Health Promotion and Screening

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Disclosure Statement

Dr Weismiller has nothing to disclose.

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Learning Objectives

1. Describe the differences between health promotion, prevention, and screening.
2. Recognize the three leading causes of morbidity in the United States.
3. Counsel patients on necessary lifestyle modifications to maintain health.
4. Reinforce the necessity of patient education and counseling for health promotion, including healthy diets, exercise, and smoking cessation.
Health Promotion and Screening

• Effective health promotion
  – Lifestyle modification: 3 leading causes of morbidity in the US
  – Counseling

• Prevention
  – Primary e.g., Immunizations
  – Secondary e.g., Breast cancer
  – Tertiary e.g., Congestive heart failure
  – Quaternary
    • *Set of health activities to mitigate or avoid the consequences of unnecessary or excessive intervention of the health system. It is the practice of “first do no harm.”*

• Screening
  – Done in asymptomatic persons, typically secondary prevention
Health Promotion
<table>
<thead>
<tr>
<th>Topic</th>
<th>Healthy People 2020 Indicator</th>
</tr>
</thead>
</table>
| Access to Health Services                 | • Persons with medical insurance  
• Persons with a usual primary care provider                                                                                                                   |
| Clinical Preventive Services               | • Adults who receive a colorectal cancer screening based on the most recent guidelines  
• Adults with hypertension whose blood pressure is under control  
• Adult diabetic population with an A1c value greater than 9 percent  
• Children aged 19 to 35 months who receive the recommended doses of DTaP, polio, MMR, Hib, hepatitis B, varicella, and PCV vaccines |
| Environmental Quality                     | • Air Quality Index (AQI) exceeding 100  
• Children aged 3 to 11 years exposed to secondhand smoke                                                                                                    |
| Injury and Violence                        | • Fatal injuries  
• Homicides                                                                                                                                              |
| Maternal, Infant, and Child Health        | • Infant deaths  
• Preterm births                                                                                                                                          |
| Mental Health                             | • Suicides (MHMD-1)  
• Adolescents who experience major depressive episodes                                                                                                    |
| Nutrition, Physical Activity, and Obesity| • Adults who meet current federal physical activity guidelines for aerobic physical activity and muscle-strengthening activity  
• Adults who are obese  
• Children and adolescents who are considered obese  
• Total vegetable intake for persons aged 2 years and older                                                                                                 |
| Oral Health                                | • Persons aged 2 years and older who used the oral healthcare system in past 12 months                                                                      |
| Reproductive and Sexual Health            | • Sexually active females aged 15 to 44 years who received reproductive health services in the past 12 months  
• Persons living with HIV who know their serostatus                                                                                                         |
| Social Determinants                       | • Students who graduate with a regular diploma 4 years after starting 9th grade                                                                               |
| Substance Abuse                           | • Adolescents using alcohol or any illicit drugs during the past 30 days  
• Adults engaging in binge drinking during the past 30 days                                                                                               |
| Tobacco                                   | • Adults who are current cigarette smokers  
• Adolescents who smoked cigarettes in the past 30 days                                                                                                  |
Health Promotion

• Risk stratification
  – Age, sex, family history (genetic), SES, lifestyle choices, environmental factors, and medical issues

• Counseling
  – Reading the patient correctly
    • “Soft-sell”
    • Direct approach
  – USPSTF recommends that prevention be discussed at each patient visit.
    • http://www.ahrq.gov/clinic/pocketgd.htm

• Patient education
Steps in Administering Health Promotion Counseling

• Define health risks.
• Determine the stage of readiness of the patient.
• Advocate and commend behavior change.
• Assist in identification of a target behavior; identify barriers versus benefits.
• Reinforce health benefits of behavior change.
• Offer resources, strategies, and support; create plan of action and monitoring mechanisms.

Barriers

• Practicalities of organizing staff and practice to systematically implement

• Reaching affected patients in a practice or community; limited systems to address prevention during every visit with every patient

• Time and reimbursement for prevention remain major issues – improving
USPSTF

- The USPSTF was convened by the Public Health Service to rigorously evaluate clinical research in order to assess the merits of preventive measures, including screening tests, counseling, immunizations, and preventive medications.
- [www.uspreventiveservicestaskforce.org/uspsttopics.htm](http://www.uspreventiveservicestaskforce.org/uspsttopics.htm)
  - Topic Index (A to Z)
  - Recommendations for adults
  - Recommendations for children and adolescents
  - Affordable Care Act: USPSTF A and B Recommendations
  - Topics in Progress
# Definitions of USPSTF Recommendation Grades

<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
<th>Suggestions for practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>The USPSTF recommends the service; there is high certainty that the net benefit (ie, benefits minus harms) is substantial.</td>
<td>Offer/provide this service.</td>
</tr>
<tr>
<td>B</td>
<td>The USPSTF recommends the service; there is high certainty that the net benefit is moderate or there is moderate certainty that the benefit is moderate to substantial.</td>
<td>Offer/provide service.</td>
</tr>
<tr>
<td>C</td>
<td>The USPSTF recommends against routinely providing the service; there may be considerations that support providing the service in an individual patient; there is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.</td>
<td>Offer/provide the service only if there are other considerations in support of offering/providing the service in an individual patient.</td>
</tr>
<tr>
<td>D</td>
<td>The USPSTF recommends against the service; there is moderate or high certainty that the service has no benefit or that the harms outweigh the benefits.</td>
<td>Discourage the use of this service.</td>
</tr>
<tr>
<td>I</td>
<td>The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service; evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.</td>
<td>If offered, patients should understand the uncertainty about the balance of benefits and harms.</td>
</tr>
</tbody>
</table>
1. The number one cause of morbidity in the United States today is:

A. Poverty
B. Tobacco
C. Unprotected sex
D. Alcohol dependence
E. Overweight/Obesity
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A. Poverty
B. Tobacco
C. Unprotected sex
D. Alcohol dependence
E. Overweight/Obesity
We All Know It!

“Smoking, obesity trim life expectancy”

USA Today, January 26, 2011

# US Major Health Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Prevalence %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults who are current smokers (2010)</td>
<td>17.3</td>
</tr>
<tr>
<td>Obese adults (2010)</td>
<td>27.5</td>
</tr>
<tr>
<td>Physically inactive adults (2009)</td>
<td>49</td>
</tr>
<tr>
<td>Incidence of syphilis, gonorrhea, and chlamydial cases per 100,000 (2008)</td>
<td>517.4/100,000</td>
</tr>
<tr>
<td>Adults with alcohol and illicit drug abuse or dependence (2006-2007)</td>
<td>9.2</td>
</tr>
<tr>
<td>Uninsured (ages 19-64 years) (2010)</td>
<td>17.8</td>
</tr>
</tbody>
</table>
QuickStats: Number of Deaths from 10 Leading Causes—National Vital Statistics System, United States, 2010

In 2010, a total of 2,468,435 deaths occurred in the United States. The first two leading causes of death, heart disease (597,689 deaths) and cancer (374,743), accounted for nearly 50% of all deaths. In contrast, the other leading causes accounted for much smaller percentages, ranging from 5.6% (138,080 deaths) for the third leading cause of death, chronic lower respiratory disease, to 1.6% (38,364) for suicide, the 10th leading cause of death. All other causes combined accounted for 25% of the deaths.


