Screening Recommendations and Health Promotions Update

Raul J Seballos, MD, FACP
Vice-Chair, Preventive Medicine
Wellness Institute
Cleveland Clinic
Preventive Medicine

• Objectives

– Discussed latest recommendations in AAA screening guideline

– Discussed latest recommendations in cancer screening guideline including recent updates from USPSTF

– Review adult immunization and discuss recent updates
Preventive Medicine

• Three primary tasks
  – Screening
  – Immunization
  – Counseling
Preventive Medicine

• Primary Prevention
  – Reduce risk by preventing disease altogether, e.g., immunizations, screening colonoscopy

• Secondary Prevention
  – Detect earlier in course to improve prognosis, e.g., mammography

• Tertiary Prevention
  – Decrease risk of recurrence, e.g., post-MI statin
General Principles of Screening

• Disease
  – Poses significant problem
    – Morbidity
    – Mortality
  – Common
    – Prevalence
    – Incidence
  – Effective treatment(s) available

• Screening testing
  – Accurate
    – Sensitivity
    – Specificity
    – Predictive value
  – Reasonable cost
    – Financial
    – Risk
# U.S. Mortality Data (2005-2010)

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Heart disease</td>
<td>652,091</td>
<td>629,191</td>
<td>616,067</td>
<td>599,413</td>
</tr>
<tr>
<td>2</td>
<td>Cancer</td>
<td>559,312</td>
<td>560,102</td>
<td>562,875</td>
<td>567,628</td>
</tr>
<tr>
<td>3</td>
<td>Cerebrovascular disease</td>
<td>143,579</td>
<td>137,265</td>
<td>128,842</td>
<td>----</td>
</tr>
<tr>
<td>4</td>
<td>Chronic lower respiratory disease</td>
<td>130,933</td>
<td>124,614</td>
<td>137,353</td>
<td>----</td>
</tr>
<tr>
<td>5</td>
<td>Accidents</td>
<td>117,809</td>
<td>117,748</td>
<td>118,021</td>
<td>----</td>
</tr>
<tr>
<td>6</td>
<td>Diabetes</td>
<td>75,119</td>
<td>72,507</td>
<td>68,705</td>
<td>----</td>
</tr>
<tr>
<td>7</td>
<td>Alzheimer’s</td>
<td>71,599</td>
<td>72,914</td>
<td>79,003</td>
<td>----</td>
</tr>
<tr>
<td>8</td>
<td>Flu/pneumonia</td>
<td>63,001</td>
<td>56,247</td>
<td>53,692</td>
<td>----</td>
</tr>
<tr>
<td>9</td>
<td>Nephritis*</td>
<td>43,901</td>
<td>44,791</td>
<td>48,935</td>
<td>----</td>
</tr>
<tr>
<td>10</td>
<td>Septicemia</td>
<td>34,136</td>
<td>34,031</td>
<td>----</td>
<td>----</td>
</tr>
</tbody>
</table>

*Includes nephrotic syndrome and nephrosis.  Source: US Mortality Data, National Vital Statistics Reports
Death Rates for Heart Disease and Cancer

By Gender, In US from 1980-2011
Case #1

• 66-yr-old male presents for evaluation
• Patient is an ex-smoker with 15 pack-yr hx
• PMH: HTN, hyperlipidemia
• Meds: HCTZ, Lipitor
• Complete ROS is negative
• PE negative.
  – BP 125/80
  – He has had no lab work in the past year.
• What testing, if any, do you recommend?
Case #1

- What testing, if any, do you recommend in this 66-yr-old male?
  
  A. Lipid panel
  B. Lipid panel and cardiac stress test
  C. Lipid panel and abdominal u/s (AAA)
  D. Lipid panel, stress test and abd u/s
  E. None of the above
Case #1

• What testing, if any, do you recommend in this 66-yr-old male?
  
