Stopping the Flu Starts with You: 
Recommendations for the Current Flu Season

Faculty
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The influenza vaccine is one that is recommended for everyone over 6 months of age unless they have a contraindication to receiving the vaccine. Every year there are many people who remain unvaccinated despite the recommendation to receive the vaccine. This presentation will discuss the vaccination rates from the 2017-2018 influenza season as well as the new recommendations for the 2018-2019 influenza season. Due to many people choosing not to receive the influenza vaccine for a variety of reason we will also discuss some of the myths associated with the vaccine and techniques to dispel these myths. We will also discuss ways to increase the number of vaccinations that you give in your pharmacy. Finally, since many people may only come into your pharmacy to receive the influenza vaccine we will discuss ways to assess whether or not these patients need any additional vaccinations at that time.

Learning Objectives

<table>
<thead>
<tr>
<th>Pharmacy Technician</th>
<th>Pharmacist</th>
<th>Nurse</th>
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<tbody>
<tr>
<td>1. Identify patients who should receive the influenza vaccine.</td>
<td>1. Describe the influenza surveillance data from the 2017-2018 influenza season.</td>
<td>1. Describe the influenza surveillance data from the 2017-2018 influenza season.</td>
</tr>
<tr>
<td>2. Specify ways to talk to patients about receiving the influenza vaccine.</td>
<td>2. Outline recommendations from the Advisory Committee on Immunization Practices (ACIP) for the 2018-2019 influenza season.</td>
<td>2. Outline recommendations from the Advisory Committee on Immunization Practices (ACIP) for the 2018-2019 influenza season.</td>
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<tr>
<td>3. List ways to improve vaccination numbers in your practice.</td>
<td>3. Dispel myths related to the influenza vaccine.</td>
<td>3. Dispel myths related to the influenza vaccine.</td>
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<tr>
<td>4. Identify additional vaccination needs for patients during encounters throughout the influenza season.</td>
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Stopping the Flu Starts With You

RECOMMENDATIONS FOR THE CURRENT FLU SEASON

Faculty: Gretchen Kreckel Garofoli, PharmD, BCACP

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Objectives

- Identify relevant influenza surveillance data from the 2017-2018 influenza season.
- Identify recommendations from the Advisory Committee on Immunization Practices (ACIP) for the 2018-2019 influenza season.
- Recognize common myths related to the influenza vaccine.
- Identify additional vaccination needs for patients during encounters throughout the influenza season.

2017-2018 Flu Recap

High severity season
- Influenza like illness was at or above baseline for 19 consecutive weeks
- Record breaking flu hospitalization rates
  - Elevated pneumonia and influenza mortality for 16 weeks

172 pediatric deaths from the flu
- 80% occurred in unvaccinated children
Influenza

Symptoms
- Fever or feeling feverish/chills
- Cough
- Sore throat
- Runny or stuffy nose
- Muscle or body aches
- Headaches
- Fatigue
- Vomiting/diarrhea (some may have, more common in children than adults)

Cold vs. Flu

<table>
<thead>
<tr>
<th>Signs and Symptoms</th>
<th>Influenza</th>
<th>Cold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom onset</td>
<td>Abrupt</td>
<td>Gradual</td>
</tr>
<tr>
<td>Fever</td>
<td>Usual</td>
<td>Rare</td>
</tr>
<tr>
<td>Aches</td>
<td>Usual</td>
<td>Slight</td>
</tr>
<tr>
<td>Chills</td>
<td>Fairly common</td>
<td>Uncommon</td>
</tr>
<tr>
<td>Fatigue, weakness</td>
<td>Usual</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Sneezing</td>
<td>Sometimes</td>
<td>Common</td>
</tr>
<tr>
<td>Stuffy nose</td>
<td>Sometimes</td>
<td>Common</td>
</tr>
<tr>
<td>Sore throat</td>
<td>Sometimes</td>
<td>Common</td>
</tr>
<tr>
<td>Chest discomfort, cough</td>
<td>Common</td>
<td>Mild to moderate</td>
</tr>
<tr>
<td>Headache</td>
<td>Common</td>
<td>Rare</td>
</tr>
</tbody>
</table>
Influenza

High Risk Groups

• People 65 years of age and older
• People with certain chronic medical conditions (asthma, diabetes, heart disease)
• Pregnant women
• Young children

