Keeping Adult Patients Healthy: The Role of Adult Immunization

October 15, 2014
9:15 AM – 10:30 AM
Rosemont, Illinois
Session 2: Keeping Adult Patients Healthy: The Role of Adult Immunization

Learning Objectives

1. Identify profiles of specific patients at greatest risk for vaccine preventable diseases.
2. Recognize that health care provider recommendations are key to patient acceptance of vaccinations.
3. Implement standing orders for adult immunization within practice settings.

Faculty

Robert H. Hopkins Jr, MD, FACP, FAAP
Professor of Internal Medicine and Pediatrics
University of Arkansas for Medical Sciences College of Medicine
Little Rock, Arkansas

Dr Robert Hopkins is professor of internal medicine and pediatrics at the University of Arkansas for Medical Sciences (UAMS) College of Medicine, Little Rock, Arkansas. He received his medical degree from the Medical College of Georgia in Augusta and served a residency in internal medicine: pediatrics at UAMS.

Dr Hopkins is an active clinician and educator who serves as the director of the division of general internal medicine and combined internal medicine: pediatrics residency program at UAMS. His professional and academic interests have focused on medical education, adult immunization, and evidence based patient care; he has published more than 100 articles in these disciplines. Within his local community, Dr Hopkins is a member of the Arkansas department of health vaccine medical advisory committee. Nationally, he is a member of the executive committee of the national influenza vaccine summit and of the American College of Physicians adult immunization advisory committee. Dr Hopkins frequently speaks locally, regionally, and nationally about issues related to vaccine preventable disease and immunization.

M. Susan Burke, MD, FACP
Clinical Associate Professor of Medicine
Thomas Jefferson University
Philadelphia, Pennsylvania
Senior Advisor, Lankenau Medical Associates
Lankenau Medical Center
Wynnewood, Pennsylvania

Dr M Susan Burke is a clinical associate professor of medicine at Thomas Jefferson University, Philadelphia, Pennsylvania, an adjunct associate professor of geriatrics at the Philadelphia College of Osteopathic Medicine, Philadelphia, and a senior advisor of Lankenau Medical Associates at the Lankenau Medical Center, Wynnewood, Pennsylvania; where she has been a clinician and teaching attending for more than 30 years. Having earned her medical degree from the University of Pennsylvania Perelman School of Medicine (Philadelphia), she completed a residency in internal medicine at Lankenau Hospital (now the Lankenau Medical Center). Dr Burke is board certified in internal medicine and geriatrics and is a fellow of the American College of Physicians.
A 2 time recipient of the Osler-Blockley award for excellence in clinical teaching from Thomas Jefferson University, Dr Burke also has received the residents’ award for best teacher from the Lankenau Internal Medicine house staff. She has been named best doctor for women and, more recently, top doctor by Main Line Today. Dr Burke lectures nationally and has published chapters and articles on numerous primary care and geriatric topics on continuing medical education web sites as well as in publications such as The Journal of the American Osteopathic Association and Annals of Long-Term Care.

Faculty Financial Disclosure Statements
The presenting faculty reported the following:
Dr Hopkins has no financial relationships to disclose.
Dr Burke has received speaker honoraria from Merck & Co, Inc.

Education Partner Financial Disclosure Statement
The content collaborators at Miller Medical Communications, LLC, have no financial relationships to disclose.

Suggested Reading List


SESSION 2
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SPEAKERS
Robert H. Hopkins Jr, MD, FACP, FAAP
M. Susan Burke, MD, FACP

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Off-Label/Investigational Discussion
► In accordance with pmiCME policy, faculty have been asked to disclose discussion of unlabeled or unapproved use(s) of drugs or devices during the course of their presentations.

Learning Objectives
• Identify profiles of specific patients at greatest risk for vaccine-preventable diseases
• Recognize that health care provider recommendations are key to patient acceptance of vaccinations
• Implement standing orders for adult immunization within practice settings

Why are we here?

