CSHP SEMINAR 2016
TRANSITIONS IN PHARMACY
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Making the Grade! Improving Adult Vaccination Rates. Update on New ACIP Guidelines

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Disclosure

No relevant financial disclosures
Learning Objectives

Recognize current Advisory Committee on Immunization Practices (ACIP) recommendations

Describe optimal product selection and administration schedules:
- timing
- co-morbid conditions
- contraindications
- evidence

Design measures to increase vaccination rates among adult patients in your practice
Overview

Pneumococcal vaccine PCV13 and PPSV23
Measles, mumps, rubella
Tdap vs Td
Zoster
Influenza
Improving vaccination rates
Report Card

The kids are “winning”

Prevalence of vaccine preventable illness is greater among adults than among children

National Health Interview Survey
- Collected in-person
- Data compiled annually

Williams, WW MMWR Feb 2016
## Vaccination

<table>
<thead>
<tr>
<th>Vaccination</th>
<th>% of Adult Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumococcal high risk / ≥65 years</td>
<td>20.3% / 61.3%</td>
</tr>
<tr>
<td>Td / Tdap</td>
<td>62.2% / 20.1%</td>
</tr>
<tr>
<td>Herpes Zoster</td>
<td>27.9%</td>
</tr>
<tr>
<td>Hep A / Hep B</td>
<td>9% / 24.5%</td>
</tr>
<tr>
<td>HPV female / HPV male</td>
<td>40.2% / 8.2%</td>
</tr>
<tr>
<td>Influenza</td>
<td>43.2%</td>
</tr>
</tbody>
</table>

*Provider: Williams, WW MMWR Feb 2016*
## Report Card

<table>
<thead>
<tr>
<th>Vaccination</th>
<th>% of Pediatric Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMR</td>
<td>91.8%</td>
</tr>
<tr>
<td>Tdap</td>
<td>86%</td>
</tr>
<tr>
<td>Varicella</td>
<td>84%</td>
</tr>
<tr>
<td>Hep B</td>
<td>93.2%</td>
</tr>
<tr>
<td>HPV female / HPV male</td>
<td>37.6% / 13.9%</td>
</tr>
<tr>
<td>Meningococcal</td>
<td>77.8%</td>
</tr>
</tbody>
</table>

Health, United States, US Department of Health and Human Services, 2014
Report Card

Best rates among
- Patients with one or more healthcare encounters annually
- Patients with a usual place for healthcare (regardless of insurance)

Lowest rates among
- Uninsured, non-whites
Pneumococcal Disease

A leading cause of vaccine preventable disease
- *Streptococcus pneumoniae*
- Pneumonia, meningitis, otitis media

*S. pneumoniae*
- 175,000 hospitalizations
- 36% of CAP
- 50% of HAP

5-7% mortality rate, up to 80% in the elderly

CAP: community acquired pneumonia, HAP: hospital acquired pneumonia
Pneumococcal Disease

Products available:
- **Pneumococcal conjugate vaccine 13-valent**
  - Prevnar 13 (PCV13)
    - 1 serotype not found in PPSV23

- **Pneumococcal polysaccharide vaccine 23-valent** Pneumovax 23 (PPSV23)
  - Contains 11 serotypes not found in PCV 13
  - More efficacious against bacteremia than pneumonia
  - Dose 0.5 mL IM or SC

Grogg, S J Am Osteopath Jun 2015
Pneumococcal Disease

20% & 61%
Pneumococcal Disease
19 – 64 years

Immunocompromised (IC), CSF leak, cochlear implant
- Sickle cell disease, or hemoglobinopathy
- Congenital or acquired asplenia immunodeficiency
- HIV (CD4 <200)
- Chronic renal failure

Not IC, no CSF leak, no cochlear implant
- Chronic heart disease
- Chronic lung disease
- Diabetes mellitus
- Alcoholism
- Chronic liver disease, cirrhosis
- Cigarette smoking

Grogg, S J Am Osteopath Jun 2015
Pneumococcal Disease 19 – 64 years

Immunocompromised (IC), CSF leak, cochlear implant

- Prevnar 13 (PCV13)
  +
- Pneumovax 23 (PPSV23)

