Mobilizing Pharmacy to Improve Pneumococcal Vaccination Rates in the Elderly
Mobilizing Pharmacy to Improve Pneumococcal Vaccination Rates in the Elderly

Program Agenda

6:15 a.m. – 6:45 a.m.  Registration and Breakfast Buffet

6:45 a.m. – 6:50 a.m.  Introductory Remarks
Debra S. Devereaux, M.B.A., FASHP, Program Moderator

6:50 a.m. – 7:40 a.m.  Mobilizing Pharmacy to Improve Pneumococcal Vaccination Rates in the Elderly
Stephan L. Foster, Pharm.D., FAPhA

7:40 a.m. – 7:45 a.m.  Question and Answer Discussion

Program Faculty

Debra S. Devereaux, M.B.A., FASHP, Program Moderator
Manager, Medicaid Drug Utilization Review Program
Adjunct Clinical Professor
University of Wyoming School of Pharmacy
Laramie, Wyoming

Stephan L. Foster, Pharm.D., FAPhA
CAPT (Ret.), United States Public Health Service
Associate Professor
University of Tennessee College of Pharmacy
Memphis, Tennessee
Mobilizing Pharmacy to Improve Pneumococcal Vaccination Rates in the Elderly

Program Description

Pneumococcal disease, an infectious disease caused by the gram-positive bacterium Streptococcus pneumoniae (S. pneumoniae), causes substantial morbidity and mortality, especially in elderly persons and adults with certain chronic illnesses. Antimicrobial resistance in S. pneumoniae has increased in recent years, making vaccination against the disease more important than ever before for elderly persons and adults at high risk for pneumococcal disease.

Pneumococcal polysaccharide vaccine can be administered conveniently at the same time as other vaccines, such as influenza. Though it has been shown to be highly effective, well tolerated, and cost effective, rates of vaccination against the disease are considerably lower than the goal of 90% set forth in Healthy People 2010. Pharmacists can play a pivotal role in improving current vaccination rates. In addition to providing an overview of pneumococcal disease and reviewing the role of the pharmacist in disease prevention, this program will also explore reimbursement and vaccination program administration.

Learning Objectives

At the conclusion of this program, participants should be able to:

- Describe the incidence of and morbidity and mortality associated with pneumococcal disease in elderly Americans.
- Explain strategies that pharmacists can implement to enhance pneumococcal disease vaccination rates through their involvement in immunization programs.
- Discuss the composition, immunogenicity, indications, dosage, administration, effectiveness, and cost-effectiveness of and the adverse effects, contraindications, and precautions associated with pneumococcal polysaccharide vaccine.
- Given a specific patient profile, determine whether he or she should receive the vaccine based on his or her age, risk factors, and vaccination history.
- Review the reimbursement issues associated with vaccination of the elderly against pneumococcal disease.

Continuing Education Accreditation

The American Society of Health-System Pharmacists is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. This program provides 1 hour (0.1 CEU) of continuing education credit (program number 204-000-05-476-L01). Attendees must complete a Continuing Pharmacy Education Request online and may immediately print their official ASHP CE statements at the ASHP Advantage CE Processing Center at www.ashpadvantage.com.
Debra S. Devereaux, M.B.A., FASHP  
Manager, Medicaid Drug Utilization Review Program  
Adjunct Clinical Professor  
University of Wyoming School of Pharmacy  
Laramie, Wyoming

Ms. Debra Devereaux is Manager of the Drug Utilization Review (DUR) Program at the University of Wyoming School of Pharmacy in Laramie, where she is also Adjunct Clinical Professor. The DUR Program focuses on the implementation of clinical programs, quality monitoring and improvement, provider education, disease and case management and population-based trend analysis. Previous to her current position, she was Assistant Director of Pharmacy at University Hospital in Denver where she served on the investigational review board and supervised the satellite pharmacies. Ms. Devereaux has presented nationally and published in the areas of drug utilization and mentoring. She is a Past President of the American Society of Health-System Pharmacists (ASHP) and has served on several councils, commissions, and committees for ASHP. She is currently Chair of the ASHP Commission on Goals and fundraising Chair of the ASHP Research and Education Foundation. She also serves as Secretary of the Board of Directors of the American Drug Utilization Review Society. Ms. Devereaux received the Distinguished Coloradan Award in 2003 from the University of Colorado School of Pharmacy.