  A. Lipid panel
  B. Lipid panel and cardiac stress test
  C. Lipid panel and abdominal u/s (AAA)
  D. Lipid panel, stress test and abd u/s
  E. None of the above
AAA Screening USPSTF 2005 (updated 6/2014)

• Grade B
  – One-time screening ultrasound in male current or former smokers, ages 65-75

• Grade C
  – Men 65-75 who have never smoked

• Grade D
  – Women w/o smoking hx

• Grade I
  – Women 65-74 who have ever smoked
USPSTF Grades

Grade A: Strongly recommend
  • Benefit >> Harm

Grade B: Recommend
  • Benefit > Harm

Grade C: No recommendation
  • Small net benefit

Grade D: Recommend against routine screening
  • Harm > Benefit

Grade I: Insufficient evidence
Cardiovascular Screening

- **Blood Pressure**
  - Grade A - USPSTF 2007
  - Age: ≥18 years

- **Lipids**
  - Grade A - USPSTF 2008
  - Age: >35 in men, >45 in women

- **Diabetes**
  - Grade B - USPSTF 2008
  - Sustained BP (treated or untreated) >135/80

- **EKG and Stress testing**
  - Grade D - USPSTF 2004
  - No screening in asymptomatic pts
Aspirin for CVD Prevention USPSTF 2009

• Yes
  – Grade A - Men 45-79 yrs, if likely benefit (reduced MI) outweighs risk of GI bleed
  – Grade A - Women 55-79 yrs, if benefit (reduced likelihood of ischemic stroke) outweighs risk of GI bleed

• No
  – Grade D - Men <45 (heart attack prevention) and women <55 (stroke prevention)

• Insufficient evidence
  – Grade I - All patients 80+ yrs.
Cancer Screening

• U.S. Preventive Services Task Force (USPSTF)

• American Cancer Society (ACS)

• Subspecialty Societies:
  – American College of Gastroenterology
  – American College of Radiology
  – Institute for Clinical Systems Improvement
  – Am. Soc. for Colposcopy & Cervical Path.
  – American Society for Clinical Pathology
Estimated New Cancer Cases* in the US in 2013

51%  
Men 854,790  
- Prostate 28%  
- Lung & bronchus 14%  
- Colon & rectum 9%  
- Urinary bladder 6%  
- Melanoma of skin 5%  
- Kidney & renal pelvis 5%  
- Non-Hodgkin lymphoma 4%  
- Oral cavity 3%  
- Leukemia 3%  
- Pancreas 3%  
- All Other Sites 20%

52%  
Women 805,500  
- Breast 29%  
- Lung & bronchus 14%  
- Colon & rectum 9%  
- Uterine corpus 6%  
- Thyroid 6%  
- Non-Hodgkin lymphoma 4%  
- Melanoma of skin 4%  
- Kidney & renal pelvis 3%  
- Pancreas 3%  
- Ovary 3%  
- All Other Sites 19%

*Excludes basal cell and squamous cell skin cancers and in situ carcinoma except urinary bladder.
Estimated Cancer Deaths in the US in 2013

Men 306,920

- Lung & bronchus: 28%
- Prostate: 10%
- Colon & rectum: 9%
- Pancreas: 6%
- Liver & intrahepatic bile duct: 5%
- Leukemia: 4%
- Esophagus: 4%
- Urinary bladder: 4%
- Non-Hodgkin lymphoma: 3%
- Kidney & renal pelvis: 3%
- All other sites: 24%

Women 273,430

- Lung & bronchus: 26%
- Breast: 14%
- Colon & rectum: 9%
- Pancreas: 7%
- Ovary: 5%
- Leukemia: 4%
- Non-Hodgkin lymphoma: 3%
- Uterine corpus: 3%
- Liver & intrahepatic bile duct: 2%
- Brain/other nervous system: 2%
- All other sites: 25%
Colorectal Cancer Screening ACS 2011-2012

• Average-risk individuals, ages 50-75
  – Flex sig q5 yrs
  – Double-contrast barium enema q5 yrs
  – CT colonography q5 yrs (Am Coll Radiology)
  – Colonoscopy q10 yrs (Am Coll Gastroenterol)
  – Fecal occult blood test (FOBT) annually
  – Fecal DNA – interval unknown

• Begin screening hi-risk patients q5yrs at 40-45 yrs, or 10 yrs prior to age of dx in relative.
  – Cease routine screening at age 75
Colorectal Cancer Screening USTPSF 2008

