Preventive Medicine Update

Iowa ACP Chapter Scientific Meeting

Steve Craig, MD, MACP

March 27, 2015
Preventive Medicine Update Outline

- So You Think You Know Preventive Medicine & Screening?
- What is Preventive Medicine?
- Levels of Prevention: Primary, Secondary, Tertiary
- Primary Prevention Recommendations
- Secondary Prevention Recommendations & The USPSTF
- Recently Updated + Controversial Screening Recommendations
- Resources for Primary & Secondary Prevention Recommendations
- Answers to Preventive Medicine & Screening Questions
- Sample Preventive Medicine Cases
What is Preventive Medicine?

- Preventive Medicine involves administering tests or treatments to prevent illnesses before they cause symptoms or problems (includes screening tests, counseling services, and preventive medicines).
- In prevention, the goal is to preserve and promote health and well-being.
- Prevention in public health moves interventions from the individual level to a population level.
- Effective prevention leads to a healthier community.
Levels of Prevention

- **Primary Prevention**: Avoidance of disease or injury

- **Secondary Prevention**: Early detection and treatment

- **Tertiary Prevention**: Manage existing conditions – reduce disability & promote rehabilitation

Examples:

* Cardiac / Stroke rehabilitation
* Mental Health interventions
* ESRD measures
Primary Prevention

- Immunizations
- Sanitation: clean water, food inspection
- Workplace Safety: seatbelts, helmets, hand washing
- Education: preventing tobacco & drug abuse, promoting exercise
- Diet: preventing obesity, healthy choices
Leading Causes of Death

1. Heart disease: 616,067
2. Cancer: 562,875
4. Chronic lower respiratory diseases: 127,924
5. Accidents (unintentional injuries): 123,706
6. Alzheimer’s disease: 74,632
7. Diabetes: 71,382
8. Influenza and Pneumonia: 52,717
9. Nephritis, nephrotic syndrome, nephrosis: 46,448
10. Septicemia: 34,828

*Data from 2007 National Vital Statistics Report- US Adults*
Actual Causes of Death

1. Tobacco: 435,000
2. Poor diet and physical inactivity: 400,000
3. Alcohol consumption: 85,000
4. Microbial agents: 75,000
5. Toxic agents: 55,000
6. Motor vehicle: 43,000
7. Firearms: 29,000
8. Sexual behavior: 20,000
9. Illicit Drug use: 17,000

Behavioral Determinants

Virtually ALL of the top 10 leading causes of death in US adults are moderately to STRONGLY influenced by lifestyle patterns and behavioral factors.

<table>
<thead>
<tr>
<th>BEHAVIOR</th>
<th>DISEASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco Use</td>
<td>Heart Disease</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>Stroke</td>
</tr>
<tr>
<td>Diet</td>
<td>Cancers</td>
</tr>
<tr>
<td>Preventive Services</td>
<td>Diabetes</td>
</tr>
</tbody>
</table>
Leading Health Indicators
Healthy People 2020

- Physical activity
- Overweight and obesity
- Tobacco use
- Substance abuse
- Responsible sexual behavior
- Mental health
- Injury and Violence
- Environmental quality
- Immunization
- Access to health care
Physician Barriers to Counseling on Primary Prevention Measures

- Lack of time
- Reimbursement issues
- Insufficient confidence
- Insufficient knowledge
- Insufficient skills
- Others?

- Current Evidence
  - Patient’s note counseling has significant effect on understanding and motivation
  - BUT physicians often provide insufficient guidance
How we raise the bar...Lifestyle Medicine Competencies

Blue Ribbon Panel
American College of Preventive Medicine
American College of Lifestyle Medicine
American Academy of Family Physicians
American Medical Association
American College of Physicians
American College of Sports Medicine
American Osteopathic Association

(Reprinted) JAMA, July 14, 2010—Vol 304, No. 2 203
Lifestyle Medicine Counseling

- LM recognizes the link between lifestyle medicine and health outcomes
- Uses science behind health behavior change
- Emphasizes value of lifestyle medicine prescriptions by physicians
- Emphasizes value of support of those prescriptions by other health professionals
Stages of Change

- Identify stage, and move patient along the continuum
- Not every patient will enter every stage
- Not every stage is the same length
ADDITIONAL PRIMARY PREVENTION MEASURE:

Immunization Recommendations

Advisory Committee on Immunization Practices (ACIP)

www.cdc.gov/vaccines/acip
# Recommended Adult Immunization Schedule—United States - 2015

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

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

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

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

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

Not recommended.