She received her B.S. degree from the University of Colorado and M.B.A. from Regis University.
Mobilizing Pharmacy to Improve Pneumococcal Vaccination Rates in the Elderly

Stephan L. Foster, Pharm.D., FAPhA
CAPT (Ret.), United States Public Health Service
Associate Professor
University of Tennessee College of Pharmacy
Memphis, Tennessee

Dr. Stephan Foster joined the faculty of the University of Tennessee (UT) College of Pharmacy as Associate Professor in March 1998. He teaches in the area of ambulatory pharmacy practice and practices clinically at UT Family Medicine Clinic, where he has a joint faculty appointment with the Department of Family Medicine. Dr. Foster's teaching responsibilities include physical assessment, immunization, diabetes, hyperlipidemia, bioterrorism, and patient consultation. In addition, he is Director of the community pharmacy residency program.

Dr. Foster is nationally recognized in the field of immunization. He is the liaison representative for the American Pharmacists Association (APhA) to the Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention. Dr. Foster is also on the advisory panel and a national faculty member of APhA's Immunization Delivery Certificate Program.

Dr. Foster retired from the United States Public Health Service Indian Health Service March 1, 1998 after a 20-year career. During this time he was trained and certified as a Pharmacist Practitioner, which allowed him to perform direct patient care. Dr. Foster is also licensed as a Pharmacist Clinician in New Mexico.
Mobilizing Pharmacy to Improve Pneumococcal Vaccination Rates in the Elderly

Debra S. Devereaux, M.B.A., FASHP, Program Moderator
Manager, Medicaid Drug Utilization Review Program
Adjunct Clinical Professor
University of Wyoming School of Pharmacy
Laramie, Wyoming

Mobilizing Pharmacy to Improve Pneumococcal Vaccination Rates in the Elderly

Stephan L. Foster, Pharm.D., FAPhA
Associate Professor
University of Tennessee
Departments of Pharmacy and Family Medicine
Liaison Member, CDC Advisory Committee on Immunization Practices (ACIP)

Streptococcus pneumoniae

- Gram-positive diplococci with a polysaccharide cellular capsule
  - Immune response (antibodies) formed against capsule
- Colonizes upper respiratory tract (asymptomatic)
  - 5–30% healthy adults
  - 20–50% healthy children
- Transmitted by respiratory droplets
- Epidemics observed in closed populations
- >90 serotypes
  - Not all cause disease
  - Polysaccharide capsule determines virulence
**S. pneumoniae Disease**

- Factors for development
  - Virulence of serotype
  - Evasion of the immune system
  - Absence of antibody
- Disseminated disease
  - Bacteremia
  - Meningitis
  - Arthritis
  - Peritonitis
- Lower respiratory tract
  - Pneumonia
- Upper respiratory tract
  - Sinusitis
  - Otitis media


- Meningitis
  - 3,300 cases
- Invasive disease
  - 60,000 cases
- Pneumonia
  - 100,000–135,000 hospitalizations
- Otitis media
  - 6 million cases
- Death
  - 14% of hospitalized adults
    - Adults: CFR 15–20%
    - Elderly: CFR 30–40%

Source: [http://www.cdc.gov/ncidod/dbmd/diseaseinfo/streppneum_t.htm](http://www.cdc.gov/ncidod/dbmd/diseaseinfo/streppneum_t.htm)