• Ages 50-75
  – Grade A - FOBT, flex sig, or colonoscopy

• Ages 76-85 (or >10 yr life expectancy)
  – Grade C - No routine screening, though individual considerations may support screening in selected patients

• Age > 85
  – Grade D - No screening

• Grade I - CT colonography, fecal DNA testing
Breast Cancer Screening ACS 2010-2011

• Mammograms - annually from age 40
  – Add MRI to screen women at increased risk
    – Family hx, genetic tendency, other factors
    – Affects <2% of American women

• Clinical breast exam - annually from age 40
  – Every 3 years for ages 20-39

• Breast self-exam – optional from age 20
  – Know own breasts, report changes promptly
Breast Cancer Screening USPTSF 2009

• Grade B - Biennial screening mammography for women ages 50-74

• Grade I - Mammography in women >74

• Grade C - Screening before age 50 must consider risk factors, background, values re: risk v. benefit
Breast Cancer Screening USPTSF 2009

• Grade D
  – Recommends against teaching breast self-examination (BSE)

• Grade I
  – Clinical breast examination (CBE) in women 40 years or older

• Grade I
  – Digital mammography or MRI in place of film mammography
Case #2

• 21-year-old female arrives for physical
  – PMH: negative
  – Meds: None
  – ROS negative

• Sexually active, one partner x 7 months
  – Use condoms “about 75% of the time”
  – Last pap 2 yrs ago, reported as “normal”
Case #2

- What strategy would you recommend for cervical cancer screening in this 21-year-old?

  - Pap smear, with recheck in 5 yrs if normal
  - Annual pap smears with HPV screening
  - Pap smears and HPV screening every 3 yrs
  - None of the above
Case #2

• What strategy would you recommend for cervical cancer screening in this 21-year-old?
  
  – Pap smear, with recheck in 5 yrs if normal
  – Annual pap smears with HPV screening
  – Pap smears and HPV screening every 3 yrs
  – None of the above
Cervical Cancer Screening USPSTF 2012

• Ages 21-29
  – ONLY Pap smear q3 yrs (indep. of HPV vacc hx)
  – Grade D - HPV screening before age 30

• Ages 30-65
  – Grade A & “Preferred” (ACS): Pap + HPV q 5 yrs
  – Grade A & “Acceptable” (ACS): Pap q3 yrs

• Grade D - Screening before age 21, or after age 65

• Discontinue screening after surgical removal of cervix unless for cervical cancer or high-grade dysplasia
Cervical Cancer Screening ACS 2012

• Age 21
  – Begin screening q3 yrs

• Age 30
  – After 3 consecutive normal, increase interval to
    – q5 yrs Pap + HPV (preferred), or continue
    – q3 yrs Pap alone (acceptable)

• Age 65
  – Discontinue testing after 3 consecutive normal, but continue
    annual testing in
    – DES exposure
    – HIV
    – Immunocompromise
Case #2

- This 21-year-old female must also be screened for chlamydia and gonorrhea

- Grade B (USPSTF, 9/2014)
  - In sexually active women age 24 years and younger and in older women who are at increased risk for infection
Other Cancers USPSTF

• Screening is not recommended for
  – Grade D  Ovarian Cancer
  – Grade I  Bladder Cancer
  – Grade D  Pancreatic Cancer
  – Grade D  Testicular Cancer
Lung Cancer USPSTF 2004

• Grade I  Insufficient evidence to screen
  – Low-dose CT (LDCT)
  – CXR
  – Sputum cytology
  – Combination of the above

Joe Cocker, age 20 (c. 1964)
• Adults age 55-74

• Must meet NLST criteria
  – Current smokers with 30+ pack-year hx
  – Former smokers with 30+ pack-year hx who quit in the past 15 years.

• Screen to age 75 only
Lung Cancer USPSTF (12/2013)

• Grade B – annual screening with LDCT

• Adults age 55-80

• Current smokers with 30+ pk-yr hx, or former smokers with 30+ pk-yr hx who quit in the past 15 years

• Screening should be discontinue once the person has not smoked for 15 years

Joe Cocker May 20, 1944 – December 22, 2014
Prostate Cancer Screening USPSTF (5/2012)

• Grade D
  — Recommends against PSA-based screening for prostate cancer.

