How to Improve Adult Immunization Coverage

September 19, 2012
8:00 AM – 9:15 AM
Rosemont, Illinois
Session 1: How to Improve Adult Immunization Coverage

Learning Objectives

1. Identify adult patients for appropriateness of administering vaccines based on current recommendations.
2. Act to increase provider recommendations to patients who should be vaccinated.
3. Implement standing orders for adult immunization within practice settings.

Faculty

William Schaffner, MD
Chairman
Department of Preventive Medicine
Professor of Infectious Diseases
Department of Medicine
Vanderbilt University School of Medicine
Nashville, Tennessee

William Schaffner, MD, is chairman of the department of preventive medicine as well as professor of infectious diseases in the department of medicine at the Vanderbilt University School of Medicine, Nashville, Tennessee. After undergraduate studies at Yale University in New Haven, Connecticut, Dr. Schaffner attended the University of Freiburg, Germany, as a Fulbright Scholar. He received his medical degree from Cornell University Medical College and completed his residency at Vanderbilt University Medical Center, where he also undertook specialty training in infectious diseases. For two years he served as an Epidemic Intelligence Service officer with the Centers for Disease Control and Prevention in Atlanta, Georgia, after which he returned to Vanderbilt.

Dr. Schaffner’s primary interests are infectious diseases and their prevention. He has worked extensively on the effective use of vaccines and is a strong proponent of collaboration between academic medical centers and public health institutions.

Dr. Schaffner is a past president of the National Foundation for Infectious Diseases and has served on the board of directors of the Infectious Diseases Society of America.

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, 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 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.
Jennifer Burns, CPNP, APN, pediatric nurse practitioner, is director of the Pediatric Family Travel/Vaccination Clinic and of the Vaccination Outreach Program at Comer Children’s Hospital, University of Chicago, in Illinois. She received her nurse practitioner degree from Loyola University, also in Chicago. She is clinical faculty at Loyola University, Rush University, and Harry S Truman College, Chicago, where she instructs undergraduate nursing students regarding pediatric patient care.

Ms Burns’ clinical practice focuses on providing pretravel vaccines and counseling to families with infants and young children who will be traveling internationally. Her broad experience includes diagnosis and treatment of community-acquired MRSA (methicillin-resistant Staphylococcus aureus).

During the H1N1 pandemic in 2010, she established and directed an immunization program for children of University of Chicago medical center employees, which subsequently included children and high-risk family members of university employees. The program is now carried out yearly at the medical center.

As a regular speaker on behalf of the Illinois Chapter of the American Academy of Pediatrics and through her various community efforts, Ms Burns continues her mission to prevent vaccine-preventable disease through immunization programs at schools.

Faculty Financial Disclosure Statements
The presenting faculty reports the following:

Dr Schaffner receives consultant honoraria from Dynavax, GlaxoSmithKline, and Pfizer. Dr Schaffner also receives honoraria from Merck & Co, Inc, and Sanofi Pasteur for being a member of Data Safety Monitoring Boards.

Dr Hopkins has no financial relationships to disclose.

Ms Burns has no financial relationships to disclose.

Education Partner Financial Disclosure Statement
The content collaborators at Miller Medical Communications, LLC, report the following:

Lyerka D. Miller, PhD, has no financial relationships to disclose.

Suggested Reading List


Learning Objectives

- Identify adult patients for appropriateness of administering vaccines based on current recommendations
- Act to increase provider recommendations to patients who should be vaccinated
- Implement standing orders for adult immunization within practice settings

Pre-?

How would you rate your knowledge of the current ACIP recommendations for adult vaccines?

1. Expert
2. Very knowledgeable
3. Knowledgeable
4. Somewhat knowledgeable
5. Not at all knowledgeable

Pre-?

How frequently do you use standing orders for adult vaccines?

1. Never or rarely
2. Some of the time
3. Most of the time
4. Always

Pre-?