**History**

- 1881: Pasteur describes pneumococcus
  - Gram-stain discovered in 1884
  - 33% CFR for untreated pneumonia
- 1920s and 1930s: Antisera—18% mortality
- 1930s: Sulfapyridine
- 1941: Sulfadiazine—8% mortality
- 1940s: Penicillin
  - 1970s: Penicillin resistance
  - 1980s: 44% resistant to penicillin
- 1990s: Fluoroquinolone resistance
Community-acquired Pneumonia

- 50% *Streptococcus pneumonia*
- Others
  - *Haemophilus influenzae*
  - Gram-negative bacteria
  - *Staphylococcus aureus*
  - Anaerobes
  - *Mycoplasma pneumoniae*
  - *Chlamydia pneumoniae*
- Cost of hospitalization in U.S.
  - $7.5 billion total
  - $4.4 billion ≥ 65 years old

High-risk Groups for Pneumococcal Infection

- Elderly
- Children <2 years
- African Americans
- American Indians and Alaskan natives
- Children who attend day care
- Persons with underlying medical conditions
Invasive Pneumococcal Disease

Incidence by Age Group: 1998 & 2004

![Bar chart showing incidence rates by age group for 1998 and 2004.](chart.png)

*Rate per 100,000 population  **Preliminary

Source:  Active Bacterial Core Surveillance/EIP Network

Drug-resistant Disease

- Seven serotypes account for most disease
  - 6A, 6b, 9V, 14, 19A, 19F, 23F
- 2000
  - 60,000 cases/year
  - 40% invasive disease resistant to one drug
- 2002
  - 37,000 cases/year
  - 34% invasive disease resistant to one drug
  - 17% resistant to three or more drugs
  - Penicillin, erythromycin, cotrimoxazole, cephalosporins

Strategies for Minimizing Antimicrobial Resistance

- Proper antibiotic use
- Clinician education and guidelines
- Formulary management
- Surveillance
- Infection control practices
- **Vaccination**
Vaccination

FIGURE 1. Algorithm for vaccinating persons aged ≥65 years

Has the person been vaccinated previously?

Yes

Was the person aged ≥65 years at the time of last vaccination?

Yes

Vaccination indicated

No or unsure

Vaccination indicated

No

Have ≥5 years elapsed since the first dose?

Yes

Vaccination not indicated

No

*Note: For any person who has received a dose of pneumococcal vaccine at age ≥65 years, revaccination is not indicated.

Cost Effectiveness-----YES!
Rates of Invasive Disease* and Healthy People 2010 Goal

*Rate per 100,000 population **Preliminary

Source: Active Bacterial Core Surveillance/EIP Network
http://www.cdc.gov/ncidod/dbmd/abcs/reports.htm


Rates of Invasive Pneumococcal Disease

*Preliminary

Active Bacterial Core Surveillance (ABCs) Report
http://www.cdc.gov/ncidod/dbmd/abcs (accessed 10-11-05)
CDC Findings

- Routine vaccination decreased IPD in all age groups
- Prevented more than twice the number of IPD through indirect effects (herd immunity)
- Slight increase in pneumococcal subtypes not found in vaccine

Vaccine Efficacy

- Invasive pneumococcal disease
  - 56–81%
- Pneumococcal pneumonia
  - 66–83%
- Some early trials suggest little or no protective effects
Pneumococcal Effectiveness

- 47,365 patients ≥65 years
- Followed three years
- Vaccination status
  - 21,052 unvaccinated
  - 26,313 vaccinated
- Diagnosed with pneumonia
  - 1428 community-acquired pneumonia
  - 3061 outpatient pneumonia
  - 61 pneumococcal bacteremia

Unadjusted Rate per 1000 Person-Years

<table>
<thead>
<tr>
<th></th>
<th>Hospitalization for CAP</th>
<th>Outpatient Pneumonia</th>
<th>Pneumococcal Bacteremia</th>
<th>Hospitalization for Pneumonia</th>
<th>Death from Any Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unvaccinated</td>
<td>18.4</td>
<td>23.2</td>
<td>0.68</td>
<td>18.8</td>
<td>58.1</td>
</tr>
<tr>
<td>Vaccinated</td>
<td>11.8</td>
<td>25.7</td>
<td>0.38</td>
<td>19.9</td>
<td>42.0</td>
</tr>
</tbody>
</table>