Reported by: jiaquan Xu, MD, jax4@cdc.gov, 301-458-4086.
Highest Ranked Services with the Lowest Delivery Rates

- Tobacco cessation counseling to adults
- Screening older adults for undetected vision impairment
- Offering adolescents an anti-tobacco message or advice to quit
- Counseling adolescents on alcohol and drug abstinence
- Screening adults for colorectal cancer
- Screening young women for chlamydial infection
- Screening adults for problem drinking
- Vaccinating older adults against pneumococcal disease
USPSTF: Smoking (2009)

• The USPSTF recommends that clinicians ask all adults about tobacco use and provide tobacco cessation interventions for those who use tobacco products.  
  Grade: A recommendation

• The USPSTF recommends that clinicians ask all pregnant women about tobacco use and provide augmented, pregnancy-tailored counseling for those who smoke.  
  Grade: A recommendation
USPSTF: Tobacco Use

August 2013

• Recommends that primary care clinicians provide interventions, including education or brief counseling, to prevent initiation of tobacco use in school-aged children and adolescents. Grade: **B recommendation**
Prevalence of Interest in Quitting
National Health Interview Survey, United States, 2010

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Interested in quitting % (95% CI)</th>
<th>Past year quit attempt % (95% CI)</th>
<th>Recent smoking cessation % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>68.8 (67.2-70.5)</td>
<td>52.4 (50.7-54.0)</td>
<td>6.2 (5.4-7.0)</td>
</tr>
</tbody>
</table>

Of the 52.4% who had tried:

- 68.3% did so without evidence-based cessation counseling or medications.
- Only 48.3% who had visited a healthcare provider in the past year received advice to quit smoking.
- Only 31.7% had used counseling and/or medications when they tried to quit.
  - 30% had used medications.
  - 5.9% had used counseling.
Obesity

• Adults
  – BMI > 25 is overweight.
  – BMI > 30 is obese.

• Pediatrics
  – Risk for overweight: BMI at or above the 85th percentile and lower than the 95th percentile for children of the same age and sex.
  – Overweight: BMI at or above the 95th percentile for children of the same age and sex.
Obesity Trends* among US Adults
BRFSS, 1990, 2000, 2010

(*BMI ≥ 30, or about 30 lbs overweight for 5’4” person)
Weight of the Nation

CDC (National Premier. May 14 and 15, 2012)

• Public health campaign from CDC in conjunction with new IOM report (May 8, 2012) on solutions to the obesity crisis
  – The feature films and the 10 shorts will stream free of charge on HBO.com (http://HBO.com).
  – The films are also available on YouTube for embedding and sharing.
IOM Goals

Weight of the Nation

- Integrating physical activity into people’s daily lives
- Making healthy food and beverage options available everywhere
- Transforming marketing and messages about nutrition and activity
- Making schools a gateway to healthy weights
- Galvanizing employers and healthcare professionals to support healthy lifestyles
IOM
Specific Strategies

• Requiring at least 60 minutes per day of physical education and activity in schools
• Industry-wide guidelines on which foods and beverages can be marketed to children and how
• Expansion of workplace wellness programs
• Taking full advantage of physicians’ roles to advocate for obesity prevention with patients and in the community
• Increasing the availability of lower-calorie, healthier children’s meals in restaurants
2. The 2008 Physical Activity Guidelines for Americans published by the US DHHS recommend which one of the following for adults?

A. Spreading out physical activity over the course of 2 weeks
B. Alternating between muscle strengthening exercise and aerobic exercise every other week
C. A weekly minimum of 120 minutes of moderate-intensity aerobic activity (eg, brisk walking) if that is the type of physical activity chosen
D. Working all major muscle groups on 2 or more days during weeks when muscle-strength training exercise is performed
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- A: 1%
- B: 4%
- C: 83%
- D: 11%
### US Physical Activity, 2009

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended physical activity among adults aged ≥ 18 years</td>
<td>51%</td>
</tr>
<tr>
<td>Recommended physical activity among youth</td>
<td>18.4%</td>
</tr>
<tr>
<td>Television viewing among youth (students in grades 9-12 who report watching television for 2 or fewer hours on an average school day)</td>
<td>32.8%</td>
</tr>
</tbody>
</table>
The 2008 Physical Activity Guidelines for Americans—Recommendations

- Aerobic activity every week for adults (SOR C)
  - Moderate aerobic activity: 150 min/wk (brisk walking), or
  - Vigorous aerobic activity: 75 min/wk (jogging or running), or
  - An equivalent mix of moderate and vigorous-intensity aerobic activity
  - If meeting the minimums, slowly increasing the amount of time will increase the benefits.

***Even 10-minute intervals can be beneficial.

The 2008 Physical Activity Guidelines for Americans—Recommendations

- Muscle strengthening activity every week (SOR C)
  - All major muscle groups 2 or more days/wk
    - Legs
    - Hips
    - Back
    - Abdomen
    - Chest
    - Shoulders
    - Arms
US Preventative Services Task Force

Recommendations (2002)

• Insufficient evidence to determine whether routine counseling to promote physical activity for all patients in primary care settings leads to sustained increases in physical activity among adult patients (Grade I).
  – Controlled trials were variable and with mixed results.

• No trials with children or adolescents

• Did not look at how physical activity reduced chronic disease (well documented)
American Cancer Society Guidelines on Nutrition and Physical Activity for Cancer Prevention, 2012

- **Achieve and maintain a healthy weight throughout life.**
  - Be as lean as possible throughout life without being underweight.
  - Avoid excess weight gain at all ages. For those who are currently overweight or obese, losing even a small amount of weight has health benefits and is a good place to start.
  - Engage in regular physical activity and limit consumption of high-calorie foods and beverages as key strategies for maintaining a healthy weight.

- **Adopt a physically active lifestyle.**
  - Adults should engage in at least 150 minutes of moderate intensity or 75 minutes of vigorous intensity activity each week, or an equivalent combination, preferably spread throughout the week.
  - Children and adolescents should engage in at least 1 hour of moderate or vigorous intensity activity each day, with vigorous intensity activity occurring at least 3 days each week.
  - Limit sedentary behavior such as sitting, lying down, watching television, or other forms of screen-based entertainment.
  - Doing some physical activity above usual activities, no matter what one's level of activity, can have many health benefits.

- **Consume a healthy diet, with an emphasis on plant foods.**
  - Choose foods and beverages in amounts that help achieve and maintain a healthy weight.
  - Limit consumption of processed meat and red meat.
  - Eat at least 2.5 cups of vegetables and fruits each day.
  - Choose whole grains instead of refined grain products.

- **If you drink alcoholic beverages, limit consumption.**
  - Drink no more than 1 drink per day for women or 2 per day for men.