How frequently do you check the immunization status of your adult patients?

1. Never or rarely
2. Some of the time
3. Most of the time
4. At every visit
5. Only if they are 65 or older

Pre-?

How frequently do you discuss vaccines with your adult patients and recommend them whenever indicated?

1. Never or rarely
2. Some of the time
3. Most of the time
4. At every visit
5. Only if they are 65 or older

Adult Immunization
An Unexploited Opportunity for Prevention

William Schaffner, MD
Chairman, Department of Preventive Medicine
Professor of Infectious Diseases
Department of Medicine
Vanderbilt University School of Medicine
Nashville, Tennessee
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, with notable disparities of race/ethnicity and income
- Your advocacy for vaccines will benefit your patients


Comparison of 20th Century Annual Morbidity and Current Morbidity: Vaccine-Preventable Diseases

<table>
<thead>
<tr>
<th>Disease</th>
<th>20th Century Annual Morbidity</th>
<th>2010 Reported Cases</th>
<th>Percent Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smallpox</td>
<td>29,005</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>21,053</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Measles</td>
<td>530,217</td>
<td>61</td>
<td>&gt;99%</td>
</tr>
<tr>
<td>Mumps</td>
<td>162,344</td>
<td>2528</td>
<td>98%</td>
</tr>
<tr>
<td>Pertussis</td>
<td>200,752</td>
<td>21,291</td>
<td>89%</td>
</tr>
<tr>
<td>Polio (paralytic)</td>
<td>16,316</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Rubella</td>
<td>47,745</td>
<td>6</td>
<td>&gt;99%</td>
</tr>
<tr>
<td>Congenital Rubella Syndrome</td>
<td>152</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Tetanus</td>
<td>580</td>
<td>8</td>
<td>99%</td>
</tr>
<tr>
<td>Haemophilus influenza</td>
<td>20,000</td>
<td>270</td>
<td>99%</td>
</tr>
</tbody>
</table>


The Yearly Toll of Vaccine-Preventable Diseases

- TENS OF THOUSANDS of deaths (>60,000), approximately 60% of which are in adults
- HUNDREDS OF THOUSANDS of hospitalizations (>200,000 for influenza alone)
- MILLIONS of new infections
  - 10% pertussis, mumps, measles
  - Pertussis compared to 1 million
- BILLIONS of preventable health care costs
  - In excess of $10 billion

HIV=human immunodeficiency virus


Burden of Vaccine – Preventable Diseases – 1

<table>
<thead>
<tr>
<th>Disease</th>
<th>United States/Annual Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFLUENZA</td>
<td>200,000 hospitalizations</td>
</tr>
<tr>
<td></td>
<td>36,000 deaths (&gt;85% elderly)</td>
</tr>
<tr>
<td>INVASIVE PNEUMOCOCCAL DISEASE</td>
<td>44,000 cases</td>
</tr>
<tr>
<td></td>
<td>4,500 deaths</td>
</tr>
<tr>
<td></td>
<td>Higher rates in elderly, AA, persons with comorbidities</td>
</tr>
<tr>
<td>HEPATITIS B</td>
<td>51,000 infections (&gt;95% adults)</td>
</tr>
<tr>
<td></td>
<td>2,000 – 3,000 deaths</td>
</tr>
<tr>
<td></td>
<td>1.25 (m) chronic HBV infection</td>
</tr>
</tbody>
</table>

AA=African American; HBV=hepatitis B virus


Burden of Vaccine – Preventable Diseases – 2

<table>
<thead>
<tr>
<th>Disease</th>
<th>United States/Annual Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUMAN PAPILLOMAVIRUS (HPV)</td>
<td>6.2 million new infections</td>
</tr>
<tr>
<td></td>
<td>2 HPV strains cause 70% of cervical cancers and most anal, head and neck cancers</td>
</tr>
<tr>
<td>PERTUSSIS</td>
<td>Outbreaks throughout US adolescents and young adults</td>
</tr>
<tr>
<td></td>
<td>Most severe in infants</td>
</tr>
<tr>
<td></td>
<td>Source is usually an adult or older child</td>
</tr>
</tbody>
</table>