• There is convincing evidence that PSA-based screening programs result in the detection of many cases of asymptomatic prostate cancer, and that a substantial percentage of men who have symptomatic cancer detected by PSA screening have a tumor that either will not progress or will progress so slowly that it would have remained asymptomatic for the man’s lifetime (i.e., PSA-based screening results in considerable overdiagnosis).
Prostate Cancer Screening ACP (4/2013)

• Men age 50-69
  – Clinicians base the decision to screen for prostate cancer using PSA test on
  – the risk for prostate cancer,
  – discussion of the benefits and harms of screening,
  – the patient's general health and life expectancy, and
  – patient preferences.
  – Should not screen with PSA in patients who do not express a clear preference for screening.

• Men age <50 and >70, or men with a life expectancy of less than 10 to 15 yrs
  – PSA screening not recommended
Prostate Cancer Screening AUA (5/2013)

• Men < 40 yo: PSA screening **not** recommended.

• Men age 40-54 yo at average risk
  – PSA screening **not** recommended

• Men age 55 to 69 years
  – Shared decision-making in those considering PSA screening, and proceeding based on patients’ values and preferences
  – To reduce the harms of screening, a routine screening interval of two years or more may be preferred over annual screening

• Men > 70 yo or any man with less than a 10-15 year life expectancy
  – PSA screening **not** recommended.
Slowly he would cruise the neighborhood, waiting for that occasional careless child who confused him with another vendor.
Immunization Basics

• **Attenuated live virus**
  – MMR, varicella, oral polio, yellow fever

• **Dead virus**
  – Influenza, injectable polio, rabies

• **Dead bacteria**
  – H. influenza, meningococcal, pneumococcal, cholera, typhoid (2 types)

• **Recombinant**
  – Hepatitis A, hepatitis B
Immunization Basics

- No live* vaccines in:
  - Immunosuppression
  - HIV with CD4 count <200
  - Pregnancy

*Varicella zoster, MMR

*Know special circumstances (pregnancy, HIV)
Case #3

• 56-year-old male considering P/T job at adult day-care center

• No meds, smokes 1 ppd.

• PMH: IBS. Long-term male partner, both HIV negative

• Told he “may need some shots.”
  – Reports childhood immunizations UTD, but no records

• Last “shot” 15 yrs ago when he cut his hand trying to hang a picture
Case #3

• Which of the following regimens is appropriate for this 59 yo male patient?
  A. Tetanus-diphtheria (Td)
  B. Td, diphtheria and pertussis (Tdap)
  C. Td, Hep A and B
  D. Tdap, Hep A and B
  E. Td, Hep A and B, MMR
  F. Tdap, Hep A and B, MMR
Case #3

- Which of the following regimens is appropriate for this 59 yo male patient?
  A. Tetanus-diphtheria (Td)
  B. Td, diphtheria and pertussis (Tdap)
  C. Td, Hep A and B
  D. **Tdap, Hep A and B**
  E. Td, Hep A and B, MMR
  F. Tdap, Hep A and B, MMR
Immunization Basics

• Tetanus (Td) - Advisory Committee on Immunization Practices (ACIP)
  – Tetanus/diphtheria booster q10 yrs (following primary series)

• Tetanus
  – Nervous System Disorder, “lockjaw”
    – Muscle spasms, autonomic dysfunction
  – Clostridium tetani
    – Toxin: tetanospasmin
  – USA: < 50 cases annually
  – Worldwide 1 million cases annually, with 200,000 - 300,000 deaths
Immunization Basics

- **Diphtheria**
  - Acute communicable disease
  - Corynebacterium diphtheriae (G+ bacillus)
  - Only known reservoir: humans
  - Respiratory & cutaneous forms
  - “Throat Distemper”
  - Last Outbreak in USA
    - Seattle, 1970s
Immunization Basics

• Bordatella Pertussis “Whooping cough”
  – Highly contagious
    • Increased adult infection rates in recent yrs
  – Low mortality – High morbidity
    • Cough - 12+ weeks
    • Missed school and work
  – Clinical clues
    • Prolonged cough
    • Profuse sweating
    • Post-tussive emesis
Immunization Basics