The Yearly Toll of Vaccine-Preventable Diseases

Reasons Why Patients Are Not Being Vaccinated
• Healthy, don’t think they need it
• Didn’t know about disease
• Didn’t know about vaccine
• Doctor didn’t recommend it
• Doctor not aware of the guidelines
Adult Immunization Concepts

- The vast majority of vaccine-preventable diseases occur in adults
- These diseases produce substantial morbidity and mortality
- Vaccine coverage of adults is suboptimal
- Your knowledge and recommendation is vital to reducing vaccine-preventable diseases in your patients


Adult Immunization 2014: Case-Based Approach to ACIP Recommendations

Robert H. Hopkins, Jr, MD, FACP, FAAP
Professor of Internal Medicine and Pediatrics
University of Arkansas for Medical Sciences
College of Medicine
Little Rock, Arkansas

Robert H. Hopkins Jr, MD, FACP, FAAP
Has no relevant financial conflicts of interest to disclose, including:
- Stock
- Speakers Bureau
- Grants and Contracts

Has a relevant nonfinancial conflict in that he is a firm believer in the value and need for better immunization of the adult population of the United States.

Influenza

- Influenza: Enveloped RNA virus
  - 3 types based on surface Ag (HA, NA) + internal structure
    - A: Multiple hosts – birds, mammals (human). Many HA and NA – ‘Highly Pathogenic Strains’
    - B: Human host–1 HA and 1 NA
    - C: Human host–Mild illness ‘URI’
  - Up to 50K influenza-associated deaths/year in United States
    - 200K+ associated hospitalizations, exacerbations
    - Most years, >90% influenza M&M in people >65 years
    - 2013-2014 increased M&M in unvaccinated younger adults!!
  - Multiple effective vaccines in United States

Ag, antigen; HA, hemagglutinin; NA, neuraminidase; M&M, morbidity and mortality; RNA, ribonucleic acid; URI, upper respiratory tract infection.
US Influenza Vaccines

- IV: = ‘Inactivated’ influenza vaccines, IM administration to “All cohorts” by mucosal
  - Multiple vaccines varied indications [age, etc.]: 2013-2014 most Trivalent
  - Anticipate increased quadrivalent vaccines in 2014 and beyond
- Intradermal IV [Approved May 1 for 18-64 years — smaller needle]
- High-Dose IV for 65+ population” [first available 2010-2011]
  - Same production as IV, higher Ag content “More local reactions
  - Phase 3 trials: Sensitization, serum protection rates >IV for A,B strains
  - ‘Real world’ efficacy data not yet published
- Cell culture vaccine [First avail. 2013] [NO EGG PROTEIN]
  - Option in egg-allergic (2013-2014)
- Recombinant HA Vaccine [First avail. 2013] [NO EGG PROTEIN]
- Higher RA content, no RA
- LAIV: Live-attenuated/cold-adapted nasal
  - All Quadrivalent (2A2B) 2013-2014
  - Indicated only for healthy people 2-49 years
  - Consider allergy referral


Influenza ‘Nuts and Bolts’

- IV: 1 dose for adults
  - Incl: QIV, TIV, sTIV, hTIV, LAIV, ccTIV (Fluvirin), rHA (Flublok)
  - IV can safely be used in MOST health care settings [vs IV]
  - LAIV would not be in settings with highly immune suppressed contacts
- Egg allergy: ACIP, AAOA: NO contraindication
  - Anaphylaxis EXCEEDINGLY rare [<1 in 4 million doses]
  - History is key: Hives alone = lower risk
  - Administer influenza vaccine with no egg content [Recombinant vax= Flublok]
  - [AAAI] Recommends Hives alone: routine vaccines, observe in office for 30 minutes
  - Consider allergy referral

AAAI, Academy of Allergy, Asthma, and Immunology; ACIP, Advisory Committee on Immunization Practices; QIV, quadrivalent; vacc, vaccinated vaccine; IM, intramuscular; IV, intravenous; LAIV, live attenuated intranasal vaccine.