Influenza

Complications

• Pneumonia
• Otitis media
• Sinus infections
• Myocarditis, Encephalitis, Myositis, Rhabdomyolysis
• Multi-organ failure
• Sepsis
• Dehydration
• Worsening of chronic medical conditions
Influenza

Diagnosis

• Usually occurs during the colder months of the year
• Require health care provider to swipe inside of patients nose or swab back of throat for testing
• Rapid Influenza Diagnostic Tests (RIDTs)
  • Results within 10-15 minutes
  • Some pharmacies provide
• Rapid Molecular Assays
  • Results within 15-20 minutes
  • More accurate than RIDTs
• Other tests can be done in specialized laboratories
  • Takes 1 or more hours for results

Influenza

Treatment

• Most patients do not need medical care
  • Rest at home
  • Avoid contact with other people
• Antiviral Medications (start within 48 hours of illness beginning)
  • Oseltamivir (Tamiflu®)
  • Zanamivir (Relenza®)
  • Peramivir (Repivab®)
Influenza

**Burden of Disease:**

- Likely underreported
- Cases: 9.2-35.6 million
- Hospitalizations: 140,000-710,000
- Deaths: 12,000-56,000

Influenza Vaccination Coverage by November 2017

- 38.6% of all persons 6 months and older
- 38.8% of children 6 months through 17 years
- 38.5% of adults 18 years and older
Influenza Vaccination Coverage at End of 2016-2017 Season

- 46.8% of all persons 6 months and older
- 59% of children 6 months through 17 years
- 43.3% of adults 18 years and older

Locations of Influenza Vaccination
Influenza Vaccinations in Health Care Personnel

Flu vaccination coverage among health care personnel vaccinated by November and by April for 2010–11 through 2016–17 flu seasons, and by November for 2017–18 flu season, Internet panel survey, United States

Percentage vaccinated


Influenza season

Stopping the Flu Starts With You
## Influenza Vaccinations in Health Care Personnel

### Main reason reported for receiving flu vaccination among vaccinated health care personnel (n=1,664), Internet panel survey, November 2017, United States

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage among vaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>To protect myself from flu (n = 698)</td>
<td>35.6%</td>
</tr>
<tr>
<td>Because it was mandatory or I had to for work (n = 384)</td>
<td>28.6%</td>
</tr>
<tr>
<td>To protect my friends or family from flu (n = 178)</td>
<td>9.2%</td>
</tr>
<tr>
<td>To protect patients from getting flu (n = 134)</td>
<td>8.7%</td>
</tr>
<tr>
<td>Flu vaccine was/is offered free of charge at work (n = 81)</td>
<td>6.3%</td>
</tr>
<tr>
<td>Any other reason (n = 191)</td>
<td>11.5%</td>
</tr>
</tbody>
</table>

### Main reason reported for not receiving flu vaccination among health care personnel who do not plan to get vaccinated during the 2017–18 flu season (n=348), Internet panel survey, November 2017, United States

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage among unvaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>I might experience side effects or get sick from the vaccine (n=71)</td>
<td>22.1%</td>
</tr>
<tr>
<td>I do not need the vaccination (n = 41)</td>
<td>15.3%</td>
</tr>
<tr>
<td>I think the ingredients in the vaccine are not good for me (n = 60)</td>
<td>15.1%</td>
</tr>
<tr>
<td>I think that flu vaccines don't work (n = 56)</td>
<td>14.5%</td>
</tr>
<tr>
<td>I am allergic to the vaccine or there is another medical reason I cannot get the vaccine (n = 40)</td>
<td>10.5%</td>
</tr>
<tr>
<td>Any other reason (n = 80)</td>
<td>22.5%</td>
</tr>
</tbody>
</table>
Influenza Vaccination in Pregnant Women

Flu vaccination coverage before and during pregnancy among women pregnant anytime August 1 – November 8, 2017, by age, Internet panel survey, United States

- 18-24 yrs: 32.5%
- 25-34 yrs: 36.8%
- 35-49 yrs: 37.0%

Stopping the Flu Starts With You
Influenza Vaccination in Pregnant Women

Reported place where women pregnant any time August 1–November 8, 2017, received flu vaccination before and during pregnancy, Internet panel survey, United States (n=805)