• Tdap
  – Single dose of Tdap
    • During ages 19-64
    • Even if received recent Td
    • Even for patients > age 65
  – Recommended for all health care workers
  – Tdap dose counts as Td booster (q 10 yrs)
Immunization Basics

• MMR
  – Born before 1957 (age ≥ 58 on 1/1/2015)
    – Assumed immune to measles (usu. mumps too)
    – Health care workers must document immunity
  – Born in or after 1957
    – Immunize unless
      – Contraindicated, or
      – Documentation of prior disease, or
      – Documentation of vaccination
Immunization Basics

• MMR
  – **Second dose for high-risk adults** born in/after 1957:
    – Health care workers
    – Entering college students
    – International travelers
    – Dose **4 weeks after dose #1**
  – Women of child-bearing age:
    – Check rubella status.
    – If negative, **administer MMR postpartum**
    – Do not vaccinate women who are or may become pregnant within 4 wks.
Immunization Basics

• Rubella
  – German Measles” – Usually mild
  – Congenital Rubella – Usually severe, >80% chance of birth defects
    – Hearing loss
    – Developmental delay
    – Growth retardation
    – Cardiac and eye defects
Immunization Basics

• Measles
  – Clinical syndrome
  – Fever, conjunctivitis, cough, rash, Koplik’s spots
  – Prevaccination: >90% infxn by age 15
    – U.S. cases fell 99% with vaccination
    – In developing world, 777,000 children died of measles in 2000
Immunization Basics

• Measles Outbreak 2011

  – 2011: “…U.S. is experiencing its worst measles outbreak in 15 yrs, with 118 cases.” In 2001-8, median annual cases was 56. Increased # of cases “underscores importance of vaccination to prevent measles and complications.”

  – Most cases (89%) imported from Europe or SE Asia. Approx 90% unvaccinated.

  – 2014 outbreak: 129 cases in 13 states, esp CA & NY, initiated by unvaccinated travelers returning from Phillipines, with recent epidemic of >20,000 cases.

CDC, Morbidity & Mortality Weekly Report.
David G. Fairchild, MD, MPH, Editor-in-Chief, Physician’s First Watch, May 25, 2011
Immunization Basics

• Mumps
  – Acute, self-limited viral syndrome
    – Sole natural host: Humans
  – Hallmark symptom: parotitis
  – Complications: orchitis (sterility risk), meningitis / encephalitis, deafness
  – 99% decline in cases with vaccine
Immunization Basics

• Mumps Outbreak in US Exceeds 1,500 Cases
  – February 2010
    – Mumps outbreak in NY/NJ Orthodox Jewish community
    – Surpassed 1,500 cases
  – April 2014
    – Mumps outbreak in central Ohio (The Ohio State Univ.)
    – Exceeded 271 cases

http://www.cbc.ca/health/story/2010/02/12/mumps-new-york.html?ref=rss#ixzz0kv9Db9a6
Immunization Basics

• Hepatitis A
  – Populations at risk
    – International travelers and adoptees
    – Clotting disorders
    – Chronic liver disease
    – IVDA
    – MSM
  – Dosing
    – 2 doses at @ 0 and ≥6 mo.
    – Twinrix - -3 doses @ 0, 1, 6 months
Immunization Basics

• Hepatitis B
  – At-risk adolescents and adults
    – IVDA, multiple sexual partners, MSM, HCW, ESRD/HD, chronic liver disease
  – 3 shots (@ 0, 1-2, 4-6 months)
  – Revaccination (booster) not recommended
  – Test for post-vaccine immunity in
    – Health care workers, ESRD/HD
  – Non-responders: revaccinate with 3 shots
  – Safe in pregnancy
Case #3

Which of the following regimens is appropriate for this 59 yo male patient?

