### Immunizations: The Superheroes to Protect Against Disease

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### Conflict of Interest

• I have no actual or potential conflict of interest in relation to this activity.

### Objectives

- Pharmacists

   Discuss why it is important for pharmacists to provide immunizations
- Review the legal requirements for pharmacists to provide immunizations in the state of Illinois

  Discuss how to interpret the 2012 Immunization Schedules for children, adolescents, and adults
- Describe how to incorporate discussions regarding immunizations as a part of the routine patient interaction
- Technicians

   Discuss why it is important to provide immunizations for patients.
- Explain the legal requirements for providing immunizations in the state of Illinois.
- Describe the 2012 Immunization Schedules for children, adolescents, and
- Describe how to collect immunization information as a part of the patient interaction.

# Importance of Vaccines

### Influenza and Pneumococcal Disease **Impact**

- Estimated 200,000 hospitalizations per year in the United States
- 8<sup>th</sup> leading cause of death in the United States in 2009
- 53,582 deaths in 2009

1. Kenneth D. Kochanek, M.A.; Jiaquan Xu, M.D.; et al Centers for Disease Control Division of Vital

### Vaccination Rates for 2011

Influenza Vaccination Rates for 2011

Age 65 and over	64.3%
Age 50-65	43.8%
Age 8-49	27.5%

The percentage of adults aged 65 and over who had ever received a pneumococcal vaccination increased from 42.4% in 1997 to 62.3% in 2011.

Centers for Diseas Control. CDC/NCHS, National Health Interview Survey, 1997–2011.
 Available at: http://www.cdc.gov/nchs/hhis.htm/.

### Health care provider vaccination rates

- Only 52.9% of Health Care Providers received influenza vaccine in 2009
- Consider making influenza vaccination mandatory for health system

3. National Health Interview Survey 2009

### Legal requirements

- To administer Vaccines in Illinois a pharmacist must:
  - Have an active Illinois Pharmacist License
  - Complete a vaccine delivery education program
  - Have active CPR training
  - Complete OSHA training yearly
  - May administer per protocol or per order

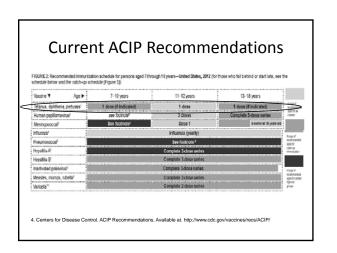
### Legal Requirements

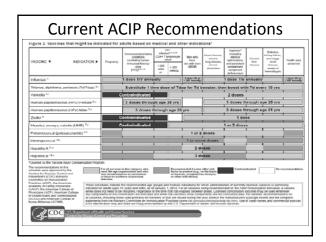
- Technicians May Not administer vaccinations
  - May manage inventory
  - Help process paperwork
- Student Pharmacists
  - May administer vaccinations under the supervision of a pharmacist
  - Must have all legal requirements for vaccination completed

## What are the current recommendations for a one time dose of Tdap vaccine?

- 1. All patients 7-10 years of age
- 2. All patients 10-64 years of age
- 3. All patients >65 years of age
- 4. All patients >11 years of age

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### New Vaccine information

- Influenza
- Pneumococcal
- Pertussis Tdap
- Shingles
- Human Papillomavirus (HPV) vaccine

### Influenza Vaccine

- 2012-2013 Strains
  - A/California/7/2009 (H1N1)(Change from 2011-2012)
  - A/Victoria/361/2011 (H3N2)(same as 2011-2012)
  - B/Wisconsin/1/2010 (same as 2011-2012)
- No vaccine shortage

### New Influenza Delivery

- High dose flu vaccine
  - Frail elderly
  - -> 65 years of age
  - Same strains as TIV
  - Higher antibody levels
- Intradermal Flu Vaccine
  - Adults 18-64 years of age
  - Preservative Free
  - 0.1 ml
- 6. Centers for Disease Control: Influenza. Available at: http://www.cdc.gov/influenza. 7. Fluzone Intradermal vaccine [Prescribing Information]. Swiftwater, PA: Sanofi Pasteur Inc.; 2011.

### Pneumococcal Vaccine

- Pneumococcal 23-valent polysaccharide vaccine: Pneumovax®
  - Indicated in patients >50 years of age or older
  - Indicated for patients ≥2 years who are at increased risk for pneumococcal disease.
    - Chronic disease
    - New indication for smoking and asthma
- Pneumococcal 13-valent conjugate vaccine: Prevnar®
  - New indicated for adults >50 years of age
  - Indicated for children aged 6mo 5years
    - Previous PCV vaccine 7-valent
    - Covers 4 more serotypes of pneumococcal disease than previous PCV
- 8. Pneumovax Vaccine. [Prescribing Information] Whitehouse Station, NJ. Merck and Co, Inc; 2011.
- 9. Prevnar Vaccine. [Prescribing Information] Philadelphia, PA. Pfizer Inc. 2011.