CAP = community-acquired pneumonia
Conclusion

“Our results support the use of pneumococcal polysaccharide vaccine to prevent bacteremic disease in adults aged 65 years or over. The lack of evidence of effectiveness against pneumonia without bacteremia, however, underscores the critical need to evaluate other vaccine formulations for the prevention of noninvasive pneumococcal infection in adults.”


Leading Health Indicators

14-24a.
• Increase the proportion of young children who receive all vaccines that have been recommended for universal administration for at least 5 years.

14-29a, b.
• Increase the proportion of noninstitutionalized adults who are vaccinated annually against influenza and ever vaccinated against pneumococcal disease.

Figure 5.1. Percent of adults aged 65 years and over who had ever received a pneumococcal vaccination: United States, 1997-2004

http://www.cdc.gov/nchs/data/nhis/earlyrelease/200409_05.pdf
Barriers to Immunization

- Missed opportunities
  - >65% of patients with severe pneumococcal disease had been hospitalized within preceding 3–5 years but had not been immunized
- Vaccine availability/delivery to select settings
- Patient/provider fear of adverse effects
- Lack of awareness regarding severity of disease
- Complicated schedules
- Vaccine costs
Missed Opportunities

- 300 patients hospitalized for pneumococcal bacteremia with no previous vaccination
- 209 had identified risk factors
- In previous 4 weeks to 5 years:
  - 182 (87.1%) seen in emergency department
  - 104 (49.7%) hospitalized
  - 64 (30.6%) seen in general medicine clinics


Reasons Reported by Medicare Beneficiaries for Not Receiving Influenza and Pneumococcal Vaccinations — United States, 1996

<table>
<thead>
<tr>
<th>Reasons for not receiving pneumococcal vaccination</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I did not know the pneumonia shot was needed.</td>
<td>37.4%</td>
</tr>
<tr>
<td>Doctor did not recommend the pneumonia shot.</td>
<td>13.4%</td>
</tr>
<tr>
<td>Did not think of it.</td>
<td>11.3%</td>
</tr>
<tr>
<td>Did not think it would prevent pneumonia.</td>
<td>4.3%</td>
</tr>
<tr>
<td>Thought I was not at risk of catching pneumonia.</td>
<td>4.3%</td>
</tr>
<tr>
<td>Don't like shots or needles.</td>
<td>2.6%</td>
</tr>
<tr>
<td>Thought the pneumonia shot could have side effects</td>
<td>2.4%</td>
</tr>
<tr>
<td>Thought the pneumonia shot could cause pneumonia</td>
<td>2.3%</td>
</tr>
<tr>
<td>Doctor recommended against the pneumonia shot.</td>
<td>1.0%</td>
</tr>
<tr>
<td>Unable to get to the location.</td>
<td>0.6%</td>
</tr>
<tr>
<td>Cost of the shot not worth the money.</td>
<td>0.3%</td>
</tr>
</tbody>
</table>

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4839a4.htm
Authority to Immunize
(44 states as of October 2005)


Pharmacist Scope of Practice

Position 4

“ACP-ASIM supports the use of the pharmacist as immunization information source, host of immunization sites, and immunizer, as appropriate and allowed by state law. ACP-ASIM will work with pharmacy organizations to increase immunization awareness.”
Pharmacist Immunizers

Comparison of Vaccination Rates When Pharmacists Vaccinate


Comparison of Vaccination Rates When Pharmacists Vaccinate the Elderly

14 Serotype Pneumococcal Polysaccharide Vaccine

- Introduced in 1977
- Products
  - Pneumovax®14 (Merck & Co.)
  - Pnu-immune 14® (Lederle, Inc.)
- 14 serotypes
  - 1, 2, 3, 4, 5, 6A, 7F, 8, 9N, 12F, 18C, 19F, 23F, 25F
- 68–80% that cause invasive disease
- Included one serotype that cause most drug-resistant infections