- OB/GYN/midwife office (n=424): 50.1%
- Family doctor or other doctor’s office (n=211): 29.2%
- Pharmacy, drug store, supermarket, grocery store, or superstore (n=85): 10.3%
- Health department clinic (n=35): 4.5%
- Other place, e.g. workplace, school (n=50): 5.9%

Percentage among vaccinated

Influenza Vaccination in Pregnant Women

Reported main reason for not receiving flu vaccination among women pregnant any time August 1–November 8, 2017, who do not intend to receive flu vaccination for the rest of the flu season, Internet panel survey, United States (n=663)

- I do not think the vaccination is effective in preventing flu (n=148): 21.9%
- I get sick when I get the flu vaccination or am worried about other side effects of the vaccine (n=141): 21.3%
- I am concerned about possible safety risks to my baby if I get vaccinated (n=94): 14.7%
- I am not concerned about getting the flu (n=71): 10.9%
- I am concerned about possible safety risks to myself if I get vaccinated (n=69): 10.3%
- I do not need the vaccination (n=51): 8.3%
- Any other reason (n=89): 12.6%

Percentage among unvaccinated
Influenza Vaccination in Pregnant Women

Reported reasons for not receiving flu vaccination among women pregnant anytime August 1 – November 8, 2017, who intend to receive flu vaccination this season, Internet panel survey, United States (n=577)

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage among unvaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>I haven’t gotten around to it or haven’t had the time (n=219)</td>
<td>57.2</td>
</tr>
<tr>
<td>I prefer to/wanted to wait until after my pregnancy (n=125)</td>
<td>23.7</td>
</tr>
<tr>
<td>I prefer to wait until later in my pregnancy (n=48)</td>
<td>22.9</td>
</tr>
<tr>
<td>My doctor, nurse, or other medical professional has not recommended the flu vaccination to me yet (n=48)</td>
<td>5.0</td>
</tr>
<tr>
<td>My doctor, nurse, or other medical professional has not offered the flu vaccination to me yet (n=41)</td>
<td>8.1</td>
</tr>
<tr>
<td>Flu season hasn’t started yet (n=45)</td>
<td>7.8</td>
</tr>
</tbody>
</table>

Influenza Vaccination – General Population

Stopping the Flu Starts With You
Influenza Vaccination Coverage in General Population for 2016-2017 Season

Influenza Vaccination Coverage in Health Care Personnel for 2016-2017 Season

Stopping the Flu Starts With You
Flu Virus Naming

1. A, B, or C type
2. Host of origin (human, swine, etc.)
3. Geographic Site
4. Strain
5. Year of Isolation
6. Subtype
2018-2019 Influenza Vaccine Composition

- A/Michigan/45/2015 (H1N1)pdm09-like virus
- A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus
- B/Colorado/06/2017-like virus (Victoria lineage)

Quadrivalent influenza vaccine also includes
- B/Phuket/3073/2013-like virus (Yamagata lineage)

Influenza Vaccine Products Available

Get updated chart from immunize.org when available
2018-2019 Influenza Recommendations

• Annual influenza vaccination for all persons 6 months of age and older without contraindications to the vaccine

• Any licensed, age appropriate influenza vaccine can be administered
  • This includes LAIV which has not been recommended the past two seasons

LAIIV History

• Licensed in United States in 2003 as trivalent formulation

• Quadrivalent formulation approved in 2012 and was first available during 2013-2014 influenza season

• LAIV4 was not recommended during 2016-2017 and 2017-2018 influenza seasons due to concerns about low efficacy
  • Reduced replication in human nasal epithelial cells compared to pre-pandemic influenza A

• For 2017-2018 vaccine new influenza A stain was included but LAIV was not recommended in U.S. during that season
ACIP LAIV Recommendations

Data reviewed:

- Analysis of effectiveness of LAIV4 and inactivated influenza vaccines for 2013-13 through 2015-16 seasons in children 2 through 17 years of age
  - 5 U.S. observational studies reviewed
- Systematic review of published literature on effectiveness of LAIV3 and LAIV4 from 2010-11 through 2016-17 seasons
- Study conducted by manufacturer that evaluated viral shedding and immunogenicity of LAIV4 with new influenza A pdm09-like virus in children 2 years-<4 years of age

Summary of review:

