Vaccinating Adults & Adolescents: Annual Update

Practicum Session
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Objectives

- Discuss recent changes to the recommended adult and adolescent vaccine schedules.
- Discuss the main indications for adult and adolescent vaccinations according to the Advisory Committee on Immunization Practices.
- Describe the recent advancements in influenza vaccinations.
- Explain the best practices in reporting vaccination doses administered by pharmacists.

Adult and Adolescent Vaccinations
Influenza Vaccine

Live and Inactivated

2013 flu recommendations for children

- All children aged 6 months–18 years should be vaccinated annually.
- Children and adolescents at higher risk for influenza complications should continue to be a focus of vaccination efforts as providers and programs transition to routinely vaccinating all children and adolescents, including those who:
  - are aged 6 months–4 years (59 months);
  - have chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, cognitive, neurological/neuromuscular, hematological or metabolic disorders (including diabetes mellitus);
  - are immunosuppressed (including immunosuppression caused by medications or by human immunodeficiency virus);
  - are receiving long-term aspirin therapy and therefore might be at risk for experiencing Reye syndrome after influenza virus infection;
  - are residents of long-term care facilities; and
  - will be pregnant during the influenza season.
- Children aged <6 months cannot receive influenza vaccination. Household and other close contacts (e.g., daycare providers) of children aged <6 months, including older children and adolescents, should be vaccinated.

2013 adult flu vaccine recommendations

- persons aged ≥50 years;
- women who will be pregnant during the influenza season;
- persons who have chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, cognitive, neurological/neuromuscular, hematological or metabolic disorders (including diabetes mellitus);
- persons who have immunosuppression (including immunosuppression caused by medications or by human immunodeficiency virus);
- residents of nursing homes and other long-term care facilities;
- health-care personnel;
- household contacts and caregivers of children aged ≤5 years and adults aged ≥50 years, with particular emphasis on vaccinating contacts of children aged <6 months; and
- household contacts
- Providers of essential community services
- Persons traveling outside the U.S.
- Persons in institutional settings (e.g., students who reside in a dormitory; persons in a correctional facility)
- Anyone who wishes to reduce the likelihood of becoming ill from influenza
Risk of hospitalization 4 times higher than non pregnant women
Risk of complications comparable to nonpregnant women with high-risk medical conditions
Vaccination (with TIV) recommended if pregnant during influenza season
Vaccination can occur during any trimester

Peak influenza activity, by month

Composition of 2013 seasonal vaccine

- A/California/7/2009(H1N1)pdm09-like
- A/Victoria/361/2011 (H3N2)-like
- B/Massachusetts/2/2012-like

Optional Quadrivalent vaccine:
- B/Brisbane/60/2008-like
Influenza Vaccines

- Inactivated subunit (IIV – fr. TIV)
  - Intramuscular
  - Trivalent or quadrivalent (75 ug each) split virus and subunit types
  - 0.25 ml dose for children ≤35 months, 0.5 ml dose >35 months
- High Dose Inactivated
  - Same as IIV, but 60 ug of each subunit
- Inactivated IV preparation
  - Trivalent (9 ug each subunit)
  - Intradermal dosing
  - 0.1 ml dose
- Recombinant IIV
  - Same as IIV, but egg free
  - Approved for ages 18-49 years, not for pregnant or breastfeeding women
- Live attenuated vaccine (LAIV)
  - Intranasal
  - Quadrivalent in 2013-2014

Inactivated Influenza Vaccine (IIV)

- TIV → IIV
  - Available in multidose vials, single dose vials and syringes
  - Different products are approved for different ages – so check your product carefully
  - MDV contain preservative (do not give to <3 yrs, pregnant women in Washington State)
  - Developed in eggs, unless recombinant FluBlok

High Dose Vaccine for the Elderly

- Approved for patients aged 65 years and older
- Contains 4 times more HgA
- Aimed at generating a stronger immune response in elderly patients
- Clinical outcomes unknown
- Increased side effects
- No preference given by ACIP for this or other IIV
Intradermal Vaccine