Influenza Vaccine Priorities

<table>
<thead>
<tr>
<th>HEALTH CARE WORKERS</th>
<th>PATIENTS AT HIGHEST RISK OF SEVERE ILLNESS /TRANSMISSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>High risk for disease (symptomatic and asymptomatic)</td>
<td>Pregnant women</td>
</tr>
<tr>
<td>High risk for transmission</td>
<td>Newborns and children</td>
</tr>
<tr>
<td>If sick, not available to provide health care</td>
<td>Older adults</td>
</tr>
<tr>
<td>Medical comorbidities, including obesity</td>
<td>Medical comorbidities, including obesity</td>
</tr>
<tr>
<td>Household contacts of high risk</td>
<td>Household contacts of high risk</td>
</tr>
<tr>
<td>Long-term care, institutionalized, crowded living conditions</td>
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Vaccine indicated in all >6 months of age wanting to prevent flu


Remember our patient Angela...

Angela is a 23-year-old woman with juvenile idiopathic arthritis diagnosed in early childhood. She is in your office today for preventive care prior to beginning duties as a Peace Corps volunteer in South America in April. She has a health record for your review demonstrating that she was fully immunized prior to college; however, she has not received any vaccines since. She takes naproxen for arthritis and smokes cigarettes.

In addition to any prophylaxis and vaccines specifically recommended for her planned travel/destinations, which other vaccinations should be administered today?

Answers:  
- Influenza
- Pneumococcal polysaccharide [PPSV23]
- Tdap
- [HPV, MMR, Varicella if not previously given]

Pneumococcal Disease, Vaccination

- Primary goal: Prevent invasive disease [IPD]
  - IPD causes >2000 deaths a year [US adults 65+ years]
  - IPD = pneumococcal bacteraemia + sepsis, meningitis
- Vaccination indicated in adults at:
  - INCREASED RISK [PPSV23 ONLY] for pneumococcal disease
  - HIGHEST RISK [PCV13 + PPSV23] for pneumococcal disease
- PCV13: FDA Licensure, ACIP recommendations differ
  - FDx: immunogenicity, safety
  - ACIP: clinical efficacy [highest risk subgroups]

[IP], invasive pneumococcal disease; FDx, US Food and Drug Administration; PCV, pneumococcal conjugate vaccine.

Pneumococcal Vaccines

- PPSV23
  - Purified capsular polysaccharide → traditional pneumococcal vaccine
  - Contains 23 types—cause of “88% of bacteremic pneumococcal disease
  - Not proven to ‘prevent’ [all cause] pneumonia
    - >60%-70% efficacy vs invasive disease
  - Immunity lasts at least 5 years following 1 dose
  - Local reactions – only common adverse event
- PCV13
  - Replaced PCV7 for childhood immunization [6 wk-6 yr] in 2010
  - Dec. 2011 FDA approved: adults >50, prevent pneumonia, IPD for 13 vaccine-type serotypes
    - Based on immunogenicity and safety studies
  - June 2012 ACIP recommends PCV: IPD prevention, highest risk adults
    - Highest risk: based on anatomic and immunocompromise
    - Best practice: give BEFORE PPSV23
  - Summer 2014: [PROVISIONAL] ACIP recommends PCV13 in adults >65
    - Official recommendation not yet published—stay tuned in early 2015...


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**Pneumococcal Immunization I**

**PPSV23 ALONE for INCREASED RISK**

<table>
<thead>
<tr>
<th>All cigarette smokers ≥19 yo</th>
<th>Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic conditions ≥19 yrs</td>
<td>Lung disease: asthma, COPD</td>
</tr>
<tr>
<td></td>
<td>Cardiovascular disease</td>
</tr>
<tr>
<td></td>
<td>Kidney disease (except ESRD, nephrotic syndrome – PCV13 recommended)</td>
</tr>
</tbody>
</table>

All adults 65 and older (no booster)

- Immunity lasts at least 5 yrs following 1 dose
- REVACCINATION ONCE @ 5+ yrs after initial dose + after 65 only for those vaccinated prior to age 65

PPSV23 = pneumococcal polysaccharide vaccine

CDC, Centers for Disease Control and Prevention. 
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6140a4.htm