### Pneumovax® vs. Prevnar®

- Clinical Debate
- Pneumovax®
  - Covers 23 serotypes
  - Does not produce a significant booster effect
- Prevnar®
  - Covers 13 serotypes
  - Elicits a greater immune response
  - Produces a booster effect

### The number of pertussis cases in the United States in 2010 was....

- 1. More than the number of cases in 2000
- 2. Less than the number of cases in 2000
- 3. Is about the same as it was in 2000
- Zero

### Tdap – Pertussis Vaccine

- Pertussis outbreaks across the country
  - 7,867 cases in 2000
  - 27,550 cases in 2010
  - Significant increase in pertussis
- Possible causes
  - Decreased vaccination rates
  - Decrease in heard immunity
  - Adults as carriers

### **CDC Pertussis Data**



### Tdap-Tetanus, diphtheria, pertussis

- Secondary to significant pertussis outbreaks ACIP now recommends
  - Patients received one booster dose of pertussis containing vaccine
  - Booster dose for adults and adolescents over the
  - Recommended for all patients regardless of last tetanus booster

### Tdap vaccination rates

- Great opportunity for pharmacists to impact disease transmission
- Percent of patients who have received Tdap in past 2 years
  - Total Tdap 2.1%
    - Whites Blacks

1.7% 3.9%

Hispanics

1.8% • What are your hospitals Tdap vaccination rates?

### Herpes Zoster/Shingles Vaccine

- Available in 2006
- Live vaccine
- Vaccine decreases post herpetic neuralgia by

### Herpes Zoster Vaccine Recommendations

- FDA recently approved the vaccine for adults age 50-59
- ACIP has not changed recommendation for adults. Still recommend for adults over the age of 60.
- Pharmacists who administer under protocol should not administer shingles vaccine to patient between 50 and 59 with out order from physician

# Hepres Zoster and Pneumovax® Should be administered how.

- 1. Simultaneously, they have synergistic effects
- Separated, the pneumococcal antibody is lowered
- 3. Separated, the zoster antibody is lowered
- Simultaneously, they do not effect antibody levels

### Zoster Vaccine and Pneumovax®

- ACIP has not changed recommendations
- Should not be administered simultaneously.
  - Simultaneous administration decreases varicella zoster antibody level post vaccine administration
  - Manufacturer recommends not administering the vaccine simultaneously and should be separated by 4 weeks.

### Human Papillomavirus (HPV) Vaccine

- Previous Recommendations
  - All girls aged 11 26
- New Recommendations
  - All girls aged 11 26
  - Boys aged 11 26

### Why did the recommendation change?

- Boys and Men can be HPV carriers and transmit virus without having active infection
- Men can acquire anal warts and can be at an increased risk of anal cancer secondary to HPV infection.

### What can Pharmacists do?

- Act as an advocate
- Maintain inventory
- Stay up to date
- Get involved

### Pharmacists as Vaccine Advocate

- Educate
  - Educate health care providers of importance of preventing transmission
  - Add vaccinations to medication reconciliation process for pharmacists and technitians
- Vaccinate
  - Get certified to administer vaccinations
  - Work with physician to develop protocol
  - Increase vaccination rates at health system

### Maintain Vaccine Inventory

- · Pharmacy Staff
  - Know what vaccines should be administered to patients when they are hospitalized
  - Verify adequate levels of vaccine are in stock
  - Always handle and store vaccine appropriately
    - All staff should be aware of how to handle and store vaccine inventory
    - Staff should also be aware of how to handle vaccine that has been outside of recommended storage conditions

### What is the "Pink Book"

- CDC textbook on epidemiology of vaccine preventable diseases
- 2. ACIP book published yearly with vaccine recommendations
- 3. Autobiography written by the pink panther

### Stay up to Date

- · Vaccine Recommendations change yearly
- Vaccine resources
  - CDC.gov
  - Immunize.org
  - Pink Book: Epidemiology and Prevention of Vaccine-Preventable Diseases (available online)
  - MMWR (Morbidity and Mortality Weekly Report)
- Listserves
  - Immunization Action coaition (IAC):
  - express@immunize.org
  - MMWR: www.cdc.gov/mmwr
- Smartphone app: Shots 2012

### Get Involved

- Hospital Committee
- Champion pharmacists as vaccine advocates and administrators.

### Questions?

### **Assessment Questions**

- 1. What are the legal requirements a pharmacist must have/complete to administer vaccinations?
- A. Have an active Illinois Pharmacist License
- B. Complete a vaccine delivery education program
- C. Have active CPR training
- D. Complete OSHA training yearly
- E. All of the above

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- 2. Who may legally administer vaccinations in the state of Illinois with proper training and documentation?
- A. Pharmacists Only
- B. Pharmacists and Technicians
- C. Pharmacists and Pharmacy Students
- D. Pharmacists, Pharmacy Students and Pharmacy Technicians

- 3. What are the current recommendations for Tdap vaccination regardless of their last Tetanus booster?
- A. Patients > 11 years of age without contraindication
- B. Patients aged 10-64 years of age
- C. Patients 7- 10 years of age
- D. Patients > 65 years of age

- 4. Who should receive high dose flu vaccine?
- A. Frail Elderly >65 years of age
- B. Patient < 65 years of age with diabetes
- C. Patients with chronic lung disease
- D. Adolescents age 5 11 years of age

- 5. Which of the following is true regarding simultaneous administration of pneumovax and shingles vaccine?
- A. They should be administered simultaneously, they have synergistic effects
- B. Administration of the two vaccines should be separated, the pneumococcal antibody is lowered
- C. Administration of the two vaccines should be separated, the zoster antibody is lowered
- D. They can be administered simultaneously. Simultaneous administration does not effect antibody levels