Burden of Vaccine – Preventable Diseases – 3

<table>
<thead>
<tr>
<th>Disease</th>
<th>United States/Annual Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHINGLES</td>
<td>1,000 cases</td>
</tr>
<tr>
<td></td>
<td>Lifetime risk 30%</td>
</tr>
<tr>
<td></td>
<td>Incidence of shingles and postherpetic neuralgia increases with age</td>
</tr>
</tbody>
</table>

Adult Vaccination Rates Too Low – 1

<table>
<thead>
<tr>
<th>INFLUENZA</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>65+</td>
<td>66%</td>
</tr>
<tr>
<td>50-64</td>
<td>40%</td>
</tr>
<tr>
<td>19-49</td>
<td>33%</td>
</tr>
<tr>
<td>HCW</td>
<td>65%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PNEUMOCOCCAL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>65+</td>
<td>60%</td>
</tr>
<tr>
<td>AA</td>
<td>60%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>46%</td>
</tr>
<tr>
<td>19-64</td>
<td>18%</td>
</tr>
</tbody>
</table>

| TDAP | 8.2% |

HCW = health care worker; TDAP = tetanus, diphtheria, and pertussis
Centers for Disease Control and Prevention; National Health Interview Survey; 2010.

Adult Vaccination Rates Too Low – 2

<table>
<thead>
<tr>
<th>HPV</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Women, 19-26 (low)</td>
<td>20.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HERPES ZOSTER (shingles)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>4.2%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4.4%</td>
</tr>
</tbody>
</table>

Conclusions: Coverage remaining very low — tiny improvement since 2009
Racial/Ethnic disparities persist
An opportunity for improvement!

Reasons Why Patients Not Vaccinated

- Healthy, don’t need it
- Didn’t know about disease, vaccine
- Concern about side effects
- Doctor didn’t recommend it

When It Comes to Vaccines, Doctors and Patients Aren’t Hearing One Another

Most physicians say, “I talk to all of my patients about vaccines”

<table>
<thead>
<tr>
<th>Physicians</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>87%</td>
<td>But few patients agree</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Patients</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>18% “I rarely discuss vaccines with my health care provider”</td>
<td></td>
</tr>
<tr>
<td>31% “occasionally discuss vaccines with my health care provider”</td>
<td></td>
</tr>
<tr>
<td>21% don’t recall ever discussing vaccines</td>
<td></td>
</tr>
</tbody>
</table>

Results are based on surveys by the National Foundation for Infectious Diseases; November 2010.

BE AN ADVOCATE FOR VACCINATING YOUR ADULT PATIENTS!

Adult Immunization: Case-Based Approach

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
Maria is a 25-year-old woman with asthma since childhood. She presents to your office for preventive care prior to embarking on a mission trip to central Africa. She has brought a health record for your review demonstrating that she was appropriately immunized prior to college entry 6 years ago. In addition to any prophylaxis and vaccines specifically recommended for her planned travel/destination, which other vaccinations should be administered today?

1. Tdap, influenza, HPV
2. Pneumococcal, MMR, influenza
3. Pneumococcal, HPV, influenza, Tdap
4. Influenza, meningococcal, pneumococcal, varicella

Maria’s case also raises a second question...

Which type of flu vaccine should Maria receive?

1. LAIV
2. TIV
3. High-dose TIV
4. Intradermal TIV
5. Not sure

LAIV=live attenuated influenza vaccine; TIV=inactivated, inactivated vaccine

Influenza

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

Maria’s case also raises a second question...

Which type of flu vaccine should Maria receive?