Pediatrics and Overweight

- Body mass index (BMI) correlates well with laboratory measurements of body fat.
- Its main use is in tracking whether a child is underweight or overweight.
- Unlike weight, it does not steadily increase with age.
- It is gender- and age-specific and declines to a nadir in the first 4-6 years of life; it steadily increases after that.
BMI

<table>
<thead>
<tr>
<th>Weight status category</th>
<th>Percentile range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>&lt; 5th percentile</td>
</tr>
<tr>
<td>Healthy weight</td>
<td>5th percentile to &lt; 85th percentile</td>
</tr>
<tr>
<td>Risk for overweight*</td>
<td>85th to &lt; 95th percentile</td>
</tr>
<tr>
<td>Overweight*</td>
<td>≥ 95th percentile</td>
</tr>
</tbody>
</table>

* In this population, because of the possible negativity associated with the word *obese*, the term *overweight* is used instead.
When to Measure BMI?

• Current recommendations: Yearly in children starting at age 2
  – This is used to identify excessive rates of weight gain relative to linear growth; can indicate the need to counsel parents and children on healthy eating and physical activity (SOR C).

• No evidence that tracking BMI, or any specific measures, prevents childhood obesity (SOR A)
Overweight/Obesity

• Prevalence of obesity and overweight is increasing in child populations throughout the world, impacting short- and long-term health.
  – Increased energy content of the diet
  – Decreased levels of physical activity
  – Increasingly sedentary lifestyles

• USA
  – 25% in 85th to 95th percentile BMI
  – 7% > 95th percentile BMI

• Being overweight or obese can have a significant effect on both the physical and emotional health of children.
Trends in Child and Adolescent Overweight

Note: Overweight is defined as BMI ≥ gender- and weight-specific 85th percentile from the 2000 CDC Growth Charts.
Source: National Health Examination Surveys II (ages 6-11) and III (ages 12-17), National Health and Nutrition Examination Surveys I, II, III and 1999-2004, NCHS, CDC.
Risks of Childhood Obesity

Physical Complications
• Type 2 diabetes
• Metabolic syndrome
• Hypercholesteroleemia
• Hypertension
• Asthma/breathing problems
• Sleep disorders including apnea
• Early puberty or menstruation

Social/Emotional Complications
• Low self-esteem
• Bullying
• Behavior and learning problems
• Depression
Interventions

• Benefit of behavior therapy may be increased if parents, rather than the child, are given the primary responsibility for behavior change.

• There have been many trials that focused on changing levels of physical activity and/or sedentary behavior, but they have been too small to provide conclusive evidence.

• While physical activity is universally recommended because of its proven health benefits, the contribution to weight loss is not as clear in childhood.
  – Children should be encouraged to increase their levels of physical activity, even if there is no great benefit in terms of weight reduction.
USPSTF: Obesity

• Recommends screening all adults for obesity *(Grade B Recommendation) 2012*
  – Clinicians should offer or refer patients with a body mass index (BMI) of 30 kg/m² or higher to intensive, multicomponent behavioral interventions.

• Recommends that clinicians screen children aged 6 years and older for obesity and offer them or refer them to comprehensive, intensive behavioral interventions to promote improvement in weight status *(Grade B Recommendation) 2010*
Alcohol
3. Which of the following statements is true regarding alcohol abuse counseling?

A. The CAGE but NOT the AUDIT tool has been validated as a screening instrument for adult alcohol abuse.
B. The US Preventive Services Task Force (USPSTF) recommends screening and counseling adolescents on the risks of alcohol misuse.
C. The USPSTF recommends screening and counseling adults on the risks of alcohol misuse.
D. While the USPSTF found that screening can accurately identify adults at risk for alcohol misuse, they found insufficient evidence of effectiveness for brief, office-based interventions.
3. Which of the following statements is true regarding alcohol abuse counseling?

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B. The US Preventive Services Task Force (USPSTF) recommends screening and counseling adolescents on the risks of alcohol misuse.

C. The USPSTF recommends screening and counseling adults on the risks of alcohol misuse.

D. While the USPSTF found that screening can accurately identify adults at risk for alcohol misuse, they found insufficient evidence of effectiveness for brief, office-based interventions.
Highest-Ranked Services with the Lowest Delivery Rates

- Tobacco cessation counseling to adults
- Screening older adults for undetected vision impairment
- Offering adolescents an anti-tobacco message or advice to quit
- Counseling adolescents on alcohol and drug abstinence
- Screening adults for colorectal cancer
- Screening young women for chlamydial infection
- **Screening adults for problem drinking**
- Vaccinating older adults against pneumococcal disease
Alcohol Use

- **Definitions of patterns of drinking alcohol**
  - Excessive drinking includes heavy drinking, binge drinking, and any drinking by pregnant women or underage youth.

  - **Acceptable**
    - Men ≤ 2 drinks per day
    - Women ≤ 1 drink per day

  - **Heavy**
    - For women, more than 1 drink per day on average
    - For men, more than 2 drinks per day on average

  - **Binge**, the most common form of excessive alcohol consumption
    - For women, 4 or more drinks during a single occasion
    - For men, 5 or more drinks during a single occasion

  - Most people who binge drink are not alcoholics or alcohol dependent.

Source: National Institutes of Health
Alcohol and Adults

**USPSTF 2013**

- Recommends that clinicians screen adults aged 18 years or older for alcohol misuse and provide persons engaged in risky or hazardous drinking with brief behavioral counseling interventions to reduce alcohol misuse. Grade: **B Recommendation**

- Concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening and behavioral counseling interventions in primary care settings to reduce alcohol misuse in adolescents. Grade: **I Statement**
Validated Instruments

Alcohol Abuse

• The CAGE and AUDIT tools are two of several validated instruments that can be used in primary care settings to screen for alcohol abuse (SOR A).

Acceptable limit of alcohol: Men ≤ 2 drinks per day, women ≤ 1 drink per day
CAGE
CAGE Questionnaire (PDF)

• CAGE test scores ≥ 2 had a sensitivity of 93% and a specificity of 76% for the identification of problem drinkers.

  1. Have you ever felt you needed to **Cut** down on your drinking?
  2. Have people **Annoyed** you by criticizing your drinking?
  3. Have you ever felt **Guilty** about drinking?
  4. Have you ever felt you needed a drink first thing in the morning (**Eye-opener**) to steady your nerves or to get rid of a hangover?

AUDIT

- Ten-question test developed by the World Health Organization to determine if a person's alcohol consumption may be harmful
- Test designed to be used internationally; validated in a study using patients from six countries.
- Questions
  - 1-3 deal with alcohol consumption
  - 4-6 relate to alcohol dependence
  - 7-10 consider alcohol-related problems
- Scoring
  - A score of 8 or more in men (7 in women) indicates a strong likelihood of hazardous or harmful alcohol consumption.
  - A score of 20 or more is suggestive of alcohol dependence.