---

**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>DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td></td>
<td>1 dose IV annually</td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Tdap)</td>
<td></td>
<td>1 dose IV annually</td>
</tr>
<tr>
<td>Varicella</td>
<td></td>
<td>Contraindicated</td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Female</td>
<td></td>
<td>3 doses through age 26 yrs</td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Male</td>
<td></td>
<td>3 doses through age 26 yrs</td>
</tr>
<tr>
<td>Zoster</td>
<td></td>
<td>1 dose</td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td></td>
<td>Contraindicated</td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate (PCV13)</td>
<td></td>
<td>1 dose</td>
</tr>
<tr>
<td>Haemophilus influenzae type b (HiB)</td>
<td></td>
<td>1 or 2 doses</td>
</tr>
</tbody>
</table>

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

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

Not recommended.
Secondary Prevention: Screening

- Detect and prevent or slow progress of a disease

- Screening at risk individuals
  * Identification of risks
  * Screening tests
Secondary Prevention: Which Screening Tests?

- Condition has significant impact on individual & society
- Effective treatment in asymptomatic phase
- Asymptomatic period for detection and treatment
- Acceptable screening tests at reasonable costs
- Disease burden justifies cost

The clinician and patient should share in decision-making
The United States Preventive Services Task Force (USPSTF)

- Federal government established in 1984 to make prevention recommendations for the country.
- USPSTF conducts rigorous assessments of evidence for effectiveness of broad range of clinical preventive services: screening tests, counseling, preventive meds, etc.
- Letter grade reflects magnitude of net benefit & strength of evidence supporting a specific preventive service
<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 is substantial.</td>
<td>Offer or 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 net benefit is moderate to substantial.</td>
<td>Offer or provide this service.</td>
</tr>
<tr>
<td>C</td>
<td>The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.</td>
<td>Offer or provide this service for selected patients depending on individual circumstances.</td>
</tr>
<tr>
<td>D</td>
<td>The USPSTF recommends against the service. There is moderate or high certainty that the service has no net 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>Read the clinical considerations section of USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.</td>
</tr>
</tbody>
</table>

**Levels of Certainty Regarding Net Benefit**

<table>
<thead>
<tr>
<th>Level of Certainty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.</td>
</tr>
</tbody>
</table>
| Moderate           | The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by such factors as:  
- The number, size, or quality of individual studies.  
- Inconsistency of findings across individual studies.  
- Limited generalizability of findings to routine primary care practice.  
- Lack of coherence in the chain of evidence.  
As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion. |
| Low                | The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of:  
- The limited number or size of studies.  
- Important flaws in study design or methods.  
- Inconsistency of findings across individual studies.  
- Gaps in the chain of evidence.  
- Findings not generalizable to routine primary care practice.  
- Lack of information on important health outcomes.  
More information may allow estimation of effects on health outcomes. |
USPSTF publishes annual Guide to Clinical Preventive Services

Available at: www.uspreventiveservicestaskforce.org
Controversies & Recently Updated Screening Recommendations
AAA Screening

- **Men aged 65 - 75 years who have ever smoked:**
  Screen once for AAA with abdominal ultrasound *(Grade B)*

- **Men aged 65 - 75 years who never smoked:**
  No recommendation for/against screening *(Grade C)*

- **Women aged 65 – 75 years**
  Do not screen for abdominal aortic aneurysm *(Grade D)*
Aspirin for Prevention of CV Disease

- Men aged 45 - 79 years and Women aged 55 - 79 years
  Encourage ASA use when potential CVD benefit outweighs risk of GI hemorrhage (Grade A)
- Men < 45 years and Women < 55 years (Grade D)
- Man and Women aged ≥ 80 years (Grade I)