- Low to no significant effectiveness of LAIV against influenza A(H1N1)pdm09-like virus
- No data on current formulation
- Manufacturer data indicates new influenza A strain was shed by a higher proportion of children and induced significantly higher antibody responses than the old version
- Manufacturer also presented data on selection of viruses for vaccine and new methods to determine replicative fitness of strains
- LAIV4 Recommended during 2018-2019 influenza season
- LAIV4 may be a means to improve immunization rates in children
American Academy of Pediatrics LAIV Recommendations

• Influenza nasal spray should have limited use

• LAIV4 may be offered to age appropriate children without health conditions precluding them from receiving the LAIV4 vaccine who would not otherwise receive an influenza vaccine

LAIV Administration Technique

1. FluMist (LAIV) is for intranasal administration only. Do not inject FluMist.
2. Remove rubber tip protector. Do not remove dose-divider clip at the other end of the sprayer.
3. With the patient in an upright position, place the tip just inside the nostril to ensure LAIV is delivered into the nose. The patient should breathe normally.
4. With a single motion, depress plunger as rapidly as possible until the dose-divider clip prevents you from going further.
5. Pinch and remove the dose-divider clip from the plunger.
6. Place the tip just inside the other nostril, and with a single motion, depress plunger as rapidly as possible to deliver the remaining vaccine.
7. Dispose of the applicator in a sharps container.
Myth #1: The Flu Shot Can Give You the Flu

FACTS:

• The flu vaccine cannot cause the flu

• The vaccine takes two weeks after administration to be fully effective
Myth #2: It is Better to Get the Flu Than the Flu Vaccine

FACTS:
• Flu can be a serious disease
• The flu can cause serious complications
• Hospitalization and even death can occur as a result of the flu

Myth #3: You Don’t Need to Receive the Flu Vaccine Every Year

FACTS:
• Flu vaccine is recommended EVERY year for those 6 months of age and older
• The virus often changes from year to year and the composition of the vaccine therefore changes
• A person’s immune protection declines over time after receiving the flu vaccine
Myth #4: Vaccinating Someone Twice During the Influenza Season will Give Them Added Protection

FACTS:

• Studies have shown no benefit to adults getting more than one influenza vaccination during the same season
• Children 6 months-8 years of age who have never received an influenza vaccine previously receive 2 doses spaced 4 weeks apart
  • In subsequent years they will only receive 1 dose per year

Myth #5: Pregnant Women Should NOT Receive the Influenza Vaccine

FACTS:

• Pregnant women should get the influenza vaccine if they are pregnant during the influenza season
• Pregnant women can receive the influenza vaccine from any provider who can administer it and do not need permission from their OB/GYN to do so
Myth #6: If You Have Not Received the Flu Vaccine by December You Shouldn't Get It

FACTS:

• The flu season typically peaks between December and March
• Flu season can sometimes linger into May
• Patients should still receive the vaccine in order to be protected

Myth #7: If You Exercise and Eat a Healthy Diet You Don’t Need the Flu Vaccine

FACTS:

• Everyone over the age of 6 months should receive the flu vaccine unless contraindicated
• Healthy people may encounter those with the flu and therefore be susceptible to contracting the influenza virus
• The flu virus can live on surfaces and can be passed to healthy persons
• Healthy people can die from the flu
Myth #8: Flu Vaccines Don’t Work and Are Just a Money Making Scheme

FACTS:

• Flu vaccines reduce the risk of contracting the flu by 40%-60%

• Best option that there is to prevent influenza

• Flu vaccines are a small part of the profits for large companies

Myth #9: If You Can’t Eat Eggs You Shouldn’t Get the Flu Vaccine

FACTS:

• Persons with a history of egg allergy who have experienced only hives after exposure to egg should receive influenza vaccine

• Persons with history of egg allergy involving angioedema, respiratory distress, lightheadedness, or recurrent emesis may receive any licensed influenza vaccine
  • Should be administered in a medical setting with experience in managing severe allergic conditions

• Previous severe allergic reaction to any influenza vaccine is a contraindication to future receipt of the vaccine
Myth #10: You Can’t Spread the Flu if You Feel Well

FACTS:

• You can be a carrier of the influenza virus even without symptoms

• It is important to get the vaccine to protect not only yourself but those you interact with

• Especially important for healthcare practitioners to get the vaccine to prevent disease from spreading

www.cdc.gov

Myth #11: Vaccines Cause Autism

FACTS:

• 1998 study by Andrew Wakefield has caused a lot of this concern
  • Based on 12 preselected children
  • In 2004, 10 of the 13 authors retracted the study's interpretation
  • The Lancet retracted the article in 2010
  • Dr. Wakefield’s license has been revoked

• Many large, well-designed studies have found no links between vaccines and autism (both with the MMR vaccine and vaccines containing Thimerosal)

www.immunize.org
Myth #12: The Flu Vaccine Causes Alzheimer’s Disease Later in Life

FACTS:

• A study showed that past exposure to certain vaccines (including influenza) may protect against the development of Alzheimer’s disease.