**AUDIT: The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Care**, second edition, by TF Babor, JC Higgins-Biddle, JB Saunders, and MG Monteiro.
Adverse Effects of Excessive Alcohol

- **Long-term health risks:** Over time, excessive alcohol use can lead to the development of chronic diseases, neurological impairments, and social problems.
  - Neurological problems, including dementia, stroke, and neuropathy
  - Cardiovascular problems, including myocardial infarction, cardiomyopathy, atrial fibrillation, and hypertension
  - Psychiatric problems, including depression, anxiety, and suicide
  - Social problems, including unemployment, lost productivity, and family problems
  - Cancer of the mouth, throat, esophagus, liver, colon, and breast
  - In general, the risk of cancer increases with increasing amounts of alcohol.
  - Liver diseases, including:
    - Alcoholic hepatitis
    - Cirrhosis, which is among the 15 leading causes of all deaths in the United States
    - Among persons with hepatitis C virus, worsening of liver function and interference with medications used to treat this condition
  - Other gastrointestinal problems, including pancreatitis and gastritis
Alcohol Use and CVA

• Effects of alcohol on stroke risk are controversial but:
  – The negative effects of heavy use (> 5/d) are well documented.
  – Heavy use increases the risk for all forms of stroke not just ischemic.
Secondary Stroke Prevention

The American Heart Association/American Stroke Association 2006 guideline on stroke prevention in patients with a previous stroke or TIA, lists elimination or reduction of alcohol consumption in heavy drinkers as one of the primary goals.
Heavy Alcohol Consumption: CVA

- Mechanisms for the negative effects
  - More vulnerable to cerebral atrophy
  - Atrial fibrillation
  - Reduced cerebral blood flow
  - Alcohol-induced hypertension
  - Hypercoagulable state
Light to Moderate Alcohol Consumption: CVA

• Mechanisms for reduced risk of stroke
  – Increases in HDL
  – Decreases in platelet aggregation
  – Lower plasma fibrinogen concentration
• Primary
• Secondary (Screening)
• Tertiary
• Quaternary

Prevention
Prevention

Primary

- Avoids the development of a disease. Most population-based health promotion activities are primary preventive measures.
- Immunizations
- Estimated that 50,000 lives could be saved per year if the ACIP immunization schedule was followed
General Principles

• Serious side effects are exceedingly rare.
• Several studies: Physician’s recommendations can make a huge difference in whether a patient/child is immunized.
• Every visit is an opportunity for primary prevention.
• Immunization series do not need to be restarted.
• Breastfeeding is NOT a contraindication to vaccines.
• Never “restart” a vaccine series.
General Principles

• Successful dialogue
  – Take time to LISTEN.
  – Solicit and welcome questions.
  – Keep the conversation going.

• [www.aafp.org/immunizations](http://www.aafp.org/immunizations)
  – Ages 0-18
  – Adult
    • Medical/other indications
ACIP 2014 Immunization Schedule

Adult

• Tdap (2013)
  – Each and every pregnancy; third trimester, preferably between 27 and 36 w
  – Recommended universally for all adults, including those aged > 65 y

• Pneumococcal vaccination (2014)
  – Patients with immunocompromising conditions, HIV, asplenia, or end-stage renal disease are indicated to receive both 23-valent pneumococcal polysaccharide vaccine (PPSV23; Pneumovax 23, Merck) and the 13-valent pneumococcal conjugate vaccine (PCV13; Prevnar 13, Pfizer).
  – Schedule emphasizes that PCV13 be given first, followed by PPSV23

• Addition of the *Haemophilus influenzae* type b vaccine for immunocompromised adults, particularly for those after stem cell transplantation (2014)
# 2014 ACIP Adult Immunization Schedule

**Recommended Adult Immunization Schedule—United States - 2014**

*Note: These recommendations must be read with the footnotes that follow containing number of doses, intervals between doses, and other important information.*

**Figure 1. Recommended adult immunization schedule, by vaccine and age group**

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>AGE GROUP</th>
<th>19-21 years</th>
<th>22-26 years</th>
<th>27-49 years</th>
<th>50-59 years</th>
<th>60-64 years</th>
<th>≥ 65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Influenza</strong></td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tetanus, diphtheria, pertussis (Td/Tdap)</strong></td>
<td>Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Varicella</strong></td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Human papillomavirus (HPV) Female</strong></td>
<td>3 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Human papillomavirus (HPV) Male</strong></td>
<td>3 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Zoster</strong></td>
<td>1 dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Measles, mumps, rubella (MMR)</strong></td>
<td>1 or 2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Pneumococcal 13-valent conjugate (PCV13)</strong></td>
<td>1 dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pneumococcal polysaccharide (PPSV23)</strong></td>
<td>1 or 2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meningococcal</strong></td>
<td>1 or more doses</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Hepatitis A</strong></td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hepatitis B</strong></td>
<td>3 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Haemophilus influenzae type b (Hib)</strong></td>
<td>1 or 3 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Covered by the Vaccine Injury Compensation Program*

---

For all persons in the category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection, zoster vaccine recommended regardless of prior episode of zoster.

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

No recommendation.

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*Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at www.vaers.hhs.gov or by telephone, 800-822-7967.*

*Information on how to file a Vaccine Injury Compensation Program claim is available at www.hrsa.gov/vaccinecompensation or by telephone, 800-338-2382.*

*To file a claim for vaccine injury, contact the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, D.C. 20005; telephone, 202-357-6400.*

*Additional information about the vaccines in this schedule, extent of available data, and contraindications for vaccination is also available at www.cdc.gov/vaccines or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 8:00 am - 8:00 pm Eastern Time, Monday - Friday, excluding holidays.*

*Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.*

*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 (AAFP), the American College of Physicians (ACP), American College of Obstetricians and Gynecologists (ACOG) and American College of Nurse-Midwives (ACNM).*
### 2014 ACIP Adult Immunization Schedule