- A. Tetanus-diphtheria (Td)
- B. Td, diphtheria and pertussis (Tdap)
- C. Td, Hep A and B
- D. Tdap, Hep A and B
- E. Td, Hep A and B, MMR
- F. Tdap, Hep A and B, MMR
Case #4

- 71-year-old male
- PMH: ESRD/HD, CAD, HTN, lipids, CAD
- Arrives for follow-up appt, early November
- Received flu shot 2 yrs ago but it gave him the “flu” so reluctant to take it again
- Last pneumovax (PPSV23) 6 years ago
- Believes last Td 20+ yrs ago
Case #4

Which of the following regimens is most appropriate for this 71-year-old patient?

A. Influenza and Td

B. Pneumovax and Tdap

C. Influenza and Tdap

D. Influenza, Tdap, and Pneumovax

E. Influenza and Pneumovax
Case #4

Which of the following regimens is most appropriate for this 71-year-old patient?

A. Influenza and Td
B. Pneumovax and Tdap
C. Influenza and Tdap
D. Influenza, Tdap, and Pneumovax
E. Influenza and Pneumovax
Immunization Basics

• Influenza
  – Immunize at >6 months
    – esp. immunosuppression, other risk factors
    – Health care workers
    – Household members of at-risk patients
    – Pregnant women >13 weeks gestation
  – Contraindication: egg allergy
  – Intranasal, live-attenuated vaccine, FDA-approved only in ages 5-49. Contraindicated in pregnancy, immunosuppression
Immunization Basics

• Pneumovax

  – 23-valent pneumococcal polysaccharide vaccine (PPSV23)

  – All persons ≥ 65 yo

  – At-risk patients (ages 2-64): chronic disease, asplenia, CRF, CHF, other immunocompromised states

  – At-risk patients (ages 19-64): smoker or has asthma
Immunization Basics

• Pneumovax
  – 13-valent pneumococcal conjugate vaccine (PCV13)

[Image of MMWR publication regarding pneumococcal vaccination]

www.cdc.gov/mmwr
Immunization Basics

• PCV13 Vaccine
  – Age 0-2
    – 4 doses (@ 2, 4, 6, and 12-15 mths)
  – Age 2-4
    – Not vaccinated or not completed series: 1 dose
  – Age 2-5 with immunocompromised conditions
    – 1-2 doses if not completed the 4-dose series
  – Age 6-18 with immunocompromised conditions
    – 1 dose if not previously received PCV13, regardless if they have received PCV7 or PPSV23
Immunization Basics

• PCV13 Vaccine – Adults
  – All adults ≥ age 65 who have not received PCV13
  – All adults ≥ age 19 with immunocompromised condition who have not received PCV13
  – Scheduling
    – Adults ≥ age 65
      – Get **PCV13 first**, then PPSV23 at 6-12 months later
      – If already received one or more PPSV23, get PCV13 at least 12 months after PPSV23
    – Adults ≥ 19 with immunocompromised condition who have not received a pneumococcal vaccine
      – Get **PCV13 first**. If already received one or more PPSV23, get PCV13 at least 12 months after PPSV23
Immunization Basics

- Pneumovax
- PCV13 and PPSV23

Abbreviations: PCV13 = 13-valent pneumococcal conjugate vaccine; PPSV23 = 23-valent pneumococcal polysaccharide vaccine.

*Minimum interval between sequential administration of PCV13 and PPSV23 is 8 weeks; PPSV23 can be given later than 6–12 months after PCV13 if this window is missed.
Case #4

Which of the following regimens is most appropriate for this 71-year-old patient?

A. Influenza and Td
B. Pneumovax and Tdap
C. Influenza and Tdap
D. Influenza, Tdap, Pneumovax (PCV13 now then PPSV23 6-12 month later)
E. Influenza and Pneumovax
Immunization Basics

• HPV (Gardasil = HPV4, Cervarix = HPV2)
  – Three doses: @ 0, 2, 6 months
  – Targets HPV #6, 11, 16, 18
  – Vaccinate females to age 26
  – Vaccinate males to age 21, but to age 26 if:
    – MSM
    – Immunocompromised (by disease or meds)
Immunization Basics

• Shingles (Herpes Zoster)
  – Single-dose vaccine for pts ages 60+
  – Prevent shingles + post-herpetic neuralgia
  – Higher-dose version of varicella vaccine
  – Reduces shingles incidence 50% and postherpetic neuralgia 66%
Immunization Basics

