Needle Facts: Immunization Update 2015

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SIUE School of Pharmacy

Disclosures/Conflict of Interest

* Miranda Wilhelm reports she is a Speaker's bureau member for Merck Vaccines

Objectives

Pharmacists

At the conclusion of this program, the pharmacist will be able to:

• Discuss the new 2015 Advisory Committee on Immunization Practices (ACIP) recommendations regarding adult and pediatric immunizations.
• Review influenza vaccine considerations in preparation for the 2015-2016 season.
• Review a patient's immunization history to determine appropriate vaccine recommendations based on the appropriate immunization schedule.

Objectives

Pharmacy Technicians

At the conclusion of this program, the pharmacy technician will be able to:

• Discuss the new 2015 Advisory Committee on Immunization Practices (ACIP) recommendations regarding adult and pediatric immunizations.
• Review influenza vaccine considerations in preparation for the 2015-2016 season.
• Review a patient profile to determine patient specific factors for immunization candidate status leading to appropriate vaccine recommendations.

Testing Your Knowledge...

Which of the following adult patients is a candidate for receipt of 1-dose of the PCV13 vaccine?

a) 21 year old female student starting pharmacy school
b) 38 year old male with hypertension
c) 52 year old male, smoker, who received 2-doses of PPSV23, 5 years apart
d) 66 year old female who has not received PPSV23

Testing Your Knowledge...

Which of the following human papillomavirus vaccines is indicated by the Food and Drug Administration (FDA) for vaccination of male patients?

I. HPV2
II. HPV4
III. HPV9

a) I
b) II
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d) I, II and III
Testing Your Knowledge...

- Which of the following is a meningococcal serogroup B vaccine?
  a) Bexsero
  b) Boostrix
  c) Engerix-B
  d) Menveo

Testing Your Knowledge...

- Which influenza vaccine can a person with an allergy to eggs that manifests as anaphylaxis receive?
  a) cclIV3
  b) IIV3
  c) LAIV4
  d) RIV3

Summary of ACIP Recommendations

- 2014
  - Update on recommendations for use of herpes zoster vaccine
  - Human papillomavirus vaccination: recommendations of the Advisory Committee on Immunization Practices (ACIP)
  - Use of 23-Valent pneumococcal conjugate vaccine and 23-Valent pneumococcal polysaccharide vaccine among adults aged ≥ 65 years: Recommendations of the Advisory Committee on Immunization Practices (ACIP)

Summary of ACIP Recommendations

- 2015
  - Updated recommendations for the use of typhoid vaccine – Advisory Committee on Immunization Practices, United States, 2015
  - Use of 9-Valent human papillomavirus (HPV) vaccine: update HPV vaccination recommendations of the Advisory Committee on Immunization Practices
  - Use of Serogroup B Meningococcal Vaccines in persons aged ≥ 10 Years at Increased Risk for Serogroup B Meningococcal Disease: Recommendations of the Advisory Committee on Immunization Practices, 2015
  - Yellow Fever Vaccine Booster Doses: Recommendations of the Advisory Committee on Immunization Practices, 2015
Use of 13-Valent Pneumococcal Conjugate and 23-Valent Pneumococcal Polysaccharide Vaccine Among Adults Aged ≥ 65 Years: Recommendations of the ACIP

Recommendations
• Routine use of PCV13 for adults ≥ 65 years
• PCV13 should be administered in series with PPSV23
• PCV13 should be administered first followed by PPSV23 in 6-12 months
• PCV13 should be administered ≥ 1 year after PPSV23
• Doses of PPSV23 need to be separated by ≥ 5 years
• This recommendation will be reevaluated in 2018

Use of PCV13 and PPSV23 in Patients ≥ 65 Years

Use of 9-Valent Human Papillomavirus (HPV) Vaccine: Updated HPV Vaccination Recommendations of the ACIP

Recommendations
• HPV9 was added to the list of HPV vaccines that are recommended for routine use in females and males 11-12 years of age
• Any available HPV vaccine may be used to continue or complete a series, as appropriate for females/males

Use of Serogroup B Meningococcal Vaccines in Persons Aged ≥ 10 Years at Increased Risk for Serogroup B Meningococcal Disease: Recommendations of the ACIP, 2015

Recommended for adolescents and young adults 16 to 23 years of age, with preferred age for vaccination of 16 to 18 years
Recommended for persons ≥ 10 years of age with complement component deficiencies, anatomic or functional asplenia, microbiologists routinely exposed to Neisseria meningitidis, those at increased risk due to serogroup B outbreak