23 Serotype Pneumococcal Polysaccharide Vaccine

- Introduced in 1983
- Products
  - Pneumovax®23 (Merck & Co.)
  - Pnu-immune 23® (Lederle, Inc.)
- 23 serotypes
  - 1, 2, 3, 4, 5, 6B, 7F, 8, 9N, 9V, 10A, 11A, 12F, 14, 15B, 17F, 18C, 19A, 19F, 20, 22F, 23F, 33F
- 85–90% that cause invasive disease
- Includes 6 serotypes that cause most drug-resistant infections
### Indications

- Persons ≥ 65 years old
- Persons 2–64 years old who have chronic illness
- Persons 2–64 years old who have functional or anatomic asplenia
- Persons 2–4 years old who are living in special environments or social settings
- Immunocompromised persons

---

### 23 Serotype Pneumococcal Polysaccharide Vaccine

- **Contraindications**
  - Hypersensitivity to any component
- **Warnings**
  - Give 2 weeks prior to cancer therapy or splenectomy
- **Precautions**
  - Febrile respiratory illness or other infection
  - Do not discontinue penicillin prophylaxis following vaccination
  - Pregnancy Category C

---

### 23 Serotype Pneumococcal Polysaccharide Vaccine

- **Adverse effects**
  - Local: <48 hours duration
    - Mild pain at injection site
    - Erythema
    - Swelling
  - Systemic reactions
    - Rare
    - Low-grade fever
23 Serotype Pneumococcal Polysaccharide Vaccine

- **Dose**
  - ≥ 2 years of age
  - 0.5 mL intramuscular or subcutaneous
- Can give concurrently with other vaccines
Footnotes

5. **Pneumococcal polysaccharide vaccination.** Medical indications: chronic disorders of the pulmonary system (excluding asthma); cardiovascular diseases; diabetes mellitus; chronic liver diseases, including liver disease as a result of alcohol abuse (e.g., cirrhosis); chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]); immunosuppressive conditions (e.g., congenital immunodeficiency, HIV infection [vaccinate as close to diagnosis as possible when CD4 cell counts are highest]), leukemia, lymphoma, multiple myeloma, Hodgkin disease, generalized malignancy, or organ or bone marrow transplantation); chemotherapy with alkylating agents, antimetabolites, or long-term systemic corticosteroids, and cochlear implants. Other indications: Alaska Natives and certain American Indian populations; residents of nursing homes and other long-term-care facilities.

Footnotes

6. **Revaccination with pneumococcal polysaccharide vaccine.** One-time revaccination after 5 years for persons with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); immunosuppressive conditions (e.g., congenital immunodeficiency, HIV infection, leukemia, lymphoma, multiple myeloma, Hodgkin disease, generalized malignancy, or organ or bone marrow transplantation); or chemotherapy with alkylating agents, antimetabolites, or long-term systemic corticosteroids. For persons aged ≥65 years, one-time revaccination if they were vaccinated ≥5 years previously and were aged <65 years at the time of primary vaccination.

Revaccination

- People at highest risk of death (e.g., asplenia, nephrotic syndrome, immunosuppressed) if ≥5 years after initial dose
- People ≥65 y/o who received initial dose ≥5 years ago and when <65 y/o
- Children with chronic diseases who received initial dose ≥3 years ago and will be <10 y/o at revaccination
- Bone marrow transplants: 12 and 24 months later
- Chemotherapy and radiation patients: 3 months after therapy stopped
- No more that 2 total injections
  - Unknown safety issues
Polysaccharide Antigens