• Flu vaccines reduce the risk of death from all causes.


www.alz.org
### Assessing Vaccination Needs

- Age
- Health conditions
- Lifestyle
- Travel
- Occupation

### Patient Case #1

Addie is a 26-year old pregnant female (30 weeks gestation) who comes to your pharmacy during flu season to inquire about the influenza vaccine. Her physician recommended that she receive it, but she is concerned about the safety of the vaccine and the potential risk to the baby.

1. Can she receive the influenza vaccine today?

2. If yes, which type should she receive?

3. Is she eligible to receive any other vaccines today? If so, which one(s)? If not, when should she receive them?

This is **NOT** a poll question!
Patient Case #2

Logan is a 28 year old male who reluctantly came to your pharmacy during October because his wife told he that he needs to get his flu vaccine to prepare for the upcoming arrival of their first child. He is an overall a healthy male, but is reluctant to get the influenza vaccine because he breaks out in hives when he eats eggs.

1. What would you recommend for this patient?

2. What influenza vaccine/if any would be safe for him to receive?

Patient Case #3

Betty is a 67 year old female who came to your pharmacy today to receive her yearly influenza vaccine. She is a new patient to your pharmacy and being the diligent pharmacist that you are you complete a thorough vaccination history on her and determine that she has not had any vaccinations besides her flu vaccine since turning 50. She suffers from hypertension and depression.

1. What additional vaccinations would you recommend for this patient?
Patient Case #4

Sarah is a 14 year old who comes with her mom to your pharmacy to get her yearly influenza vaccine. Her mom reports that Sarah is currently up-to-date with all of her other vaccinations.

1. Which influenza vaccine would be best for Sarah to receive?

This is **NOT** a poll question!
Activity Test

Moving the Needle on Blood Pressure Management in Adults

Activity tests must be completed online at www.freeCE.com. A passing grade of 70 or higher and completion of an online activity evaluation are required to earn credit.

1. The 2017-2018 flu season was considered to be “low severity”.
   a. True
   b. False

2. Which of the following could be a serious complication of influenza?
   a. Pneumonia
   b. Development of diabetes
   c. Runny nose
   d. Rash on leg

3. Influenza typically occurs during the colder months of the year.
   a. True
   b. False

4. The highest percentage of adults received their influenza vaccine at which of the following locations during the 2017-2018 vaccination season:
   a. Pharmacy
   b. Workplace
   c. Doctor’s office
   d. Senior center

5. A 3 year old child with asthma should receive which influenza vaccine if any?
   a. Live attenuated influenza vaccine
   b. Inactivated influenza vaccine
   c. High dose influenza vaccine
   d. Should not receive any influenza vaccine

6. The quadrivalent influenza vaccine contains what combination of strains?
   a. 1 A strain, 1 B strain, 2 C strains
   b. 2 A strains, 1 B strain, 1 C strain
   c. 1 A strain, 3 B strains
   d. 2 A strains, 2 B strains

7. At what age should a person start receiving the influenza vaccine?
   a. At birth
   b. 6 months of age
   c. 1 year of age
   d. 5 years of age
8. The American Academy of Pediatrics recommends that the Live attenuated influenza vaccine be used in:
   a. All children 2 years of age in up
   b. Children who are in elementary school
   c. Children without precluding health conditions who would otherwise not get the influenza vaccine
   d. No children

9. In a 75-year-old patient with diabetes you should recommend that they receive 2 doses of the influenza vaccine to ensure complete protection during this influenza vaccination season.
   a. True
   b. False

10. Suzy is a healthy 45-year-old woman who wants to receive the influenza vaccine, but hates needles. Which of the following would you recommend that Suzy receive?
    a. Live attenuated influenza vaccine
    b. Inactivated influenza vaccine
    c. High dose influenza vaccine
    d. Should not receive any influenza vaccine