1. LAIV
2. TIV
3. High-dose TIV
4. Intradermal TIV
5. Not sure

LAIV=live attenuated influenza vaccine; TIV=inactivated, inactivated vaccine

## Adult Immunization Summary

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>19-49 years</th>
<th>50-64 years</th>
<th>&gt;65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td>1 dose annually; especially health care worker, ‘at risk’</td>
<td>1 dose</td>
<td>1 dose</td>
</tr>
<tr>
<td>Pnc</td>
<td>1 dose if ‘at risk’</td>
<td>3 dose</td>
<td>3 dose</td>
</tr>
<tr>
<td>MMR</td>
<td>2 doses</td>
<td>Born before 1980 – assume native immunity except:</td>
<td></td>
</tr>
<tr>
<td>Varicella</td>
<td>2 doses, if no documented disease</td>
<td>Born before 1980 – assume native immunity except:</td>
<td></td>
</tr>
<tr>
<td>Zoster</td>
<td>No recommendation</td>
<td>Healthy aged 60+, 1 dose</td>
<td></td>
</tr>
<tr>
<td>Tc, Tdap</td>
<td>(1+ series then) Td every 10 years, substitute Tdap for 3 dose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV</td>
<td>(HPV1, HPV2)</td>
<td>Women ≥35 years; 3 doses</td>
<td>No recommendation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adults ≥62 years, HPV4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>50+ – 195 years, HPV5</td>
<td></td>
</tr>
<tr>
<td>MVR</td>
<td>2 doses if ‘at risk’ (or 3-4 dose combination with HBV)</td>
<td>No recommendation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-5 years, HBV</td>
<td></td>
</tr>
<tr>
<td>MMR</td>
<td>2 doses if ‘at risk’ (or 3-4 dose combination with HBV)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal</td>
<td>1 dose ‘at risk’</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## US Influenza Vaccines

- TIV:
  - ‘Killed’, intramuscular administration “All comers” 6 months and older
  - Multiple vaccines, varied indications (age)
- TIV Intradermal:
  - Approved May 2011 for 18- to 64-year-olds (smaller needle)
- LAIV:
  - Cold-adapted nasal spray
  - Indicated only for healthy people aged 2 to 50 years
- Quadrivalent also licensed and should be available 2012-2013 season
- High-Dose TIV for 65+ population (new 2010-2011):
  - Same production process as TIV, higher Ag dose
  - Same seroconversion, same protection rates as TIV for A, B strains
  - Local reactions more frequent but classified as mild
  - ‘Real world’ efficacy data not published to date

http://www.cdc.gov/flu
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</td>
<td>Household contacts of high risk</td>
</tr>
<tr>
<td>Long-term care, institutionalized, crowded living conditions</td>
<td></td>
</tr>
</tbody>
</table>

- Vaccine indicated in all 6 mo+ wanting to prevent flu


Influenza ‘Nuts and Bolts’

- Vaccination season: As soon as available ... to “April 1
  - Start when you have vaccine to administer, usually September to October
  - Late season vaccination important, underutilized
- LAIV, TIV, sqTIV, HD-TIV: 1 dose for adults
  - Kids aged <9 years, first vaccine season: 2 doses 4+ weeks apart
  - LAIV can be safely used in MOST health care settings as alternative to TIV
- Egg allergy relative contraindication to all Influenza vaccines (In package insert, but ACIP and AAAAI disagree)
  - Anaphylaxis is EXCEEDINGLY rare (<10 documented cases)
  - Risk/Benefit: Flu vs vaccine almost always favors vaccine
    - If history of anaphylaxis sensitivity to egg, consider allergy consult

AAAAl=American Academy of Allergy Asthma & Immunology; ACIP=Advisory Committee on Immunization Practices; HD=High dose; sq=subcutaneous
http://www.premierinc.com/all/safety/safety Practices; HD=high dose; sq=subcutaneous