#### Figure 2. Vaccines that might be indicated for adults based on medical and other indications

<table>
<thead>
<tr>
<th>VACCINE ◀</th>
<th>INDICATION ◀</th>
<th>Pregnancy</th>
<th>Immuno-compromising conditions (excluding human immunodeficiency virus [HIV])**</th>
<th>HIV Infection ≤200 cells/µL</th>
<th>Kidney failure, end-stage renal disease, receipt of hemodialysis</th>
<th>Heart disease, chronic lung disease, chronic alcoholism</th>
<th>Asplenia (including elective splenectomy and persistent complement deficiency)**</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Healthcare personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td></td>
<td>1 dose ILV annually</td>
<td>Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs</td>
<td>1 dose ILV annually</td>
<td>1 dose ILV annually</td>
<td>1 dose ILV annually</td>
<td>1 dose ILV annually</td>
<td>1 dose ILV annually</td>
<td>1 dose ILV annually</td>
<td>1 dose ILV annually</td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Td/Tdap)**</td>
<td></td>
<td>1 dose Td each year</td>
<td>Contraindicated</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 21 yrs</td>
<td>2 doses</td>
<td>1 or 2 doses</td>
<td>1 dose</td>
<td>1 dose ILV annually</td>
</tr>
<tr>
<td>Varicella</td>
<td></td>
<td>Contraindicated</td>
<td>2 doses</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 21 yrs</td>
<td>2 doses</td>
<td>1 or 2 doses</td>
<td>1 dose</td>
<td>1 dose ILV annually</td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Female**</td>
<td></td>
<td>3 doses through age 26 yrs</td>
<td>Contraindicated</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 21 yrs</td>
<td>2 doses</td>
<td>1 or 2 doses</td>
<td>1 dose</td>
<td>1 dose ILV annually</td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Male**</td>
<td></td>
<td>3 doses through age 26 yrs</td>
<td>Contraindicated</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 21 yrs</td>
<td>2 doses</td>
<td>1 or 2 doses</td>
<td>1 dose</td>
<td>1 dose ILV annually</td>
</tr>
<tr>
<td>Zoster</td>
<td></td>
<td>Contraindicated</td>
<td>2 doses</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 21 yrs</td>
<td>2 doses</td>
<td>1 or 2 doses</td>
<td>1 dose</td>
<td>1 dose ILV annually</td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)**</td>
<td></td>
<td>Contraindicated</td>
<td>2 doses</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 21 yrs</td>
<td>2 doses</td>
<td>1 or 2 doses</td>
<td>1 dose</td>
<td>1 dose ILV annually</td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate (PCV13)**</td>
<td></td>
<td>1 dose</td>
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<td>1 or 2 doses</td>
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<td>Pneumococcal polysaccharide (PPSV23)**</td>
<td></td>
<td>1 dose</td>
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<td>1 or 2 doses</td>
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<td>2 doses</td>
<td>3 doses</td>
<td>1 or 3 doses</td>
<td>1 or 2 doses</td>
<td>1 or 2 doses</td>
</tr>
<tr>
<td>Meningococcal</td>
<td></td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 or 2 doses</td>
<td>1 or more doses</td>
<td>2 doses</td>
<td>3 doses</td>
<td>1 or 3 doses</td>
<td>1 or 2 doses</td>
<td>1 or 2 doses</td>
</tr>
<tr>
<td>Hepatitis A**</td>
<td></td>
<td>2 doses</td>
<td>2 doses</td>
<td>1 or more doses</td>
<td>2 doses</td>
<td>3 doses</td>
<td>1 or 3 doses</td>
<td>1 or 2 doses</td>
<td>1 or 2 doses</td>
<td>1 or 2 doses</td>
</tr>
<tr>
<td>Hepatitis B**</td>
<td></td>
<td>3 doses</td>
<td>3 doses</td>
<td>1 or more doses</td>
<td>2 doses</td>
<td>3 doses</td>
<td>1 or 3 doses</td>
<td>1 or 2 doses</td>
<td>1 or 2 doses</td>
<td>1 or 2 doses</td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)**</td>
<td></td>
<td>1 dose</td>
<td>1 dose</td>
<td>1 or more doses</td>
<td>2 doses</td>
<td>3 doses</td>
<td>1 or 3 doses</td>
<td>1 or 2 doses</td>
<td>1 or 2 doses</td>
<td>1 or 2 doses</td>
</tr>
</tbody>
</table>

*Contraindicated by the Vaccine Injuries Compensation Program

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These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly indicated for adults aged 18 years and older, as of February 1, 2014. 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 (www.cdc.gov/vaccines/acip/recs/ Index.html). Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.
Hepatitis B Vaccine: Diabetics

• Routine vaccination of unvaccinated adults with diabetes < 60 years of age (SOR A)
  – Increased risk because of shared testing equipment
  – > 60 – permissive use recommendation – because vaccine is more effective in younger patients (SOR B)

MMWR. 60(50);1709-1711.
# Vaccination Coverage in Adults*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>2011 Coverage</th>
<th>Healthy People 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tdap (ages 19-64)</td>
<td>12.5% (Healthcare workers--26.8%)</td>
<td>–</td>
</tr>
<tr>
<td>Herpes zoster</td>
<td>15.8%</td>
<td>30%</td>
</tr>
<tr>
<td><strong>HPV</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women ages 19-26 &gt; 1</td>
<td>29.5%</td>
<td>–</td>
</tr>
<tr>
<td>Men ages 19-26 &gt; 1</td>
<td>&lt; 3%</td>
<td></td>
</tr>
<tr>
<td><strong>Pneumococcal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ages 19-64</td>
<td>20.1%</td>
<td>60%</td>
</tr>
<tr>
<td>Age &gt; 65</td>
<td>62.3%</td>
<td>90%</td>
</tr>
<tr>
<td><strong>Hepatitis B</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High risk, ages 19-49</td>
<td>42%</td>
<td>90%</td>
</tr>
<tr>
<td>Ages 19-59 with diabetes</td>
<td>22.8%</td>
<td>–</td>
</tr>
<tr>
<td>Healthcare professionals</td>
<td>63.8</td>
<td>–</td>
</tr>
<tr>
<td><strong>Hepatitis A (ages 19-49)</strong></td>
<td>10.7%</td>
<td>–</td>
</tr>
<tr>
<td><strong>Influenza</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 6 m of age</td>
<td>42.8%</td>
<td>80%</td>
</tr>
<tr>
<td>65 y of age</td>
<td>68.6%</td>
<td>80%</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>47%</td>
<td></td>
</tr>
</tbody>
</table>

*NOTE: Children’s vaccination coverage is about 90%.*
Implications for Public Health Practice

- Implementing reminder-recall systems
- Use of standing order programs for vaccination
- Assessment of practice level vaccination rates with feedback to staff members
4. Which immunization would be considered to be safely administered during pregnancy?

A. MMR
B. HPV
C. Tdap
D. Varicella
E. HPV
4. Which immunization would be considered to be safely administered during pregnancy?

A. MMR
B. HPV
C. Tdap
D. Varicella
E. HPV

Correct answer: C. Tdap
Vaccines and Pregnancy

Safe

- Tdap*
- Influenza TIV
- Hepatitis A, if at risk
- Hepatitis B, if at risk
- Meningococcal, if indicated
- Pneumococcal polysaccharide, if indicated

Wait until after pregnancy

- MMR
- Varicella
- HPV
- Influenza LAIV

*ACIP Recommendations for Pregnant Women:

Administer a dose of Tdap during each pregnancy, irrespective of the patient’s prior history of receiving Tdap.

Guidance for Use:

To maximize maternal antibody response and passive antibody transfer to the infant, optimal timing for Tdap administration is between 27 and 36 weeks’ gestation although Tdap may be given at any time during pregnancy. Women not previously vaccinated with Tdap: If Tdap is not administered during pregnancy, Tdap should be administered immediately postpartum.
Prevention

Secondary

- Activities are aimed at early disease detection, thereby increasing opportunities for interventions to prevent progression of the disease and emergence of symptoms.
  - Breast cancer
Screening

• Guideline resources
  – American Cancer Society
  – US Preventive Services Task Force
  – Institute for Clinical Systems Integration
Screening Tests

Effectiveness

• The disease must have serious consequences, a long preclinical phase, and effective treatment.
• The screening test must have high sensitivity and specificity, be low in cost, and be acceptable to patients.
• The risks and costs of false (+) and false (−) results must be low, there must be a consensus on management of patients with (+) results, and there must be a system in place for referral and treatment.
Screening Tests

Sequence

• A **highly sensitive** (and usually relatively inexpensive) test should be used first, almost guaranteeing the detection of all cases of the disease (albeit at the expense of including a number of false-positive results).