Updated Recommendations for the Use of Typhoid Vaccine – ACIP, US, 2015

Recommendations
• Removed information about heat-phenol-inactivated whole-cell vaccine which has been discontinued
• Typhoid vaccine is recommended for US travelers to certain countries (see http://wwwnc.cdc.gov/travel), close contacts of chronic carriers, and certain laboratory workers

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FDA approved December 10, 2014 (Merck)
Contains 5 additional serotypes compared to Gardasil
• Cervical cancer 16, 18, 33, 45, 52 and 58
• Genital warts 6, 11
Indicated for girls/women 9 to 16 years and boys/men 9 to 15 years
• 3-dose series, IM, 0.5 mL dose administered at 0, 2 and 6-months apart

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Influenza

- Influenza season is October to May and commonly peaks in January to February
- Annual influenza vaccination is recommended for all persons 6 months of age and older

Nomenclature for Influenza Vaccine

**Inactivated Influenza Vaccine (IIV)**
- Trivalent inactivated influenza vaccine (IIV3)
- Quadrivalent inactivated influenza vaccine (IIV4)
- Cell cultured inactivated influenza vaccine (cIIV3)

**Recombinant hemagglutinin Influenza Vaccine (RIV)**

**Live-attenuated Influenza Vaccine (LAIV)**
- Quadrivalent live-attenuated influenza vaccine (LAIV4)

Recommended Influenza Vaccine Composition 2015-2016

- A/California/7/2009 (H1N1)pdm09-like virus
- A/Switzerland/9715293/2013 (H3N2)-like virus
- B/Phuket/3073/2013-like virus
- Additional strain for quadrivalent vaccines
- B/Brisbane/60/2008-like virus

Seasonal Influenza Vaccines

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Approved Age Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inactivated Influenza Vaccine (IIV)</td>
<td></td>
</tr>
<tr>
<td>A/California/7/2009 (H1N1)pdm09-like virus</td>
<td>0-23 months (1 year of幼儿园)</td>
</tr>
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**Inactivated Influenza Vaccine (IIV)**
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- Additional strain for quadrivalent vaccines
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**Recombinant Influenza Vaccine (RIV)**
- FluBlock
- ≥ 18 years

**Live Attenuated Influenza Vaccine (LAIV)**
- FluMist Quadrivalent
- 2 to 49 years (healthy, nonpregnant)
AW, a 66 year-old female, presents to the community pharmacy and remembers her doctor mentioned she should get "some kind of pneumonia 13 shot". What is the first question that you should ask AW about immunizations?

AW's Profile and Immunization Record

Profile
- Metformin 1,000 mg PO BID
- Lisinopril 20 mg PO Daily
- Atorvastatin 40 mg PO QHS
- Levothyroxine 100 mcg PO Daily
- Alendronate 70 mg PO Weekly
- Calcium citrate 200 mg + Vitamin D 250 IU PO BID
- Aspirin 81 mg PO Daily
- Multiple Vitamin + PO Daily

Immunization Record
- Influenza – yearly X 20 years
- Unsure of childhood immunizations

Screening Questionnaire

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are you sick today?</td>
<td>No</td>
</tr>
<tr>
<td>2. Do you have allergies to medications, food, a vaccine component, or latex?</td>
<td>No</td>
</tr>
<tr>
<td>3. Have you ever had a serious reaction after receiving a vaccination?</td>
<td>No</td>
</tr>
<tr>
<td>4. Do you have a long-term health problem with heart disease, lung disease, asthma, kidney disease, metabolic disease (e.g. diabetes), anemia, or other blood disorder?</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Do you have cancer, leukemia, HIV/AIDS, or any other immune system problem?</td>
<td>No</td>
</tr>
<tr>
<td>6. In the past 3 months, have you taken medications that weaken your immune system, such as corticosteroids, other steroids, or anticancer drugs, or have you had radiation treatment?</td>
<td>No</td>
</tr>
<tr>
<td>7. Have you had a seizure or had a brain or other nervous system problem?</td>
<td>No</td>
</tr>
<tr>
<td>8. During the past year, have you received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug?</td>
<td>No</td>
</tr>
<tr>
<td>9. For women: Are you pregnant or is there a chance you could become pregnant during the next month?</td>
<td>N/A</td>
</tr>
<tr>
<td>10. Have you received any vaccinations in the past 4 weeks?</td>
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</table>

What vaccinations are recommended for AW?

Schedule for Adults by Age and Medical/Other Indications

Case 1 Summary

- Inactivated influenza vaccine (IIV3/IIV4)
- Tetanus-diphtheria-acellular pertussis vaccine (Tdap)
- Zoster vaccine
- Pneumococcal 13-valent conjugate vaccine (PCV13)
- Pneumococcal 23-valent polysaccharide vaccine (PPSV23) 12 months after PCV13
- Hepatitis B vaccine

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