Risk Level at Which CVD Events Prevented Exceeds GI Harms

<table>
<thead>
<tr>
<th>MEN</th>
<th>WOMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-year CAD Risk*</td>
<td>10-year Stroke Risk**</td>
</tr>
<tr>
<td>Age 45 – 59</td>
<td>Age 55 – 59</td>
</tr>
<tr>
<td>≥ 4%</td>
<td>≥ 3%</td>
</tr>
<tr>
<td>Age 60 – 69</td>
<td>Age 60 – 69</td>
</tr>
<tr>
<td>≥ 9%</td>
<td>≥ 8%</td>
</tr>
<tr>
<td>Age 70 – 79</td>
<td>Age 70 – 79</td>
</tr>
<tr>
<td>≥ 12%</td>
<td>≥ 11%</td>
</tr>
</tbody>
</table>


** Women Stroke Risk Estimation Tool: westernstroke.org/index.php?header_name=stroke_tools
# Breast Cancer Screening Controversy

## Table 1
Summary of Breast Cancer Screening Guidelines

<table>
<thead>
<tr>
<th>Screening Modality</th>
<th>American Academy of Family Physicians</th>
<th>American Cancer Society</th>
<th>American College of Obstetricians and Gynecologists</th>
<th>American College of Radiology</th>
<th>Canadian Task Force on Preventive Health Care</th>
<th>National Comprehensive Cancer Network</th>
<th>U.S. Preventive Services Task Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast self-examination</td>
<td>Requires against</td>
<td>Counsel about benefits and limitations</td>
<td>Breast self-awareness encouraged</td>
<td>—</td>
<td>Requires against</td>
<td>Requires against</td>
<td>Requires against</td>
</tr>
<tr>
<td>Clinical breast examination</td>
<td>Insufficient evidence</td>
<td>Every three years from 20 to 39 years of age, and annually thereafter</td>
<td>Every one to three years from 20 to 39 years of age, and annually thereafter</td>
<td>—</td>
<td>Every one to two years beginning at 40 years of age</td>
<td>Every one to three years from 20 to 39 years of age, and annually thereafter</td>
<td>Insufficient evidence</td>
</tr>
<tr>
<td>Magnetic resonance imaging</td>
<td>Insufficient evidence</td>
<td>Offer annually to women at high risk</td>
<td>Offer annually to women at high risk</td>
<td>—</td>
<td>Offer annually to women at high risk</td>
<td>Insufficient evidence</td>
<td></td>
</tr>
<tr>
<td>Mammography</td>
<td>Routine biennial screening for women 50 to 74 years of age</td>
<td>Routine annual screening beginning at 40 years of age</td>
<td>Routine annual screening beginning at 40 years of age</td>
<td>Routine annual screening beginning at 40 years of age</td>
<td>Routine annual screening beginning at 50 years of age</td>
<td>Routine annual screening beginning at 40 years of age</td>
<td>Routine biennial screening for women 50 to 74 years of age</td>
</tr>
</tbody>
</table>
BRCA-Related Cancer Screening

- **Screen women with FH suggestive of BRCA mutations:**
  - Breast ca diagnosis < age 50
  - FH + breast & ovarian ca
  - Multiple cases breast ca in family
  - ≥ 1 family member with 2 primary types BRCA-related cancer
  - Bilateral breast ca
  - Breast ca in ≥ 1 male
  - Ashkenazi Jewish ethnicity

- **Interventions in Women found to be BRCA Mutation Carriers:**
  - Careful genetic counseling
  - More frequent or intensive cancer screening
  - Risk-reducing medications (tamoxifen or raloxifene)
  - Risk-reducing surgery (mastectomy, salpingo-oophorectomy)
Cervical Cancer Screening: Consensus

- Women aged 21 - 65 years: Cytology (Pap smear) every 3 years (Grade A)
- Women aged 30 – 65 years: Cytology every 3 years OR Cytology + HPV Testing every 5 years (Grade A)
- Women < 21 years: Do not screen (Grade D)
- Women > 65 years who have had screening & are not high risk: Do not screen (Grade D)
- Women after hysterectomy with no history cancer or high-grade pre-cancer: Do not screen (Grade D)
Hepatitis B Virus Infection Screening

