.cdc.gov/flu/protect/keyfacts.htm>. Accessed November 9, 2016.

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Trivalent Flu Vaccines Available:

Brand Name	Type of Flu Vaccine	Presentation	Ages Indication	Route
Afluria®	Inactivated Influenza Vaccine (IIV3), standard dose	0.5 mL single dose prefilled syringe	≥9 years	Intramuscular (IM)
		5 mL multi-dose vial	≥9 years (needle and syringe); 18-64 years (jet injector)	
Fluvarin®	Inactivated Influenza Vaccine (IIV3), standard dose	0.5 mL single dose prefilled syringe	≥4 years	Intramuscular (IM)
		5 mL multi-dose vial	≥4 years	
Fluad™	Adjuvanted Inactivated Influenza Vaccine (aIIV3), standard dose	0.5 mL single-dose prefilled syringe	≥ 65 years	Intramuscular (IM)
Fluzone® High-Dose	Inactivated Influenza Vaccine (IIV3), high dose	0.5 mL single-dose prefilled syringe	≥ 65 years	Intramuscular (IM)
Flublok®	Recombinant Influenza Vaccine (RIV3)	0.5 mL single-dose vial	≥ 18 years	Intramuscular (IM)

Quadrivalent Flu Vaccines Available:

Brand Name	Type of Flu Vaccine	Presentation	Ages Indication	Route
Fluarix® Quadrivalent	Inactivated Influenza Vaccine (IIV4), standard dose	0.5 mL single dose prefilled syringe	≥ 3 years	Intramuscular (IM)
Flulaval® Quadrivalent	Inactivated Influenza Vaccine (IIV4), standard dose	0.5 mL single dose prefilled syringe	≥ 3 years	Intramuscular (IM)
		5 mL multi-dose vial		
Fluzone® Quadrivalent	Inactivated Influenza Vaccine (IIV4), standard dose	0.25 mL single-dose prefilled syringe	6-35 months	Intramuscular (IM)
		0.5 mL single-dosed prefilled syringe	≥ 36 months	
		0.5 mL single-dose vial	≥ 36 months	
		5 mL multi-dose vial	≥ 6 months	
Fluzone® Intradermal Quadrivalent	Inactivated Influenza Vaccine (IIV4), high dose	0.1 mL single-dose prefilled syringe	18-64 years	Intradermal (ID)
Flucelvax Quadrivalent®	Inactivated Influenza Vaccine, cell culture-based (ccIIV4), standard dose	0.5 mL single-dose prefilled syringe	≥ 4 years	Intramuscular (IM)



Cough and Cold Recommendations

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With winter fast approaching, the common cold is right around the corner. It can be very confusing for our patients walking through the cough and cold aisle at the local pharmacy, especially patients with specific disease states that limit what medications can be taken to alleviate symptoms. The key to navigating the aisles is to have helpful resources or a specific recommendation from a provider. This article will explain which over-the-counter medications are appropriate based on symptoms and past medical history to assist in making a recommendation.

If your patient is suffering from a cough, what type of cough is it? Is it a wet cough that produces sputum? Or is it a dry, non-productive cough? For a dry, non-productive cough caused by chemical or mechanical respiratory tract irritation, recommend a product that contains dextromethorphan (DM), a cough suppressant.¹ A few brand names of these products include Robitussin Cough Relief® or Delsym Cough®. There are a few considerations with this type of medication though, one being for patients with diabetes. These products contain sucrose and high fructose corn syrup which can raise blood sugar. For a patient with diabetes, recommend a product that is sugar-free. Examples of these include Robitussin Cough + Chest Congestion DM® sugar free or Diabetic Tussin DM®. These products contain non-calorie sweeteners like aspartame that do not raise blood sugar. Dextromethorphan is contraindicated in patients on monoamine oxidase inhibitor (MAOIs) or who have in the past two weeks stopped MAOIs. If a patient is on an MAOI, suggest drinking lots of fluids and using cough drops (without DM) to help alleviate the cough. Antihistamines, cough suppressants, and decongestants are contraindicated with MAOIs. The use of antitussives in colds has questionable efficacy and is not recommended.¹

If your patient is suffering from a wet, productive cough, a product that contains an expectorant like guaifenesin is ideal.² Suppressing a productive cough is not recommended as this may lead to retention of lower respiratory secretions, increasing risk of airway obstruction and secondary bacterial infections.¹ Mucinex® contains guaifenesin and is available in liquid or tablet form. Guaifenesin tablets are safe for patients with diabetes as they do not contain sucrose, and are also safe for patients taking MAOIs. Liquid guaifenesin may increase a patient with diabetes' blood glucose because of added sugar for flavoring. Water is also an effective mucolytic.