Pneumococcal Polysaccharide

- >2000 adults aged 65+ years die of invasive pneumococcal disease each year
- Vaccine is purified capsular polysaccharide
  - 23 types—cause of 88% bacteremic PNC disease
  - 60% - 70% efficacy vs invasive disease
- Does not ‘prevent pneumonia’
- Immunity lasts at least 5 years following 1 dose
- ROUTINE REVACCINATION NOT RECOMMENDED
- SELECTED Revaccination: once if vaccinated ≥5 years before, AND pneumonia, immunosuppressed, CKD, or nephrotic syndrome
- Local reactions – only common AE

AAV=rare event; CKD=chronic kidney disease

Pneumococcal Conjugate in Adults

- FDA Approved 2011: prevent IPD in adults aged 50+ years
- ACIP Reviewed in February, June 2012
  - Provisional recommendation (Not yet published in MMWR)
  - Conjunction with PPSV in adults ≥50+ years with immune compromise
    - Asplenia, sickle cell disease
    - HIV
    - Transplants, hematologic cancers, solid organ cancers
- Stay tuned...

FDA=US Food and Drug Administration; HIV=Human Immunodeficiency virus; IPD=invasive pneumococcal disease; MMWR=Morbidity and Mortality Weekly Report; PPSV=pneumococcal polysaccharide
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 papillomatisis
- Very common infection; at least 50% of sexually active men and women infected with HPV during lifetime
  - 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

http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5602a1.htm

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>
<tr>
<td>Prevention of genital warts in males and females aged 9 to 26 years</td>
<td>Prevention of anal cancers in males and females aged 9 to 26 years</td>
</tr>
<tr>
<td>Prevention of anal intraepithelial neoplasia (AIN) in males and females aged 9 to 26 years</td>
<td></td>
</tr>
</tbody>
</table>

ACIP Recommendations: HPV4 and HPV2 for females aged 11 or 12 years (approved for ages 9-26) and HPV4 for males aged 11 or 12 years (approved for ages 9-26)

Contraindications/Cautions: Local reaction, bronchospasm reported; not recommended in pregnancy (no AEs demonstrated); Immunossuppression can reduce efficacy

HPV VACCINE DOES NOT SUBSTITUTE FOR CERVICAL CANCER SCREENING

http://www.cdc.gov/vaccines/vpd/cervical-cancer-screening.htm

Tdap

- Recommendation
  - All adults should have a primary diphtheria, tetanus series, followed by a Tdap ‘booster’ every 10 years
  - Replace 1 dose Td with Tdap
  - Many adults aged >60 years never received primary Td series
  - Primary series includes: 3 doses at 0, 1 month, 6 months
  - Results in protective Ab in nearly all; duration 10 yrs+
  - Many adults do not receive Td boosters
  - More than 50% of adults do not have protective Td Ab’s
  - Most boosters given are ‘episodic trauma-related’
  - Tdap Contraindications
    - Severe allergy to vaccine components or Arthus Reaction following T vax
    - (Tdap) Encephalopathy <7 days after pertussis-containing vaccine
    - (Tdap) Unstable neurologic disease, moderate-severe acute illness

http://www.cdc.gov/vaccines/apt-va/combo-vaccines/DTPa-M-OT/Tdap.htm

Tdap Recommendations

- Single dose to replace 1 dose Td for all adults
- Current recommendation for subsequent Td q10yr
- May be given <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)
  - Tdap recommended during pregnancy or immediately postpartum in non-immune mothers
- To follow primary T series [DTP, DTP, DT, or Td]
  - Or as part of primary series

http://www.cdc.gov/vaccines/apt-va/combo-vaccines/DTPa-M-OT/Tdap.htm

Patricia is a 40-year-old woman who is 32 weeks pregnant. You have been asked by her obstetrician to consult for a medical issue. In the context of performing a comprehensive consult, you review her immunization status.

In addition to evaluation and management of the medical issues that were the primary reason for this consult, which vaccines would be indicated for this patient during pregnancy and/or lactation?