**Td/Tdap**

- Pertussis incidence increasing since 1970s
  - 2012: CDC Surveillance US 424,000 cases, likely 10x times more
  - Community outbreaks: Most in fall, winter, and in persons of all ages
  - Nosocomial disease: Academic, community
  - Med/Surg, OR, L&D, NICU, Oncology
  - Residential Care

- Adults/Adolescents do not have ‘classic’ triphasic disease
  - Most have persistent cough: median 4 months (6 studies)
  - 20%-40% ‘whoop’, 40%-55% posttussive emesis
  - 12%-32% lymphocytosis
  - 10% develop complications (pneumonia most common)

CDC, Centers for Disease Control and Prevention; L&D, Labor & Delivery; Med/Surg, medical/surgical; NICU, neonatal/intensive care unit; OR, operating room.


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**Pneumococcal Immunization II**

**SEQUENTIAL PCV13 + PPSV23 for HIGHEST RISK**

Immunocompromised:
- 1. Disease:
  - CA: solid tumors, hematologic malignancies, myeloma, etc
  - Acquired immune deficiency (eg, HIV)
  - Inherited immune deficiency (eg, CID)
  - End-stage kidney disease (ESRD), nephrotic syndrome
- 2. Latrogenic:
  - Steroids (20 mg/d or greater), biologic immunomodulators, other
  - Transplants: solid organ, bone marrow, stem cell
- 3. Asplenia:
  - Anatomic: splenectomy (best if immunized prior to)
  - Functional: hemoglobinopathy, sickle cell, other

Anatomic:
- 1. CSF leak, cochlear implant, splenectomy

CDC, Centers for Disease Control and Prevention. 
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6140a4.htm

**Tdap Recommendations**

- Single dose to replace 1 dose Td for all adults
  - Except in Pregnancy, only 1 dose Tdap recommended lifetime
  - 2009 added 65+
  - 2012 Booster dose with each pregnancy
- Current recommendation for subsequent Td q10yr
- May be given (anytime) <10 years following last Td
- As little as 2 years demonstrated safe/effective
- Special emphasis: Adults with close infant contact (health care workers, parents, child care workers, etc)
- To follow primary T series (DTaP, DTP, DT, or Td)
- Or as part of primary series

DT, diphtheria-tetanus toxoid; DTA, diphtheria toxoid; Td, tetanus diphtheria toxoid.
**Herpes Zoster – Shingles**

- Most who have varicella have measurable antibody for life
  - 99.5% adults have serologic evidence of prior varicella
- Zoster (shingles) occurs when cell-mediated immunity declines
  - Reactivation or varicella exposure re-stimulates CMI
  - Cycle can repeat
- Lifetime risk of shingles ~3% (increases with age)
  - At 85—lifetime risk ~50%
- Postherpetic neuralgia (PHN) is the most common complication
  - Occurs in up to one-third of patients with shingles
  - Pain ranges from mild to excruciating
  - More common if >70 years, immunocompromised
- Vaccination stimulates CMI and decreases zoster

**Hepatitis A, B**

- Vaccination currently recommended for all US children
  - Hepatitis A (HAV) (2007)
- Both have selective recommendations for adults
  - MOST RECENT recommended risk group: Diabetes
    - ALL DM aged < 60 years
    - MD-discordant diabetics > 60 years
    - Do NOT need to start over if completion of series is delayed
  - Can be given individually or together [combination vaccine]
    - HAV: 2 doses at 6+ month interval
    - HBV: 3 doses at 0, 1 month, 6 months
  - Combination: 3 doses at 0, 1 month, 6 months
  - Accelerated Combination: 4 doses at 0, 7 days, 21-30 days, booster at 1 year

**Hepatitis B Recommendations**

- Diabetes mellitus
  - Chronic liver disease, including chronic HCV
  - End-stage renal disease, including dialysis patients [high-dose vaccine]
  - Recipients of clotting factors
  - Alaska and Pacific Islands natives
  - HIV
  - >1 sexual partner/mo, MSM, STD clinic patients
  - Household and sexual contacts of HBV patients
  - Health care workers
  - Travelers to endemic areas and internationally adoptive families
  - Current or recent injection-drug users
  - Correctional facility inmates and staff; developmental disability facility patients and staff
  - Any person seeking protection from HBV infection