- All pregnant women should be screening for HBV at the first prenatal visit (Grade A)

- Re-screen women at time of delivery if unknown status or new/continuing risk factors (Grade A)

- HBsAg is the preferred screening test
Hepatitis C Screening

- Screen all adults born between 1945 – 1965  (Grade B)

- Periodically screen persons at high risk of infection (IV drug users, multiple sexual partners, unregulated tattoos) (Grade B)

- Screen with Hepatitis C antibody test followed by PCR test if positive
HIV Screening

- Screen adolescents & adults aged 15 - 65 years (Grade A)

- Screen pregnant women and periodically screen individuals at increased risk (IV drug use, men sex with men, unprotected sex, multiple partners) (Grade A)

- Screen with HIV immunoassay, confirm with Western blot or immunofluorescent assay
Lung Cancer Screening

- Adults aged 55 - 80 years who have 30 pack-year smoking history & currently smoke or quit < 15 years ago:
  
  Annual low-dose computed tomography screening (Grade B)

- Discontinue screening when patient has not smoked for 15 years
Osteoporosis Screening

- Women age $\geq$ 65 years without previous fractures or any known secondary causes of osteoporosis (Grade B)

- Women aged < 65 years whose 10-year fracture risk* equals that of an average 65 year-old ($\geq$9.3%) (Grade B)

- Men without previous fractures or any known secondary causes of osteoporosis (Grade I)

- FRAX Fracture Risk Calculator: www.shef.ac.uk/FRAX
Prostate Cancer Screening Controversy

- **USPSTF:** Do not perform PSA screening in men (Grade D)

- **AUA:**
  - Do not screen Men < 40 years age
  - Do not screen men 40 – 54 years at average risk
  - Recommend shared decision-making for men 55 - 69 years with ≥ 2-year PSA testing interval
  - Do not screen men > 70 years age or men with < 10-year life expectancy
Resources for Accessing Preventive Medicine Recommendations
Immunization Advisor
available for
iPad/ iPhone / Android
ePSS Electronic Preventive Services Selector

The ePSS is an application designed to help primary care clinicians identify clinical preventive services that are appropriate for their patients. Use the tool to search and browse U.S. Preventive Services Task Force (USPSTF) recommendations on the web or on your PDA or mobile device. To search from your mobile device select from the following devices:

- **Android (NEW!)**
  - Learn More | Download
- **BlackBerry/BlackBerry OS 10 (NEW!)**
  - Learn More | Download for BlackBerry OS 10
- **iPad (NEW!)**
  - Learn More | Download
- **iPhone/iPod touch (NEW!)**
  - Learn More | Download
- **Palm OS/webOS**
  - Learn More | Download for XP | Vista | Mac | Palm webOS
- **Windows 8/Windows Mobile**
  - Learn More | Download for Windows 8 | Download for XP | Vista | Mac
- **Web**
  - Learn More | Search for Recommendations

---

**ePSS WEB**
Search and Browse U.S. Preventive Services Task Force (USPSTF) recommendations online.

**ePSS for iPad**
Check out the latest ePSS for iPad devices.

**ePSS Widget**
Add the ePSS recommendations to any site by installing the ePSS Widget.

**Email Notifications**
Subscribe for optional ePSS PDA email notifications. Receive notifications of application and ePSS data updates.
For Patients: www.healthfinder.gov
myhealthfinder

Welcome! Use this easy tool to get personalized health recommendations for yourself or a loved one.

myhealthfinder

Find out which preventive services you need this year.

Sex

Male  Female

Age [ ] years

I want information for:

Make a selection

Get Started

The Affordable Care Act, the health care reform law passed in 2010, requires most insurance plans to cover many preventive services at no cost to you. Learn more about myhealthfinder and the Affordable Care Act.