- Pneumococcal, meningococcal, *Haemophilus influenzae* type b (Hib)
- Not consistently immunogenic in children < 2 y/o
- No booster response (no greatly increased antibody response)
- Immunity short lived
- Immune response improved by protein conjugation (e.g., Hib)

7 Valent Conjugated Pneumococcal Vaccine

- Conjugated to Diphtheria CRM197 Protein
- Prevnar® (Wyeth)
- Licensed in 2000
- 7 serotypes
  - 4, 5, 6B, 9V, 14, 18C, 19F, 23F
- Covers 80% of serotypes for invasive disease in patients <6 years of age
- Covers 74% of penicillin non-susceptible strains
- Covers 100% of high-level resistance to penicillin

Why are Hospital Rates Low?

- Skepticism of effectiveness of programs
- Misconceptions about safety
- Inpatient vaccination not a priority
- Physician lack of knowledge of recommendations
Pharmacist’s Role in Immunization

- Advocate
- Facilitator
- Immunizer

Standards for Adult Immunization Practices

Make vaccinations available
1. Adult vaccination services are readily available.
2. Barriers to receiving vaccines are identified and minimized.
3. Patient "out-of-pocket" vaccination costs are minimized.

Assess patients' vaccination status
4. Healthcare professionals routinely review the vaccination status of patients.
5. Healthcare professionals assess for valid contraindications.

Standards for Adult Immunization Practices

Communicate effectively with patients
6. Patients are educated about risks and benefits of vaccination in easy-to-understand language.

Administer and document vaccinations properly
7. Written vaccination protocols are available at all locations where vaccines are administered.
8. Persons who administer vaccines are properly trained.
9. Healthcare professionals recommend simultaneous administration of indicated vaccine doses.
10. Vaccination records for patients are accurate and easily accessible.
11. All personnel who have contact with patients are appropriately vaccinated.

Implement strategies to improve vaccination rates
12. Systems are developed and used to remind patients and healthcare professionals when vaccinations are due and to recall patients who are overdue.
13. Standing orders for vaccinations are employed.
14. Regular assessments of vaccination coverage levels are conducted in a provider’s practice.

Partner with the community
15. Patient-oriented and community-based approaches are used to reach the target population.

Strategies (CDC Recommendations)
• Age based
  – 50 year old checkup
  – 11–12 year old adolescent checkup
• Organization strategies
  – Identification of high-risk group
  – Standing orders
Strategies (CDC Recommendations)

- Community-based programs
  - Outreach clinics
  - Nursing or skilled homes
  - Influenza clinics

- Provider-based programs
  - Tracking systems in practice
  - Practitioner training and reminders
  - Chart-based reminders
  - Preventive-health checklists

ASHP Guidelines

- Immunization administration
  - Legal authority
  - Training
  - Program structure
  - Reimbursement
- Immunization Promotion
  - History and screening
  - Patient counseling
  - Documentation
  - Formulary management
  - Administrative measures
  - Public education

Training Components

- Epidemiology
- Public health goals
- Vaccine safety
- Screening requirements
- Vaccine stability and storage
- Interactions
- Vaccine dosing
- Adverse reactions
- Documentation and reporting
- Billing

Program Structure

- Trained staff
- Physical space, including storage
- Written policies and procedures
- OSHA standards
- Emergency procedures
- Drug information services: newsletters, inservices
- Pharmacists themselves fully immunized

OSHA = Occupational Safety & Health Administration
Influenza Vaccination of Healthcare Workers

• Most are unaware of the risk of giving influenza to high-risk patients
• Documented reduction in absenteeism and nursing home deaths

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>34%</td>
</tr>
<tr>
<td>2000</td>
<td>38%</td>
</tr>
<tr>
<td>2001</td>
<td>36%</td>
</tr>
<tr>
<td>2002</td>
<td>38.4%</td>
</tr>
<tr>
<td>2003</td>
<td>49%</td>
</tr>
<tr>
<td>2004</td>
<td>35.7%</td>
</tr>
</tbody>
</table>