- 0.1 ml dose
- 9 ug/hg of each trivalent subunit
- Offers same immunity
- More visible reactions
- Fewer overall reactions
- Approved for 18-64 years

Inactivated Influenza Vaccine

Contraindications and Precautions

- Severe allergic reaction to a vaccine component (e.g., egg) or following a prior dose of vaccine*
- Moderate or severe acute illness
- History of Guillain Barre' syndrome within 6 weeks following a previous dose of IIV (precaution)

- * People who have allergic reactions to lightly cooked eggs should be referred to PCP for vaccine, or receive FluBlok

Live Attenuated Influenza Vaccine

Indications

- Healthy*, nonpregnant persons 2-49 years of age
  - healthy children
  - healthcare personnel
  - persons in close contact with high-risk groups
  - persons who want to reduce their risk of influenza

*Persons who do not have medical conditions that increase their risk for complications of influenza
Live Attenuated Influenza Vaccine

Adverse Reactions

- Children
  - no significant increase in URI symptoms, fever, or other systemic symptoms
  - significantly increased risk of asthma or reactive airways disease in children 12-59 months of age
- Adults
  - significantly increased rate of cough, runny nose, nasal congestion, sore throat, and chills reported among vaccine recipients
  - no increase in the occurrence of fever
- No serious adverse reactions identified

Live Attenuated Influenza Vaccine

Contraindications and Precautions

- Children younger than 2 years of age*
- Persons 50 years of age or older*
- Persons with chronic medical conditions*
- Children and adolescents receiving long-term aspirin therapy*
- Immunosuppression from any cause*
- Pregnant women*
- Severe (anaphylactic) allergy to egg or other vaccine components
- History of Guillain-Barré syndrome
- Children younger than 5 years with recurrent wheezing*
- Moderate or severe acute illness

*These persons should receive inactivated influenza vaccine

Live Attenuated Influenza Vaccination of Children 2-4 Years of Age

- Clinicians and immunization programs should avoid use of LAIV in children with asthma or a recent wheezing episode
- Consult the medical record, when available, to identify children 2 through 4 years of age with asthma or recurrent wheezing that might indicate asthma
- Parents or caregivers of children 2-4 years should be asked: "In the past 12 months, has a healthcare provider ever told you that your child had wheezing or asthma?"
“Specifically, CDC and HHS are asking pharmacists and other vaccine providers to:

1. Increase awareness among their patients about recommended vaccines, especially for adults and adolescents where vaccination rates are lagging.
2. Ensure that the people who visit your pharmacies or clinics are aware of which vaccinations they need by assessing their vaccine needs and offering those vaccines, e.g.:
   a. Offer Tdap vaccine to replace one dose ofTd. This is especially important for anyone who will be around infants given outbreaks of pertussis in the United States.
   b. Inform pregnant women that they are recommended to receive Tdap vaccine after week 20 of pregnancy and influenza vaccine anytime during pregnancy.
   c. Offer yearly influenza vaccine for everyone 6 months and older.
   d. Offer zoster vaccine for adults 60 years and older.
   e. Offer pneumococcal polysaccharide vaccine for everyone 65 years and older.
3. For patients with certain medical conditions, recommend and offer vaccinations specifically recommended based on their high risk conditions, e.g.…”
How Vaccines Work

Vaccines (contain antigens)

Antigens are recognized by immune system and evoke an immune response

B cells activated → T cells activated

Results in production of antibodies

Antibodies attack and destroy antigen

Antigen is eliminated Memory B and T cells formed

Polysaccharide Vaccines

Stimulate T-cell independent immunity
  - Stimulate B cells without assistance of T helper cells
  - Short lived immunity
  - No booster effect
  - Not consistently immunogenic in children <2 y/o

Conjugate Vaccines

Stimulate T-cell dependent immunity
  - T helper cells involved
  - Produce immunologic memory
  - Result in booster effect upon subsequent exposure
  - Increased immunogenicity in children <2 y/o
Polysaccharide Vaccine (Pneumovax)

- Recommended for:
  - All persons age 65 years and older
  - Adults with chronic lung disease, chronic cardiovascular disease, diabetes, CSF leaks, compromised immune systems, splenic dysfunction or asplenic,
  - Residents of nursing homes or LTC facilities
  - Adults who smoke cigarettes
  - HIV infected adults
  - More than 2 weeks before chemotherapy