Not IC, no CSF leak, no cochlear implant

- Pneumovax 23 (PPSV23)

Grogg, S J Am Osteopath Jun 2015
IC: immunocompromised
Pneumococcal Disease
≥65 years

Immunocompetent and no previous pneumococcal vaccination → both
PCV13 1st → PPSV23

One dose of PCV13 is recommended and one dose of PPSV23

Grogg, S J Am Osteopath Jun 2015
Pneumococcal Vaccine Timing

When PCV13 and PPSV23 are both indicated:
→ Give PCV13 1st then PPSV23
→ Administer PPSV23 1 year after PCV13*
→ Do not administer both at the same visit

*Except* PPSV23 should be given 8 weeks post PCV13 in IC conditions
Pneumococcal Vaccine Timing

IC patient, unvaccinated:
- PCV13, then 8 weeks post
- PPSV23, then 5 years later
- PPSV23 again

IC patient received one dose of PPSV23 first
- PCV13, 1 year following initial PPSV23
- PPSV23 (second dose) 8 weeks post PCV13 and 5 years after initial dose of PPSV23
Pneumococcal Vaccine Timing

IC patient received two doses of PPSV23 first
- PCV13, 1 year following the most recent PPSV23

IC patient, received PCV13
- PPSV23 8 weeks post PCV13 administration
- PPSV23, (second dose) 5 years post initial PPSV23 dose

IC patient, received PCV13 and PPSV23
- PPSV23, (second dose) 8 weeks post PCV13 and 5 years post initial PPSV23 dose

IC: immunocompromised
Pneumococcal Vaccine Timing

If PPSV23 was given <65 years, at age ≥65
  ◦ administer a dose of PCV13 at least 8 weeks post
  ◦ second dose of PPSV23 five years following initial PPSV23 vaccination

When PPSV23 is administered to a patient ≥65 years only 1 dose is indicated
Pneumococcal Disease

Not seasonal, vaccination is recommended year round

PCV13 will be re-evaluated in 2018 to assess herd immunity

If PCV13 was given prior to age 65 no additional dose of PCV13 is needed
Pneumococcal Disease

**PCV13**
- 1 dose for all adults ≥65
- 1 dose for adults 19-64 with immunocompromised condition
- Routine vaccine for all children less than 2 years

**PPSC23**
- Everyone ≥65 years
- 19-64 years old with asthma
- 19-64 years old who are smokers
- 2-64 years old you have chronic illness
- Two doses for 19-64 years olds with immunocompromised condition

Grogg, S J Am Osteopath Jun 2015
Vaccine refusal helped fuel Disneyland measles outbreak, study says

Measles, Mumps, & Rubella (MMR)

145 cases originated from the outbreak at Disneyland

80% of cases unvaccinated or unknown

Estimated vaccination rate at Disneyland
  - 50-85% (herd immunity 96-99%)
MMR

Live vaccine
- Contraindicated: pregnancy, immunocompromised and HIV w/CD4 <200, allergy to neomycin

All adults born before 1957 are generally considered immune

Persons vaccinated before 1979
- killed mumps vaccine or unknown type and
  high risk should receive two doses of MMR
Tdap vs Td → Pertussis

Young infants at high risk

Increase in number of pertussis cases
- Waning immunity from childhood vaccine
- Increased transmission from adults
- *Bordetella pertussis* strain adaptation
- Increased surveillance
- Improved diagnostic testing

Improve adult vaccination rate!
Tdap vs. Td

Tdap (Adacel, Boostrix, Daptacel, Infanrix)
- Tetanus toxoid
- Reduced diphtheria
- Acellular pertussis adsorbed

Td (Tenivac)
- Tetanus and diphtheria toxoid adsorbed

ACIP Feb 2016
Tdap vs. Td

Tdap should be administered to patients ≥11 years old without prior Tdap or status unknown.

One dose of Tdap should be administered with each pregnancy regardless of interval or previous vaccination history.

Adults with unknown vaccination history should complete 3 dose series including one dose of Tdap.

Incomplete vaccination series, administer Remaining doses.
Herpes Zoster

Neurocutaneous disease
Reactivation of latent varicella zoster virus
Zoster vaccine (Zostavax)
  ◦ Live vaccine
FDA approved for patients ≥50 years
ACIP recommended for patients ≥60 years
New vaccine in the pipeline
  ◦ (glycoproteic fraction plus adjuvant)
Influenza

What’s new with the flu?