**Hepatitis B**

- Chronic liver disease
  - Including chronic HBV, HCV
- MSM
- Injection-drug users
- Travel to endemic area
- Recipients of clotting factors
- Laboratory workers

**A Few More**
**HPV**

- More than 200 types of the virus identified to date
  - 30+ HPV types infect the human genital tract
  - HPV-16 and HPV-18 are the most common oncogenic HPV types, associated with cervical, anal, penile, and oropharyngeal malignancies
  - HPV-6 and HPV-11 are associated with genital warts and respiratory papillomatosis
- Very common infection
  - At least 50% of sexually active men and women infected over their lifetime
- Malignancies with persistent infection: HPV responsible for:
  - 99% of cervical cancers and cervical dysplasia
  - 13% to 74% of malignancies in the oral cavity
  - 50% of penile and vaginal cancers
  - 90% to 95% of anal cancers
- 25,000 HPV-associated cancers in United States annually

**MMR, Varicella**

- Live virus vaccines, 2-dose vaccine series
  - Contraindications:
    - Immune compromise
    - MMR: Egg allergy
    - Varicella: Neomycin, gelatin allergy
  - Routinely recommended in children
    - Most born before 1957 immune to measles, mumps, rubella
    - Most born before 1980 immune to varicella
  - Risk groups
    - HEALTH CARE WORKERS
    - Education, day care, institutional employees
    - Women of childbearing age. (Vaccinate pre- or post-pregnancy)
    - International travel/adoption

**Meningococcal Vaccine**

- Neisseria meningitidis
  - Highly contagious gram-negative bacteria
- Highest mortality in children aged <1 year
- Vaccine recommendations
  - Children aged 11 to 12 years + pre-college
  - Selective adult recommendation based on risk
- 3 Current vaccines: A, C, Y, W-135 (no US type B)
  - MPSA: Polysaccharide vaccine (subcutaneous, 1 dose)
    - Available since 1978, fair efficacy, OK if conjugate not available
  - MCV4 (2 brands): Conjugate vaccines (intramuscular, 1 dose)
    - Approved 2005, 2010
  - Preferred for primary vaccination
    - Booster may be given selectively after 5 years if high risk persists

**Meningococcal Indications**

- All children aged 11 to 12 years
- College freshmen who will live in a dormitory
- Asplenia (anatomic or functional)
- Terminal complement deficiencies
- Travelers to ‘at-risk areas’: Sub-Saharan Africa, December–June
  - Required for entry into Saudi Arabia/Mecca during Hajj
- Microbiologists [possible occupational meningococcal contact]
- Revaccinate at 5 years for ongoing risk status
- Prefer Conjugate for persons < 56 and revaccination
  - Prefer Polysaccharide for those 56+ and needing only 1 dose
- HIV: NO LONGER AN INDICATION [NEW 2014- Low risk]

**HiB Vaccine**

- Haemophilus influenzae, type B
  - Highly contagious Gram-Negative bacteria
- All children [3-4 doses]
- Adult recommendations [NEW 2014]
  - Hematopoietic Stem Cell Transplant Recipient
    - 3 Dose series @ 6-12 months post transplant
      - Separate doses by minimum 4 weeks
    - Regardless of prior vaccination history
  - NOT Routinely recommended in HIV [Low risk]
  - Splenectomy [Functional/Anatomic], Hemoglobinopathy
    - 2 dose if not previously vaccinated
    - At least 14 days prior to splenectomy

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HPV Vaccines

<table>
<thead>
<tr>
<th>HPV4</th>
<th>HPV2</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPV Types 6, 11, 16, and 18</td>
<td>HPV Types 16 and 18</td>
</tr>
<tr>
<td>Prevention of cervical, vaginal, and vulvar cancers and precancerous lesions in females aged 9 to 26 years</td>
<td>Prevention of cervical cancers and precancerous lesions in females aged 10 to 25 years</td>
</tr>
</tbody>
</table>