Revaccination with PPSV

- One time more than 5 years after the first dose for persons age 19-64 years of age with chronic nephrotic syndrome or renal failure or immunocompromised persons
- Patients who received PPSV before 65 years of age need 1 dose after age 65 years, if at least 5 years have passed since previous vaccination

Pneumococcal Serotypes and Vaccines

- 4, 6B, 9B, 14, 18C, 19F, 23F = Prevnar 7 (PCV7)
- 1, 3, 5, 6A, 7F, 19A = Prevnar 13 (PCV 13)
- 2, 8, 9N, 10A, 11A, 12F, 15B, 17F, 20, 22F, 33F = Pneumovax 23 (PPSV23)
**PCV Recommendations**

<table>
<thead>
<tr>
<th>Risk or condition</th>
<th>PCV13 Recommended</th>
<th>PPSV23 Recommended</th>
<th>PPSV23 Revaccination</th>
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<tbody>
<tr>
<td>Immunocompetent</td>
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<td>CSF Leak</td>
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<td>Cochlear implant</td>
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<tr>
<td>Immunocompromised Persons*</td>
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**Timing of Pneumo vaccine in high risk adults**

- Pneumococcal vaccine-naive persons
  - Give PCV13 first, then PPSV23 at least 8 weeks later
  - Revaccinated as recommended with PPSV23
- Previous vaccination with PPSV23
  - Give PCV13 >1 year after the last PPSV23 dose
  - If additional doses of PPSV23 is required, wait 8 weeks after PCV12 dose, and 5 years after last PPSV23 dose

**Tetanus, Diphtheria and Pertussis Vaccine**
Pertussis Outbreak

Pertussis causes serious and life-threatening infections in infants, esp <6 mo old
- Infants <1 yr with pertussis, >50% hospitalized
- In hospitalized infants, 1 in 5 will get pneumonia and 1 in 100 will die

Tetanus, diphtheria, pertussis containing vaccines

- Tetanus, diphtheria (Td)
  - Every 10 years adults need a booster dose
- Tetanus, diphtheria, pertussis (Tdap)
  - Substitute 1 dose of Tdap for Td booster, then boost every 10 yrs with Td
- Vaccinate women with every pregnancy
Tdap is specifically recommended for:
- Pregnant women, with optimal administration between 27 and 36 weeks or immediately postpartum
- More effective than cocooning along
- All adults who are close contacts with infants younger than 12 months
- Healthcare personnel
- Administer without regard to previous Td

Videos
- https://www.youtube.com/watch?v=CkvzP5cYNSQ
- https://www.youtube.com/watch?v=mQwEQyxz2dK&feature=plcp

My Calendar
Shingles and Chicken Pox

Zoster

- A single dose is recommended for older adults
- FDA approved for age 50 yrs and older
- ACIP recommended for age 60 years and older
- Recommended regardless of previous shingles history, but delay vaccination until 24 hours since last antiviral dose.

Shingles Vaccine Billing Information for Medicare B and D

- Medicare Part D plans reimburse for both the vaccine and administration.
- For patients with traditional employer offered health insurance, shingles vaccine is covered through the medical plan.
- Take Away: Get payment, check co-pays before vaccinating the patient.
Chicken Pox (Varicella)

- All adults and adolescents without evidence of immunity to varicella
- Should receive 2 doses
- Special consideration to: those who will have close contact with those at high risk for severe disease, high risk of exposure or transmission
- Evidence of immunity includes: 2 doses of varicella vaccine, persons born before 1980 (who are not health care personnel or pregnant women), history of chicken pox

Human papillomavirus vaccine (HPV)

- Vaccine to prevent cancer (vs. an STD)
- Two vaccines
  - HPV2 (FDA licensed for females)
  - HPV4 (FDA licensed for males and females)
- Routine 3 dose series recommended for adolescents age 11 or 12 year, catchup from age 13-26 years
- Recommended for all immune compromised patients
- Men who have sex with men to prevent condyloma and anal cancer (HPV4 recommended)
- Dose at 0, 1-2 months, and 6 months