1. Tdap and influenza
2. Tdap, influenza, MMR
3. Influenza, varicella, MMR
4. Influenza, varicella, Tdap

http://www.cdc.gov/vaccines/vpd/cervical-cancer-screening.htm

Tdap

- Pertussis incidence is increasing since 1970s
  - 2009: CDC passive surveillance
    - United States: 16,900 cases, 5.5/100K
    - Community outbreaks most in fall, winter
    - Neonates (M&M), children, adolescents, adults (source for neonates)
    - Nosocomial disease
    - Medical/surgical, OR, ICU, NICU, Oncology units
    - Residential Care
    - Adults/adolescents do not have ‘classic’ disease
      - Persistent cough: median 4 months (6 studies)
      - 20%-40% ‘Whoop’
      - 40%-55% Posttussive emesis
      - 12%-32% Symphoyctosis
      - ‘<30% develop complications (pneumonia most common)’

CDC: Centers for Disease Control and Prevention; M&M: Morbidity and mortality; NICU: neonatal intensive care unit; OR: operating room

http://www.cdc.gov/vaccines/art-va/combo-vaccines/DTPa-M-OT/Tdap.htm
Oscar is a 70-year-old man with longstanding hypertension and osteoarthrits who recently moved to your community. He has come to your office to establish primary care. He does not recall receiving any vaccines within the past several years other than the 'shingles shot' when he turned 65.

Which vaccines are appropriate for Oscar?
1. Tdap, TIV influenza, pneumococal
2. Pneumococcal, varicella, TIV influenza
3. Tdap, LAIV influenza, pneumococcal
4. Tdap, LAIV influenza, pneumococcal, zoster

Herpes Zoster – Shingles

- Most who have varicella have measureable Ab for life
- Zoster [shingles] occurs when CMI surveillance declines
  - Reactivation or varicella exposure re-stimulates CMI
  - Cycle can repeat
- Lifetime risk of shingles ~33% (increases with age)
  (99.5% adults have serologic evidence of prior varicella)
  - 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

Zoster Vaccine

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Live attenuated virus vaccine</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACIPRecommendation</td>
<td>Healthy adults aged 60+ years, regardless of prior history of zoster</td>
</tr>
<tr>
<td>TDA Indication</td>
<td>Healthy adults aged 60+ years</td>
</tr>
<tr>
<td>Other Recommendations</td>
<td>ACR: administer before initiating biologic DMARDs</td>
</tr>
</tbody>
</table>
| Contraindications | Pregnancy
  - Anaphylactic hypersensitivity to neomycin or gelatin
  - Known severe immunodeficiency |
| Other Considerations | No need to defer for 'at-risk contacts' – transmission risk low
  - No need to defer if recent transfusion, Ab-containing products |
| Adverse Events | Occasional mild varicella-like rash at vaccine site |
| Frozen Powdered Vaccine | Must be administered within 60 minutes of reconstitution
  - 0.65 ml subcutaneous delin |
| Duration of Protection | At least 4 years
  No booster recommended |

ACR-American College of Rheumatology, DMARD=disease-modifying anti-rheumatic drug

http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5705a1.htm

MMR, Varicella

- Live virus vaccines, 2-dose vaccine series
  - Contraindications: Immune compromise
    - MMR: IgG allergy
    - VAR: 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
    - Vaccine pre pregnancy or postpartum
    - International travel/adoption

VAR=varicella

http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5705a1.htm

Hepatitis A, B

- Vaccination currently recommended in all US children
  - Hepatitis A (2007)
  - Hepatitis B (1995)
  - Both have selective recommendations for adults
    - NEW Recommendation: Diabetes
      - 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
          - Dose and alternate regimens are different for hemodialysis patients
        - Combination: 3 doses at 0, 1 month, 6 months
        - Accelerated Combination: 4 doses at 0, 7 days, 21-30 days, booster at 1 year
          - NEW 2009


Dennis is a 56-year-old man with longstanding type 2 diabetes and stable coronary disease. He has been treated with insulin for the past 5 years and has been able to achieve glucose levels at goal based on self-monitoring TID. He has come to the office for a follow-up visit and informs you that his daughter has encouraged him to get ‘all checked out’ because he is expecting the birth of his first granddaughter in the next 2 to 3 months.