• This should be followed by a more **specific test** (and usually more expensive test) to eliminate the false-positive results.
  – Eg, this is the usual sequence if testing for HIV, hepatitis B, and many other common but serious diseases.
Breast Cancer Screening
Breast Cancer

• Most common cause (with exception of skin) of cancer in women and the 2nd leading cause of cancer death
  – 1/8 women will develop breast cancer.
  – 1/30 will die.

• Presence of dominant inherited cancer susceptibility genes (BRCA 1 and BRCA 2) occur in about 1/300-500 of general population
  – Screening for inherited risk (ACOG 2009)
    • Assessment of risk for significant BRCA mutations
    • Genetic testing of high-risk women (*Level A*)
USPSTF
24 December 2013

• Recommends that primary care providers screen women who have family members with breast, ovarian, tubal, or peritoneal cancer with 1 of several screening tools designed to identify a family history that may be associated with an increased risk for potentially harmful mutations in breast cancer susceptibility genes (BRCA1 or BRCA2). Women with positive screening results should receive genetic counseling and, if indicated after counseling, BRCA testing. (B recommendation)

• The USPSTF recommends AGAINST routine genetic counseling or BRCA testing for women whose family history is not associated with an increased risk for potentially harmful mutations in the BRCA1 or BRCA2 genes. (D recommendation)
Screening Tools Evaluated by the USPSTF

<table>
<thead>
<tr>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontario Family History Assessment Tool</td>
</tr>
<tr>
<td>Manchester Scoring System</td>
</tr>
<tr>
<td>Referral Screening Tool*</td>
</tr>
<tr>
<td>Pedigree Assessment Tool</td>
</tr>
<tr>
<td>FHS 7*</td>
</tr>
</tbody>
</table>

* Simplest and quickest to administer

Since 2005, family history risk stratification tools have been developed and validated for use in primary care practice to guide referral for BRCA genetic counseling. In addition, the potential benefits and harms of medications for breast cancer risk reduction have been studied for longer follow-up periods, and more information is available about the potential psychological effects of genetic counseling and risk-reducing surgery.

http://www.uspreventiveservicestaskforce.org/uspstf12/brcatest/brcatestfinalrstab.htm#tab1
High-Risk Women

ACOG 2009

- Personal history of breast and ovarian cancers
- (+) ovarian cancer and a close relative (first- or second-degree relative) with ovarian cancer, premenopausal breast cancer, or both
- (+) ovarian cancer who are of Ashkenazi Jewish ancestry
- 50 years and younger with breast cancer and a close relative with ovarian cancer or male breast cancer at any age
- Women of Ashkenazi Jewish ancestry in whom breast cancer was diagnosed at 40 years or younger
- Women with a close relative with a known BRCA1 or BRCA2 mutation

BRCA1 or BRCA2 Mutation

- Can be considered for prophylactic oophorectomy and mastectomy
  - Prophylactic therapy
    - Decreases incidence of breast and ovarian cancer
    - Inadequate evidence for mortality benefits
- **Cancer Genetics Studies Consortium Recommendations for Screening**
  - Monthly BSE: Age 21
  - CBE q 6-12 m starting at age 25-35 years
  - Annual mammograms starting at age 25-35 years
  - Ovarian cancer screening (US, CA-125 levels) q 6-12 months starting at age 25-35 years
5. Which of the following statements about breast self-examination is true?

A. BSE has been confirmed to reduce breast cancer mortality.
B. BSE should be performed by women in the shower just prior to the onset of menses.
C. BSE has detected many more cancers when performed by properly trained women.
D. BSE has a Grade D recommendation from the US Preventive Services Task Force.
5. Which of the following statements about breast self-examination is true?

A. BSE has been confirmed to reduce breast cancer mortality.  
B. BSE should be performed by women in the shower just prior to the onset of menses.  
C. BSE has detected many more cancers when performed by properly trained women.  
D. BSE has a Grade D recommendation from the US Preventive Services Task Force. 

D. BSE has a Grade D recommendation from the US Preventive Services Task Force.
Breast Cancer

Screening Methods

• Breast self-examination (BSE)
  – Studies have not clearly demonstrated BSE as beneficial for cancer screening.
  – Any benefits must be balanced against potential harms – such as excessive invasive procedures performed as a result of the discovery of noncancerous lesions.
Breast Cancer

**Screening Methods**

- Clinical breast exam (CBE)
  - Insufficient evidence to recommend it as a singular screening modality.
  - RCTS demonstrate varying detection rates: 3%-57%.
  - Most advocates have supported CBE as a complementary technique to mammography.
  - About 5% of screening-detected cancers are found using CBE alone.
Screening for Breast Cancer

**USPSTF 2009 (Updates 2002 Rec)**

- Biennial screening mammography for women aged 50-74 *(Grade B)*
- Biennial screening before age 50 should be an individual decision and take patient context into account *(Grade C)*.
- > 75 years of age: Insufficient evidence to assess additional benefits and harms from mammogram *(Grade I)*
- Recommends against teaching BSE *(Grade D)*
- CBE in women > 40 *(Grade I)*
- Digital mammography or MRU *(Grade I)*

[http://www.uspreventiveservicestaskforce.org/uspstf/uspsbrca.htm](http://www.uspreventiveservicestaskforce.org/uspstf/uspsbrca.htm)
Women Aged 40-49

- *Individualize decision to begin biennial screening according to the patient’s context and values*
- The recommendation applies to women who are NOT at increased risk by virtue of a known genetic mutation or history of chest radiation.
Biennial Screening

<table>
<thead>
<tr>
<th>Age</th>
<th>Reduction in mortality (compared with no screening) [Range]</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-69</td>
<td>17% [15%-23%]</td>
</tr>
<tr>
<td>40-69</td>
<td>20% (considered a minor improvement)</td>
</tr>
<tr>
<td>50-79</td>
<td>24% (additional 7%)</td>
</tr>
</tbody>
</table>

*Extending the age range produced only minor improvements: Additional 3% reduction starting at age 40 years and 7% extending to age 79 years.*
Decision Making

• How many 40-year-old women who start having screening mammograms every two years will die from breast cancer in the next 10 years?
  – 2 per 1000

• How many 40-year-old women who DO NOT start having screening mammograms every two years will die from breast cancer in the next 10 years?
  – 2.5 per 1000
Timing of Screening

- Evidence indicates that biennial screening is optimal.
- Biennial schedule preserves most of the benefit of annual screening AND cuts the harms nearly in half.
Special Considerations

• Estimated lifetime risk > 20% or who have a BRCA mutation
  – Screening begins at age 25 or at the age that is 5-10 years younger than the earliest age that breast cancer was diagnosed in the family.
Screening Breast MRI

The American Cancer Society recommends screening breast MRI (impact on breast cancer mortality is uncertain):

- Women with BRCA1 or BRCA2 gene mutations
- Women with a first-degree relative with BRCA1 or BRCA2 gene mutations who have not as yet had genetic testing
- Women with a lifetime risk of more than 25% as defined by risk assessment tools largely dependent on family history
- Women who underwent radiation to the chest between ages 10-30 for Hodgkins disease
- Women known to have a hereditary breast cancer syndrome, ie, Li Fraumeni, Cowden, and Bannayan-Riley-Ruvalcaba, and their first-degree relatives
Data from the 2010 National Health Interview Survey