Many cough and cold products contain more than one ingredient such as an antihistamine, antitussive, analgesic and decongestant. Patients may not need all of the ingredients of a combination product or have a contraindication to one. It is important to recommend a single entity product.

Antihistamines do not stop the drip from a runny nose due to a cold but diphenhydramine, a first generation antihistamine, may work as a cough suppressant in nonproductive coughs caused by chemical or mechanical respiratory tract irritation. Patients with benign prostatic hyperplasia (BPH) or open angle glaucoma should not use an antihistamine because the antihistamine can increase anticholinergic side effects and intraocular pressure.

Decongestants such as phenylephrine and pseudoephedrine are not recommended for use in patients with uncontrolled hypertension as they can increase blood pressure.² Decongestants are sympathomimetics and stimulate alpha-adrenergic receptors to constrict blood vessels. However, decongestants help nasal and eustachian tube congestion and cough associated with post nasal drip from a cold.

Topical decongestants such as Afrin® contain oxymetazoline and may be an option for patients to use for 3-5 days with the benefit of minimal systemic absorption. An alternative product that does not contain a decongestant and is safe to use for a patient with hypertension would be Coricidin HBP®. The cough and cold product contains an antihistamine, chlorpheniramine, and a cough suppressant, dextromethorphan. Usually this product does not help with head congestion, therefore a simple analgesic, like ibuprofen or acetaminophen, may be used for head/nasal pressure. Saline spray is a safe option for all patients to decongest nasal passageways.

A common question patients may ask is which cough drop is best? One that has menthol, benzocaine, or pectin as an active ingredient provides more pain relief than other products.¹ Patients with diabetes should look for a sugar-free cough drop. A word of caution though, is to limit sugar-free cough drops as the commonly used artificial sweetener, sorbitol, can cause stomach upset and diarrhea if used excessively.

There are many cough and cold products on the market today that can be contraindicated in certain disease states. Recommend sugar-free products for patients with diabetes, a decongestant free cold product for patients with hypertension, and recommend patients that are on MAOIs to avoid cold products. The aisle will be much easier for your patients to navigate with a recommendation.

References:

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Cough and Cold Recommendations

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	No Disease State	Diabetes	Hypertension	BPH and open angle glaucoma	MAOI use
Dry cough	Dextromethorphan (Robitussin DM/Cough Relief®; Delsym DM®) Diphenhydramine (Benadryl®) Cough drop containing menthol, benzocaine, or pectin	Sugar free dextromethorphan (Robitussin Cough and Chest Congestion DM sugar-free®; Diabetic Tussin®) Diphenhydramine (Benadryl®) Sugar-free cough drop containing menthol, benzocaine, or pectin	Dextromethorphan (Robitussin DM/Cough Relief®; Delsym DM®) Diphenhydramine (Benadryl®) Coricidin HBP® Cough drop containing menthol, benzocaine, or pectin	Dextromethorphan (Robitussin DM/Cough Relief®; Delsym DM®) Cough drop containing menthol, benzocaine, or pectin	Cough drops that are DM free but contain menthol, benzocaine, or pectin; plenty of fluids
Productive Cough	Guaifenesin (Mucinex®) Diphenhydramine (Benadryl®) Cough drop containing menthol, benzocaine, or pectin	Guaifenesin (Mucinex®) Diphenhydramine (Benadryl®) Sugar-free Cough drop containing menthol, benzocaine, or pectin	Guaifenesin (Mucinex®) Diphenhydramine (Benadryl®) Coricidin HBP® Cough drop containing menthol, benzocaine, or pectin	Guaifenesin (Mucinex®) Cough drop containing menthol, benzocaine, or pectin	Guaifenesin (Mucinex®) Cough drop containing menthol, benzocaine, or pectin
Head/nasal congestion	Pseudoephedrine (Sudafed®) Phenylephrine (Sudafed PE®) Ibuprofen or Acetaminophen (Motrin®, Tylenol®)	Pseudoephedrine (Sudafed®) Phenylephrine (Sudafed PE®) Acetaminophen (Tylenol®)	Coricidin HBP® Acetaminophen (Tylenol®)	Acetaminophen (Tylenol®)	Ibuprofen or Acetaminophen (Motrin®, Tylenol®)