Each of these is TRUE except

A. Meningococcal vaccine is recommended for college freshmen
B. Varicella is recommended for women in the postpartum period if not immune
C. Meningococcal vaccine is recommended for patients with terminal complement deficiency
D. Varicella is recommended for all adults without prior clinical history of chicken pox
E. Meningococcal vaccine is recommended for travelers to Mecca, Saudi Arabia, for the Hajj
Immunization Basics

Each of these is TRUE except

A. Meningococcal vaccine is recommended for college freshmen
B. Varicella is recommended for women in the postpartum period if not immune
C. Meningococcal vaccine is recommended for patients with terminal complement deficiency
D. Varicella is recommended for all adults without prior clinical history of chicken pox
E. Meningococcal vaccine is recommended for travelers to Mecca, Saudi Arabia, for the Hajj
Immunization Basics

• Varicella (Chickenpox)
  – Live attenuated
    – Two doses (@0 and 4-8 weeks)
  – Immunize all adults without evidence of immunity
    – Born in U.S. before 1980
    – No clinical history of varicella or zoster
    – Absence of positive titers
Immunization Basics

• Varicella (Chickenpox)
  — Contraindications
    — Immunocompromise, pregnancy.
    — Vaccinate post-partum before discharge, with dose #2 at 6-week checkup.
    — Do not vaccinate pregnant women or those who may conceive within 4 wks.
Immunization Basics

• Meningococcal Vaccine
  – Give MCV4 to age 55
  – Give two doses (@ 0 and 8 wks) for
    – Asplenia
    – Complement deficiencies
    – HIV
  – Give one dose MCV4 for
    – Travel to “meningitis belt”
    – Dorm-residing college freshmen
  – After age 56 give MPSV4 (1 dose only)
  – Booster every 5 yrs if ongoing risk
“Meningitis Belt” Sub-Saharan Africa

Required: **ALL** pilgrims on Hajj and Umrah to Mecca
Vaccines that might be indicated for adults based on medical and other indications

<table>
<thead>
<tr>
<th>INDICATION</th>
<th>Pregnancy</th>
<th>Immuno-compromising conditions (excluding human immunodeficiency virus (HIV))</th>
<th>HIV infection</th>
<th>CD4+ T lymphocyte count</th>
<th>Diabetes, heart disease, chronic lung disease, chronic aljaism</th>
<th>Asplenia* (including elective splenectomy) and persistent complement component deficiencies</th>
<th>Chronic liver disease</th>
<th>Kidney failure, end-stage renal disease, receipt of hemodialysis</th>
<th>Healthcare personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>VACCINE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 dose TIV annually</td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Td/Tdap)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs</td>
<td></td>
</tr>
<tr>
<td>Varicella*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 doses</td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 doses through age 26 yrs</td>
<td></td>
</tr>
<tr>
<td>Zoster*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 dose</td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 or 2 doses</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal (polysaccharide)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 or 2 doses</td>
<td></td>
</tr>
<tr>
<td>Meningococcal*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 or more doses</td>
<td></td>
</tr>
<tr>
<td>Hepatitis A*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 doses</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 doses</td>
<td></td>
</tr>
</tbody>
</table>

*Covered by the Vaccine Injury Compensation Program.

For all persons in this category who need the age requirement and who lack evidence of immunity (e.g., lack documentation of vaccination or have no evidence of prior infection).

Recommended if some other risk factor is present (e.g., as the basis of medical, occupational, lifestyle, or other indications).

No recommendation.

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly indicated for adults ages 19 years and older, as of January 1, 2011. For all vaccines being recommended on the adult immunization schedule, a vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccine's other components are not contraindicated. For detailed recommendations on all vaccines, including those used primarily for travelers or that are issued during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices (http://www.cdc.gov/vaccines/pdfs/acip-fist.html).

The recommendations in this schedule were approved by the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), the American Academy of Family Physicians, the American Academy of Obstetricians and Gynecologists (ACOG), and the American Family Physician (AFP).
Cleveland Clinic

Every life deserves world class care.