- Breast cancer screening rate: 72.4% (Healthy People 2020 target: 81.1%)
- Other breast cancer screening rates
  - No usual source of health care: 36.2%
  - No health insurance: 38.2%
- Overall, the proportion of women aged 50-74 years who reported having had a mammogram in the past 2 years remained stable during 2000-2010.
## Recommendations of Others

<table>
<thead>
<tr>
<th>Organization</th>
<th>Year</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACS</td>
<td>2003</td>
<td>Annual mammography beginning at age 40 years and continuing for as long as the woman is in good health; annual CBE after the age of 40 years. Insufficient evidence to recommend BSE.</td>
</tr>
<tr>
<td>AMA</td>
<td>2002</td>
<td>Similar to ACS, except for inclusion of a positive recommendation for BSE</td>
</tr>
<tr>
<td>AAFP</td>
<td>2009</td>
<td>Endorsed the USPSTF recommendation</td>
</tr>
<tr>
<td>ACOG</td>
<td>2011*</td>
<td>Mammography (Level B) and CBE (Level C) annually starting at the age of 40. No consensus on upper age limit of mammograms. All women should be encouraged to practice breast “self-awareness.”</td>
</tr>
<tr>
<td>WHO</td>
<td>2009</td>
<td>Mammography q 1-2 years (age 50-59). Does NOT recommend CBE or BSE.</td>
</tr>
</tbody>
</table>

Informed Decision Making

- National Health Interview Survey (2005 and 2008); 49,575 adults
  - ~50% of these older adults report their physicians recommended the cancer screening.
  - Physician recommendation was the strongest predictor of obtaining the screening.
- Critical role for healthcare providers to make informed screening decisions for older adults
  - Functional status, comorbidities, life expectancy, personal preferences

<table>
<thead>
<tr>
<th>Screening for</th>
<th>Target population</th>
<th>Age recommended to stop screening</th>
<th>Target population screening</th>
<th>Screened and age 75-79</th>
<th>Screened and age &gt; 80</th>
<th>Reported advised by physician (age 75-79)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>50-74</td>
<td>75</td>
<td>74%</td>
<td>62%</td>
<td>50%</td>
<td>62%</td>
</tr>
<tr>
<td>Prostate</td>
<td>50-74</td>
<td>75</td>
<td>40%</td>
<td>57%</td>
<td>42%</td>
<td>62%</td>
</tr>
<tr>
<td>Colorectal</td>
<td>50-74</td>
<td>75</td>
<td>48%</td>
<td>57%</td>
<td>47%</td>
<td>65%</td>
</tr>
<tr>
<td>Cervix</td>
<td>21-64</td>
<td>65</td>
<td>83%</td>
<td>53%</td>
<td>38%</td>
<td>48%</td>
</tr>
</tbody>
</table>
Breast Cancer Screening

Conclusions

• Has resulted in an increase in diagnosis of localized disease without a commensurate decrease in the incidence of more widespread disease

• It cannot predict which of the discovered cancers are more aggressive, and cannot accurately detect premalignant lesions.

• The decrease in the mortality rate of breast cancer is due BOTH to earlier detection and better follow-up medical care.
# Summary of 2009 ASCO Recommendations on Pharmacologic Interventions to Reduce Breast Cancer Risk

<table>
<thead>
<tr>
<th>Agent</th>
<th>Recommendation</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tamoxifen</strong></td>
<td>May be offered to reduce the risk of ER (+) invasive breast cancer in pre- and postmenopausal women with a 5-year projected cancer risk ≥ 1.66% or with lobular carcinoma in situ; risk reduction benefit continues for at least 10 years; impact on breast cancer-related mortality is unknown.</td>
<td>20 mg/day for 5 years</td>
</tr>
<tr>
<td><strong>Raloxifene</strong></td>
<td>May be offered to reduce the risk of ER (+) invasive breast cancer in postmenopausal women with a 5-year projected breast cancer risk = 1.66% or with lobular carcinoma in situ; impact on breast cancer-related mortality is unknown. Should not be used for breast cancer risk reduction in premenopausal women. May be used longer than 5 years in women with osteoporosis in whom breast cancer risk reduction is a secondary benefit.</td>
<td>60 mg/day for 5 years</td>
</tr>
</tbody>
</table>
Prevention

Tertiary

• Reduces the negative impact of an already established disease by restoring function and reducing disease-related complications.
6. A 74-yo female with New York Heart Association class II heart failure and a left ventricular ejection fraction of 34% is on optimal dosages of an ACE inhibitor, a β-blocker, and rosuvastatin (Crestor). Her past medical history is notable only for a long history of hypertension. She is a nonsmoker and reports that she has a small glass of blush wine with dinner each evening. On examination she has a blood pressure of 126/72 mm Hg and a BMI of 28.2 kg/m². Her chest is clear and her cardiac examination is notable only for an S₄. *Self-help measures recommended for patients such as this include which one of the following?*

A. A sodium intake ≤ 4000 mg/day  
B. Strict avoidance of alcohol consumption  
C. Avoiding exercise  
D. Avoiding NSAID use  
E. A weight-loss program with a goal BMI of 25 kg/m² or less
6. A 74-ko female with New York Heart Association class II heart failure and a left ventricular ejection fraction of 34% is on optimal dosages of an ACE inhibitor, a \( \beta \)-blocker, and rosuvastatin (Crestor). Her past medical history is notable only for a long history of hypertension. She is a nonsmoker and reports that she has a small glass of blush wine with dinner each evening. On examination she has a blood pressure of 126/72 mm Hg and a BMI of 28.2 kg/m\(^2\). Her chest is clear and her cardiac examination is notable only for an S4.

**Self-help measures recommended for patients such as this include which one of the following?**

- A. A sodium intake ≤ 4000 mg/day
- B. Strict avoidance of alcohol consumption
- C. Avoiding exercise
- D. Avoiding NSAID use
- E. A weight-loss program with a goal BMI of 25 kg/m\(^2\) or less

27%  3%  0%  29%  41%
Heart Failure

- Daily weight
- Low sodium diet
  - $\leq 2300$ mg per day
- Medications
  - Beta blocker
  - ACE inhibitor
  - Diuretic
  - (+/−) Digoxin
- Echocardiogram

ACC/AHA 2005 Guideline for the Diagnosis and Management of Chronic Heart Failure in the Adult
Self-Care

• CHF patient must deal with his/her condition on a daily basis; help from clinicians is not always available.
  – Partnership model of care
  – Responsibility shifts from the physician to the patient, encouraging shared decision making and steering away from the passive patient/expert doctor paradigm.

• Patients have been found to have better outcomes simply by wielding more power in the doctor/patient encounter.