The recommendations in the myhealthfinder tool come from the U.S. Preventive Services Task Force (USPSTF), the CDC Advisory Committee on Immunization Practices (ACIP), the Bright Futures Guidelines, and the Institute of Medicine's (IOM) Committee on Preventive Services for Women. All the myhealthfinder recommendations are created by the Office of Disease Prevention and Health Promotion (ODPHP) in collaboration with the Agency for Healthcare Research and Quality (AHRQ).
You said you are a **man** age **60**. Here are important ways you can stay healthy. Talk with your doctor or nurse about which recommendations are right for you.

**Doctors recommend that all men age 60:**

- **Get Tested for Hepatitis C**
  Everyone born between 1945 and 1965 needs to be screened for the hepatitis C virus. (USPSTF)

- **Get Important Shots**
  Get important adult shots (vaccinations) (ACIP)

- **Get Tested for Colorectal Cancer**
  Get tested regularly for colorectal cancer, starting at age 50. (USPSTF)

- **Get Your Blood Pressure Checked**
  Get your blood pressure checked at least once every 2 years. (USPSTF)

- **Get Your Cholesterol Checked**
  Get your cholesterol checked once every 5 years, starting at age 35. (USPSTF)

- **Get a Seasonal Flu Shot**
  Get a flu shot every year to help prevent the flu. (ACIP)

- **Talk with Your Doctor about Taking Aspirin Every Day**
  Talk to your doctor about taking an aspirin every day to help lower your risk of heart attack. (USPSTF)

- **Get Tested for HIV**
  Get tested for HIV at least once. You may need to get tested more often depending on your risk. (USPSTF)
Based on family history and other risk factors, doctors recommend that some men age 60:

**Get Screened for Lung Cancer**
Ask the doctor about screening for lung cancer if you have a history of heavy smoking and you smoke now or have quit within the past 15 years. An example of heavy smoking is smoking 1 pack of cigarettes a day for 30 years – or 2 packs a day for 15 years. (USPSTF)

**Talk with a Doctor about Your Alcohol Use**
If you are concerned about your drinking, ask your doctor about screening and counseling. (USPSTF)

**Get Help with Healthy Eating**
If your doctor has told you that you are at risk for heart disease or diabetes, ask about dietary counseling. (USPSTF)

**Get Tested for Hepatitis B**
If you have risk factors for hepatitis B (like any injection drug use or if you were born in a country where hepatitis B is common), talk to your doctor about getting tested. (USPSTF)

**Get Help to Quit Smoking**
If you smoke, ask your doctor about services to help you quit. (USPSTF)

**Take Steps to Prevent Type 2 Diabetes**
If you have high blood pressure, ask your doctor if you need to be screened for type 2 diabetes. (USPSTF)

**Talk with Your Doctor about Depression**
Talk with your doctor about how you are feeling if you have been sad, down, or hopeless. (USPSTF)

**Watch Your Weight**
If you are overweight, ask your doctor about screening and counseling for obesity. (USPSTF)

**Get Tested for Chlamydia, Gonorrhea, and Syphilis**
Ask your doctor about testing and prevention counseling for chlamydia, gonorrhea, and syphilis. (USPSTF)
Preventive Medicine Discussion Cases
Case #1

- You are seeing a 35 year-old woman who indicates she has not seen a doctor in 15 years. She is generally healthy, takes no chronic medications, smokes 1 pack per day (since age 16), occasional social alcohol use. She is divorced with two children (ages 10 & 5 years). She is sexually active with one current partner.

- What primary and secondary prevention measures should you implement?
Case #2

- You are seeing a 68 year-old man who is seeing you for a preventive health exam. He is generally healthy but takes daily HCTZ and atorvastatin. He smokes 1 pack per day (since age 16) and uses alcohol daily (2-3 beers). He is married with two grown children but he is not presently sexually active. He had a cardiac stent placed 6 years previously and is doing well with no angina.

- What primary and secondary prevention measures should you implement?
Case #3

- You are seeing a 66 year-old woman who indicates she is here for health maintenance evaluation. She is generally healthy and only takes metformin for well-controlled Type 2 DM + OTC ibuprofen for mild OA knees. She is a non-smoker who rarely uses alcohol and never any illicit drugs. She is married and sexually active with her husband of 40 years.

- What primary and secondary prevention measures should you implement?
Thank you!

Questions?