*Healthcare worker with patient contact

Reimbursement

• Most cost-effective practice in medicine
• Third-party reimbursement sometimes poor
• Medicare Part B
  – Recognizes pharmacists as immunizers
  – Provider status available
  – Roster billing for mass immunization clinics
• Always out-of-pocket available

Medicare Payments Increase

• Pneumococcal: $24.57 ($23.28 in 2004)
• Influenza: $12.06 ($10.10 in 2004)
• Administration Fee: $18.57 ($8.21 in 2004)

Note: These are averages. Amounts vary by location. Contact local CMS for exact amounts
Proposal by CMS

- All nursing homes must vaccinate patients for pneumococcal and influenza to be able to be eligible for Medicare and Medicaid programming benefits

- Not effective now…only proposed

Components of a Program

- Screening through history or chart review
  - Occurrence screening
  - Diagnosis screening
  - Procedure screening
  - Periodic mass screening
  - Occupational screening
  - Screening for contraindications or precautions
Components of a Program

• Patient Counseling
  – Risk vs. benefits
  – Patient concerns
  – Advocacy
    • Cards, form letters, bag stuffers
  – Vaccine Information Statements (VIS)
    • Required by law
    • Many languages available
  – Prescription auxiliary labels

Documentation

• Permanent records
  – Date vaccine administered
  – Manufacturer and lot number
  – Name, address, and title of administrator

• Personal immunization records

• Adverse reactions
  – Report to VAERS
  – www.vaers.hhs.gov

VAERS = Vaccine Adverse Event Reporting System (VAERS)

Formulary Management

• Agents
  – Vaccines, toxoids, immune globulins

• Establish standards
  – Proper storage
  – Proper use
  – Single vs. multi-dose
  – Stocking vaccines in high-use patient care areas
  – Preprinted vaccine orders
Administrative Measures

- Decision making and policy development on:
  - Hepatitis B (pre- and post-exposure)
  - Rabies
  - Wound management
  - Valid contraindications
  - Employee immunization programs
  - Immunization of high-risk persons
  - Emergency measures for vaccine ADE

AIE = adverse drug event

Public Education

- Immunization advocacy
- Observance of National Immunization Week during late September–October
- Public health departments
- Immunization coalitions
- Other groups
  - Diabetes, heart, lung
- Print media

Web Resource List

- www.immunize.org
- www.cdc.gov/nip
- www.cdc.gov/od/nvpo
- www.aafp.org
- www.aap.org
- www.vaccines.org
- www.ectb.org
- www.pkids.org
- www.ahrq.gov
- www.nfidi.org
- www.immuniotioninfo.org
- www.partnersforimmunization.org
- www.vaccine.chop.edu
- www.partnersforimmunization.org
- www.vaccineinformation.org
- www.sabin.org
Questions and Discussion

• We welcome your questions.
• Staff will collect all written question cards.
• Please approach the standing microphones in the aisle.
• Please complete the program evaluation and hand to staff as you exit.
• Thank you for your attention.
• Join us again for CE in the Mornings.
Mobilizing Pharmacy to Improve Pneumococcal Vaccination Rates in the Elderly

References


Mobilizing Pharmacy to Improve Pneumococcal Vaccination Rates in the Elderly

Faculty Disclosure Statements

ASHP Advantage requires that faculty members disclose any relationships (e.g., shareholder, recipient of research grant, consultant or member of an advisory committee) that the faculty may have with commercial companies whose products or services may be mentioned in their presentations. The existence of these relationships is provided for the information of attendees and should not be assumed to have an adverse impact on faculty presentations. The faculty reports the following relationships:

Debra S. Devereaux, M.B.A., FASHP
Ms. Devereaux reports that she does not have any relationships to disclose.

Stephan L. Foster, Pharm.D., FAPhA
Dr. Foster reports that he serves on a Speakers’ Bureau for Merck Vaccine Division and an advisory board for Sanofi-Pasteur.