• Educating patients to self-manage their chronic diseases has been shown to lead to increased levels of functioning, reduced pain, and decreased health care costs (Hibbard, 2003).
Self-Care

• **Advocated as a Method of Improving Outcomes in Patients with Heart Failure**

• Sodium Intake ≤ 2300 mg daily (AHA)
  – Same amount recommended for healthy adults

• Fluid restriction to < 2 L/day may be appropriate for patients with hyponatremia or persistent or recurrent fluid retention; more liberal intake appropriate for stable HF patients.
Self-Care

• Avoid NSAID use.
  – Shown to increase the risk for renal insufficiency and hospitalization

• Available studies indicate that survival is highest in patients with a BMI of 30-32 kg/m²; no studies have demonstrated a survival benefit from weight loss in patients with heart failure.
  – AHA guidelines currently recommend that weight loss be encouraged only in patients with a BMI > 40 kg/m².
Self-Care

• Several epidemiologic studies have failed to demonstrate a correlation between alcohol consumption and the development of heart failure.
  – Exception: Patients with alcoholic cardiomyopathy, who should abstain from alcohol use
  – Heart failure patients who choose to drink should be advised to limit their alcohol intake to no more than 1–2 drinks a day.
Self-Care

- Avoidance of physical exertion has been advised in the past; it is now thought that a reduction in physical activity leads to physical deconditioning and an unnecessary worsening of symptoms.
- Exercise training 3-5 days a week should be considered in all stable outpatients with chronic heart failure.
Known structural heart disease AND shortness of breath and fatigue, reduced exercise tolerance

Goals
• Treat hypertension.
• Encourage smoking cessation.
• Treat lipid disorders.
• Encourage regular exercise.
• Discourage alcohol intake, illicit drug use.
• Control metabolic syndrome.

Therapy

Drugs for routine use
• Diuretics
• ACE I
• Beta blockers

Drugs in selected patients
• Aldosterone antagonist
• ARBs
• Digitalis
• Hydralazine/nitrates

Devices in selected patients
• Biventricular pacing
• Implantable defibrillators
CRT

• Keeps the right and left ventricles pumping together by sending small electrical impulses through the leads
Cardiac resynchronization therapy (CRT) and implantable cardioverter defibrillator (ICD) for HF patients with either sinus rhythm *(SOR A)* or atrial fibrillation *(SOR B)* who meet the following criteria:

- LVEF ≤ 35%
- NYHA class III or ambulatory class IV heart failure symptoms despite optimal medical therapy
- QRS interval of ≥ 0.12 seconds
Resynchronization-Defibrillation for Ambulatory Heart Failure Trial

- Addition of CRT to ICD resulted in reduced rates of hospitalization and death among patients with NYHA class II or III heart failure, a wide QRS complex, and an LVEF ≤ 30% (SOR A).

- Meta-analysis has confirmed that CRT improves LVEF and reduces all-cause mortality and HF hospitalization in all patients with a reduced LVEF, symptoms of HF, and a prolonged QRS interval, regardless of NYHA class.

Refractory Heart Failure

Patients who have marked symptoms at rest despite maximal medical therapy

Options:
- Compassionate end-of-life care, hospice

Extraordinary measures
- Heart transplant
- Chronic inotropes
- Permanent mechanical support
- Experimental surgery or drugs
Heart Transplantation

• Generally not performed in patients over the age of 65-70
• No shortage of recipients; primary limiting factor is lack of donors.
• Recipients need lifelong immunosuppressant therapy.
Summary

• Effective health promotion
  – Lifestyle modification: 3 leading causes of morbidity in the US
  – Counseling

• Prevention
  – Primary e.g., Immunizations
  – Secondary e.g., Breast cancer
  – Tertiary e.g., Congestive heart failure

• Quaternary
  – Set of health activities to mitigate or avoid the consequences of unnecessary or excessive intervention of the health system. It is the practice of “first do no harm.”

• Screening
  – Done in asymptomatic persons, typically secondary prevention
Answers

1. B
2. D
3. C
4. C
5. D
6. D
Supplementary Slides
References


## Leading Causes of Preventable Death Worldwide

<table>
<thead>
<tr>
<th>Cause</th>
<th>Number of deaths resulting (millions per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>7.8</td>
</tr>
<tr>
<td>Smoking</td>
<td>5.0</td>
</tr>
<tr>
<td>High cholesterol</td>
<td>3.9</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>3.8</td>
</tr>
<tr>
<td>Sexually transmitted infections</td>
<td>3.0</td>
</tr>
<tr>
<td>Poor diet</td>
<td>2.8</td>
</tr>
<tr>
<td>Overweight and obesity</td>
<td>2.5</td>
</tr>
<tr>
<td>Physical inactivity</td>
<td>2.0</td>
</tr>
<tr>
<td>Alcohol</td>
<td>1.9</td>
</tr>
<tr>
<td>Indoor air pollution from solid fuels</td>
<td>1.8</td>
</tr>
<tr>
<td>Unsafe water and poor sanitation</td>
<td>1.6</td>
</tr>
</tbody>
</table>
## Leading Causes of Preventable Deaths in the United States, 2010

<table>
<thead>
<tr>
<th>Cause</th>
<th>Number of deaths resulting</th>
<th>% of total US deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco smoking</td>
<td>435,000</td>
<td>18.1</td>
</tr>
<tr>
<td>Overweight and obesity</td>
<td>365,000</td>
<td>15.2</td>
</tr>
<tr>
<td>Excessive alcohol consumption</td>
<td>85,000</td>
<td>3.5</td>
</tr>
<tr>
<td>Infectious diseases</td>
<td>75,000</td>
<td>3.1</td>
</tr>
<tr>
<td>Toxicants</td>
<td>55,000</td>
<td>2.3</td>
</tr>
<tr>
<td>Traffic collisions</td>
<td>43,000</td>
<td>1.8</td>
</tr>
<tr>
<td>Incidents involving firearms</td>
<td>29,000</td>
<td>1.2</td>
</tr>
<tr>
<td>STIs</td>
<td>20,000</td>
<td>0.8</td>
</tr>
<tr>
<td>Drug abuse</td>
<td>17,000</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>46.7</strong></td>
</tr>
</tbody>
</table>
Screening for Breast Cancer Using Methods Other Than Film Mammography

<table>
<thead>
<tr>
<th>Population</th>
<th>Women Aged &gt; 40 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Screening Method</strong></td>
<td>Digital Mammography</td>
</tr>
<tr>
<td><strong>Recommendation</strong></td>
<td>Grade I (Insufficient evidence)</td>
</tr>
<tr>
<td><strong>Rationale for no</strong></td>
<td>Evidence is lacking for benefits of digital mammography and MRI of the breast as substitutes for film mammography</td>
</tr>
<tr>
<td><strong>Grade D</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>MRI</th>
<th>CBE</th>
<th>BSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of CBE’s additional benefit beyond mammography is inadequate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate evidence suggests that BSE does NOT reduce breast cancer mortality</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Screening for Breast Cancer

<table>
<thead>
<tr>
<th>Screening Test</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>NN Intervene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast self-exam</td>
<td>12%-41%</td>
<td>Largely unknown</td>
<td></td>
</tr>
<tr>
<td>Clinical breast exam</td>
<td>40%-69%</td>
<td>88%-99%</td>
<td></td>
</tr>
<tr>
<td>Mammogram</td>
<td>77%-95%</td>
<td>94%-97%</td>
<td>39-49: 1904</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50-59: 1339</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>60-69: 377</td>
</tr>
</tbody>
</table>