Hepatitis A

- Vaccinate anyone who wishes to prevent HepA infection
- Specific indications
  - Men who have sex with men
  - Injection drug users
  - HepA lab workers
  - Persons with chronic liver disease or receive clotting factors
  - Persons traveling to or living in areas with endemic HepA
  - Close contacts of and international adoptee in first 60 days after arrival in US
- 2 vaccines:
  - Hep A single antigen. 2 doses, administer at 0, 6-12 or 18 months
  - Hep A and B Intronic. 3 dose series, administer at 0, 1 and 6 months
Hepatitis B

- Vaccinate anyone wanting to prevent Hep B infection
- Indications
  - Sexually active, non-monogamous persons
  - Injection drug users
  - Men who have sex with men
  - Health care personnel
  - Persons with diabetes (younger than age 60 yrs)
  - Persons with end stage renal disease
  - HIV infected persons
  - Persons with chronic liver disease
  - Household contacts and partners of patients with chronic HBV
  - International travelers to countries with HBV
  - Those in facilities with high rates of Hepatitis B infection

Meningococcal Vaccine

- MCV4 recommended for age 11-12 years with a booster at 16 years.
- Often required before living in a dorm or attending college
- If first dose is given at age 13 – 15 years, give booster at 16-18 years with 8 week minimum interval
- 2 doses for patients who are immune compromised, have HIV infection, asplenic, revaccinate every 5 years
- MCV4 for adults 55 years and younger, MPSV4 preferred for patients 56 years and older

Other Adult Vaccines

- MMR
- Haemophilus influenzae type b
How many vaccines can you give an adult at one time?

Steroid immune suppression

- Substantially immunosuppressive steroid dose is considered 2 weeks or more of daily receipt of 20 mg (2mg/kg) of prednisone or equivalent
- Wait at least 1 month before vaccinating with a live vaccine
- Wait 2-3 weeks to resume steroid dosing

State Registries

- Pharmacists need to report their vaccine to the individual state registries
- Can be uploaded from POS system
- Can access to view patient histories
Case 1

- You have an 35 year old HIV positive patient who has not received a pneumococcal vaccine as an adult. What vaccines will you give him?
  A. PCV
  B. PPSV and PCV
  C. PPSV
  D. Neither, wait until 65 years of age

Case 2

- With our pertussis outbreak in Washington, you have decided to identify patients who need Tdap in your community. According to the CDC, Tdap should be given in all the following populations EXCEPT:
  A. Previously vaccinated pregnant women
  B. 70 year old new grandparent
  C. 6 month old
  D. 11 year old

Case 3

- A 67 year old patient comes into your pharmacy asking for a shingles vaccine. In reviewing his vaccination history, you notice that he also needs the pneumococcal vaccine. Can you give both today?
  A. No. Must wait 1 month between a live and inactivated vaccine.
  B. Yes. No need to wait a month between live and inactivated vaccines.
  C. No. The pneumococcal vaccine may decrease the efficacy of the zoster vaccine.
  D. Yes. There is no evidence that giving them together will result in an increased risk of zoster.
Resources for your questions

- WSPA Website, Immunization Resource Center
- Immunization Resource guide
- Billing tips
- Jenny’s favorites
- [www.immunize.org](http://www.immunize.org) Immunization Action Coalition
- FAQ section
- Useful handouts and guides
- Errors
- [http://www.cdc.gov/vaccines/hcp.htm](http://www.cdc.gov/vaccines/hcp.htm)
- The authority on vaccines
- FAQ, call in line for questions

Medical Insurance Reimbursement For Vaccines in the Pharmacy

- Many medical plans are now reimbursing pharmacies for vaccine administration, especially flu vaccine.
- Check on the WSPA website for more information about the individual plans offering reimbursement.

Pharmacy’s Year Round Role

- Advocate...
  - Inform your patients about their risk
  - Motivate your patients to be vaccinated
- Facilitate...
  - Host those who vaccinate
- Immunize
  - Administer the vaccine
Questions?

- Call me!
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