**Product selection**
- Inactivated influenza vaccine
- Intradermal
- High dose
- Live attenuated (FluMist)***
- Recombinant influenza vaccine (Flublok)
Influenza – High Dose

Efficacy of High-Dose versus Standard-Dose Influenza Vaccine in Older Adults

DiazGranados, C. NEJM 2014
Influenza – High Dose

Effect of Previous-Year Vaccination on the Efficacy, Immunogenicity, and Safety of High-Dose Inactivated Influenza Vaccine in Older Adults

Questionable if insurance will cover expense of high dose influenza vaccine without ACIP specific recommendation
Influenza – Live attenuated influenza vaccine

“Nasal Spray” flu vaccine

ACIP voted June 22, 2016 should not use

Poor or relatively lower effectiveness of LAIV from 2013 to 2016

Continue to recommend annual flu vaccination for everyone 6 moths and older
Improving Vaccination Rates

Address patient questions & dispel myths
- Thimerosal Causes Autism
- Safety of ingredients
- Contraindications

Not contraindications:
- minor illness (upper respiratory infection, otitis media, mild fever)
- Pregnancy in the household
- Breastfeeding
- Allergies to products not in the vaccine

ACIP 2016
Improving Vaccination Rates

- Immunizations cards
- Incorporate immunizations into your SOAP notes/recommendations
- Registries
- Incentives
- Reminder system
- Provider reminders
- Standing orders
≥65 and did not receive PCV13
Immunocompromised

Immunocompromised, functional or anatomic asplenia, CSF leaks, Cochlear Implants

- Is patient 10 - 64 years old?
  - **YES**
    - Has patient received PPSV23 in the past?
      - **NO**
        - Give PCV13 8 weeks later
        - Give PPSV23 5 years later
        - *Give PPSV23*
      - **YES**
        - How many doses?
          - 1
            - Give PCV13 one year after last PPSV23.
          - 2
            - Give PCV13 if 5 years since previous PPSV23
            - Give PPSV23 8 weeks later

- Is patient > 65 years old?
  - **NO**
    - Refer to Pediatric/Adolescent Schedule
  - **YES**
    - Has patient received PPSV23 since turning age 65 years?
      - **NO**
        - ****Give PCV13 if it has been at least 1 year after last PPSV23.
      - **YES**
        - ****Give PPSV23 if it has been >5 years since last PPSV23.

*The second dose of PPSV23 is not needed for patients with CSF leaks or Cochlear implants.*

**A dose of PCV13 is not needed if patient has received a previous dose of PCV13.**
Which of the following may be administered during the same visit

A. MMR
B. Tdap
C. Herpes Zoster
D. All of the above
Which of the following may be administered during the same visit

A. MMR
B. Tdap
C. Herpes Zoster
D. All of the above
Test - Pharmacist

True or False

Pneumococcal vaccine is required based on the seasonal and the product administered to the patient varies from year to year
True or False

Pneumococcal vaccine is required based on the seasonal and the product administered to the patient varies from year to year
Test Questions - Technicians

You have a label to dispense flu vaccine by nasal route. You find live nasal influenza vaccine in the refrigerator.

A. Send it after checking the expiration date
B. Send it but only after adding a nasal route sticker
C. Don’t send it, it should be stored in the freezer and therefore mishandled and ineffective
D. Bring the label to your pharmacist, the product is no longer recommended
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A. Send it after checking the expiration date  
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D. Bring the label to your pharmacist, the product is no longer recommended
References


2. Grogg, S. Schultz, J. Call to action on pneumococcal disease: review of vaccination evidence and outcomes of webcast programs. J Am Osteopath Assoc. 2015 Jun;115(6 supp);S6-25


5. Surydevara, M, Domachowske, JB. Prevention of pertussis through adult vaccination. Hum Vaccin Immunother 2015


1. Write down the course code. Space has been provided in the daily program-at-a-glance sections of your program book.

2. To claim credit: Go to www.cshp.org/cpe before December 1, 2016.