Which of the following immunizations would NOT be recommended for Dennis, based on the current ACIP Adult Immunization Schedule?
1. Hepatitis B
2. Pneumococcal
3. Influenza
4. Tdap
5. Zoster


Clindamycin-mediated immunosuppression
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5705a1.htm
**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 island natives
- HIV
- Sexual partners of HIV patients
- Household and sexual contacts of HIV 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 HAV infection

**Hepatitis A**

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

**Meningococcal**

- Highly contagious gram-negative bacterial infection
  - Highest mortality in children aged <1 year
  - Children aged 11 to 12 years, pre-college ‘catch up’
    - Selective adult recommendation based on risk
- 3 Current vaccines: A, C, Y, W-135 (no type B vaccines)
  - MPS4: Polysaccharide vaccine (subcutaneous, 1 dose + Booster)
    - Available since 1978, fair efficacy. OK if conjugate not available
  - MCV4 (2 products): 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 (no previous vaccination)
- Asplenia (anatomic or functional)
- Terminal complement deficiencies
- HIV
  - Best response if CD4 >200
  - Travelers to ‘at-risk areas’: Sub-Saharan Africa, December through June
  - Required for entry into Saudi Arabia/Mecca during Hajj
- Microbiologists with potential occupational meningococcal contact

**Special Populations**

- Preoperative consult
  - Meningococcal, PP523 (PCV13?) — pre-splenectomy
  - PPS 23 (PCV13?) — pre-cochlear implant
- Hospitalized medical patients
  - Influenza (in season), pneumococcal year-round
  - Tdap and influenza prior to L&D discharge (family??)
- Immunocompromised
  - Prednisone 20 mg/d equivalent or HIV CD4 <200
- Biologic immunomodulators
  - Maximal ‘non-live’ vaccination
  - No recommendation for live vaccines

**Strategies for Increasing Adult Vaccination Rates in Your Office**

Jennifer Burns, CPNP, APN
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Director, Vaccination Outreach Program
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Adult Economics

Both men and women are retiring later, so we need to keep them healthy against VPDs
- Social Security
- Pension type
- Education
- Improved Health
- Decline of retiree health insurance

VPD=vaccine-preventable disease

Which Vaccines Do You Regularly Have Available in Your Practice?

1. Zoster, Tdap, HPV, flu, pneumococcal
2. Flu, tetanus, pneumococcal
3. Flu only
4. None

HPV=human papilloma virus; Tdap=tetanus, diphtheria, acellular pertussis.

Strategies for Increasing Adult Vaccination Rates in Your Office

The Comprehensive Clinic Assessment Software Application (CoCASA) is a free tool from the Centers for Disease Control and Prevention (CDC)
- Assesses immunization practices within a clinic, private practice, or any other environment where immunizations are provided.
- This software is designed to be used in conjunction with the AFIX strategy
- www.cdc.gov/vaccines/programs/cocasa


AFIX

- Makes health care providers aware and knowledgeable about their immunization rates and missed opportunities to vaccinate
- Motivated to incorporate changes to their current practices
- Ready to try new immunization service strategies
- Capable of sustaining these new behaviors


Adult Immunization Barriers

- Limited access
- Limited care and insurance
- Limited financing for immunizations
- Misunderstanding and misinformation
- Limited research and development
What Works!

- Standing orders
- Expanding access in clinical setting
- Computerized record reminder
- Chart reminders
- Home visits/Nontraditional clinics
- Personal health records
- Mailed/telephone recall


Standing Orders

Written orders stipulating that all persons meeting certain criteria (e.g., age or underlying medical condition) should be vaccinated, thus eliminating the need for individual physicians' orders for each patient.