**HPV**

- Prevention of cervical, vaginal, and vulvar cancers and precancerous lesions in females aged 9 to 26 years
- Prevention of genital warts in males and females aged 9 to 26 years
- Prevention of anal cancers in males and females aged 9 to 26 years
- Prevention of anal intraepithelial neoplasia [AIN] in males and females aged 9 to 26 years

**Contraindications/Cautions**:

1. Local reaction, bronchospasm reported; not recommended in pregnancy (no AEs demonstrated).
2. Pneumococcal pneumonia can reduce efficacy

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MMR, Varicella

- Live virus vaccines, 2-dose vaccine series
  - MMR: Egg allergy
  - Varicella: Neomycin, gelatin allergy

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Special Populations

- Preoperative consult
  - Meningococcal, HIB, PCV13 + PPSV23 — [2 weeks] pre-splenectomy
  - PCV13 + PPSV23— pre-cochlear implant
- Hospitalized medical patients
  - Influenza (in season), pneumococcal year-round in adults
  - Tdap, influenza prior to Mom's L&D discharge (Consider 'family ring' vax)
- Immune compromised
  - Prednisone 20 mg/d equivalent
  - HIV CD4 <200
  - Biologic immunomodulators
  - Maximal 'non-live' vaccination
  - No recommendation for live vaccines
- Travel [CDC Yellow Book +/- Travel Clinics]


Practical Strategies to Increase Immunization of Adults in Your Practice

M. Susan Burke, MD, FACP
Clinical Associate Professor of Medicine
Thomas Jefferson University
Philadelphia, Pennsylvania

Why Do We Want to Improve Vaccination Rates?

- More adults living longer
  - In United States, 10,000 turn 65 years old every day*
- Help keep our patients healthy
  - Focus on prevention: heart disease, cancer screening, immunizations
  - Vaccination is quality-of-care issue that improves health outcomes and will be monitored by health insurers/ government in future
- Reduce morbidity and mortality
- Offices that vaccinate adults receive reasonable compensation
- It’s the right thing to do


Vaccine Opportunities – Pertussis

Reported Case Profiles, 2012

<table>
<thead>
<tr>
<th>Age</th>
<th>No. of Cases</th>
<th>%</th>
<th>Age Inc /100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 year</td>
<td>4954</td>
<td>10.3</td>
<td>126.7</td>
</tr>
<tr>
<td>1-6 years</td>
<td>8280</td>
<td>17.2</td>
<td>34.1</td>
</tr>
<tr>
<td>7-10 years</td>
<td>9532</td>
<td>19.8</td>
<td>58.5</td>
</tr>
<tr>
<td>11-19 years</td>
<td>14440</td>
<td>29.9</td>
<td>38.0</td>
</tr>
<tr>
<td>20+ years</td>
<td>10436</td>
<td>21.6</td>
<td>4.5</td>
</tr>
<tr>
<td>Unknown</td>
<td>595</td>
<td>(1.2)</td>
<td>N/A</td>
</tr>
<tr>
<td>Total</td>
<td>48277</td>
<td>100.0</td>
<td>15.2*</td>
</tr>
</tbody>
</table>

2012 Reported Pertussis Deaths

<table>
<thead>
<tr>
<th>Age</th>
<th>Age Inc /100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants, aged &lt;3 months:</td>
<td>15</td>
</tr>
<tr>
<td>Infants, aged 3-11 months:</td>
<td>1</td>
</tr>
<tr>
<td>Children, 1-4 years:</td>
<td>2</td>
</tr>
<tr>
<td>Adults, aged 55+ years:</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
</tr>
</tbody>
</table>

*Total age incidence per 100,000 calculated from 47,682 cases with age reported.
†11 of the 20 deaths were males.

So How Do We Improve Vaccination Rates in Our Practices?

- Know the rules
- Establish protocols/standing orders
- Make strong recommendations
- If your office cannot vaccinate, then refer
- You are captain of the immunization ship!