For examples of standing orders, www.immunize.org

Standing Orders

- Advantages
  - Effective method for increasing adult vaccination rates
  - Easy to implement
- Disadvantages
  - Reaches only patients already contacting the health care system


Reminder Recalls

- Computerized Records
  - State registries
- Chart Reminders
- Mailed/Telephone Reminders
- Personal Health Records
  - Use social media to communicate
  - Apps available for patients to have immunization record

Expanding Access in Clinical Settings

- Office Visits
  - Educate all staff regarding the importance of immunization
  - Create champions of immunization in your office
  - All health care providers should use any and every office visit to immunize
  - Offer evening and weekend clinic to allow adults to access health care more easily

Overcoming Barriers

- Insurance
  - Billers or office staff work patients and their insurance to verify coverage
  - List vaccine codes on Web site
- Cost
  - Options for patients without coverage
  - Wellness Cards—www.FederalWellnessCard.com
Overcoming Barriers

• Strongly recommend vaccines to parents and patients
  – A provider recommendation to vaccinate is highly persuasive
• Screen immunization status at every opportunity
  – Minor illnesses, routine health care and wellness visits, school physicals, sports and camp physicals
• Use a screening form that prompts the provider to identify missed immunizations
• Establish provider reminders
  – Electronic health record prompts
  – Stickers on charts of adolescents/adults

Communication Tools

• Be prepared to address concerns with reliable facts and data
  – Written materials: Vaccine Information Statements, handouts, educational pamphlets
  – Direct patients to reputable Web sites and resources
• Directly address patient concerns through 1-on-1 discussion
• Ensure that all members of the health care team, including office staff, deliver a consistent message about the importance of immunizations
• Share real-life stories and personal experiences with vaccine issues and patients with vaccine-preventable diseases

Keeping Ourselves and Our Families Healthy

Shingles (Zoster)

• I was approached by someone at my gym. She told me how her grandmother had to miss a family reunion because she had an active case of shingles. The family was worried about her infecting her pregnant granddaughters, so Grandma had to stay at home.
• This could have been prevented if Grandma had been given the shingles vaccine.
• Shingles vaccine storage and handling:
  – Must be stored at 5°F (-15°C) or colder AT ALL TIMES until reconstitution
  – Protect from light
  – Administer within 30 minutes of reconstitution


Pertussis (Whooping Cough)

• May be mild and undiagnosed in older ages
  – More than half of all pertussis cases are in adolescents and adults
• 85% of pertussis deaths occur in children aged ≤3 years
• Family member is usual source (75%) for infant pertussis
  8% Grandparents
  15% Fathers
  20% Siblings
  25% Others
  32% Mothers

MMWR. 2012;61(4)

Helping Patients Who Question Vaccines

• Educate about benefits/risks
  – Risk of disease is greater than risk of vaccine
  – Refusing immunizations leaves them and community at risk
Immunization Champions

- Provide leadership
- Stay informed of new recommendations/vaccines and educate other staff
- Encourage all staff to provide same messages
- Provide useful resources to staff and patients

Post-?

How would you rate your knowledge of the current ACIP recommendations for adult vaccines?

1. Expert
2. Very knowledgeable
3. Knowledgeable
4. Somewhat knowledgeable
5. Not at all knowledgeable

Post-?

Moving forward, how frequently will you use standing orders for adult vaccines?

1. Never or rarely
2. Some of the time
3. Most of the time
4. Always

Post-?

Moving forward, how frequently will you check the immunization status of your adult patients?

1. Never or rarely
2. Some of the time
3. Most of the time
4. At every visit
5. Only if they are 65 or older

Post-?

Moving forward, how frequently will you discuss vaccines with your adult patients and recommend them whenever indicated?

1. Never or rarely
2. Some of the time
3. Most of the time
4. At every visit
5. Only if they are 65 or older

Questions & Answers

?