Protocols/Standing Orders

- One of the most effective ways to increase vaccination
- Utilize EMR to your advantage
  - Use automatic reminders
  - Some can run the daily patient list for immunizations that are due; have staff administer on arrival

Standing Orders Are Among the Most Effective Strategies

- Nonphysicians offer and administer vaccinations
- Established with physician-approved policies and protocols
- Free download of standing orders at:
  - www.immunize.org/standingorders
  - www.immunizationed.org/standingorders

Make Strong Recommendations

- Your recommendation is key
  - 88% of consumers said they were likely to get vaccinated if recommended by their doctor*
- Make education materials available—wall posters, vaccine information sheets such as Vaccinations for Adults: You’re never too old to get immunized! (available at http://www.immunize.org/catg.d/p4030.pdf)
- Encourage dialogue, answer questions
- Personalize the vaccine experience
  - Would you take the vaccine yourself or give it to your parents? If so, let the patient know: Do not take No for an answer!

Provider Recommendation Can Overcome Negative Attitude Among Patients

Vaccination Rates Among High Risk Patients With Negative Attitudes

- **Influenza**
- **PPSV23**

<table>
<thead>
<tr>
<th>No MD Recommendation</th>
<th>MD Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>80%</td>
</tr>
</tbody>
</table>


If Your Office Cannot Vaccinate, Then Refer

- My office does not provide all services to all patients, either
  - I vaccinate, but refer other services when needed
    - Colonoscopy, etc, per guideline recommendations
  - If you are following guidelines for other diseases, you should follow immunization recommendations as well, whether through your office or through referral to others

Barriers

- “But I’m too busy after taking care of all the other diseases I have to address”
  - What makes immunizing your patient less important than other disease issues?
- Turn your office immunizations into a success story!
- You don’t have to do it alone—engage the staff; have standing orders, refer to others

Barriers

- “But it’s too costly to give or stock all these vaccines”
  - Reimbursement for adult vaccines better than for pediatric ones
  - Can bill $30-$96 above vaccine cost in addition to vaccine administration cost per vaccine
  - In 2013, vaccinating adults in a 5-provider practice in Kennett Square, Pennsylvania, reaped an additional $40K in revenue
  - Many companies will provide vaccines up to 90 days before payment is due—can bill for them by then!!
  - Most companies will buy back outdated/damaged product or freezer failures

If You Can’t Vaccinate, Then Refer

- Health centers, travel clinics, ID specialists all stock vaccines
- Growing number of pharmacies offer vaccinations
  - All states have some vaccinating pharmacies
  - Often better access with expanded evening and weekend hours
  - Patients visit their pharmacy more frequently than they do their doctor!

You can change the course of your patient’s destiny...
Pertussis: Prevent or Modulate Disease Through Vaccination

### Reported Case Profiles, 2012 By Age, Weeks 1-52

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<td>14440</td>
<td>29.9</td>
<td>38.0</td>
</tr>
<tr>
<td>20+ years</td>
<td>10436</td>
<td>21.6</td>
<td>4.5</td>
</tr>
<tr>
<td>Unknown</td>
<td>595 (1.2)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Total</td>
<td>48277</td>
<td>100.0</td>
<td>15.2*</td>
</tr>
</tbody>
</table>

*Total age incidence per 100,000 calculated from 47,682 cases with age reported.

2012 Reported Pertussis Deaths

- Infants, aged <3 months: 18
- Infants, aged 3-11 months: 1
- Children, 1-4 years: 2
- Adults, aged 55+ years: 2

Total: 20

Reported Pertussis Deaths 2012

- Deaths reported through NNDSS to CDC.
- 11 of the 20 deaths were male.


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Make Immunizations a Priority: (What’s Not to Like?)

- Better patient care
- More patients into your office
- Primary prevention opportunity
  - Reduce morbidity and mortality
- More revenue for your practice

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Final Thoughts

Give All Your Patients the Best Fighting Chance Against Vaccine-Preventable Diseases!

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Outcomes Question 1

Certain adult patients are at increased risk for serious pneumococcal disease and should be immunized with the PPSV23 vaccine. These include:

1. Patients with diabetes
2. Patients with osteoporosis
3. Patients who are pregnant
4. Recipients of clotting factors

Post-?