Updates and Controversies in Cancer Screening

Objectives
• Identify factors important to effective cancer screening.
• Compare cancer screening guidelines among various agencies.
• Define current recommendations for the prevention and early detection of breast, cervical, colorectal, lung, and prostate cancers.
• Discuss controversies between the cancer screening guidelines.

Review: Types of Prevention
• Primary
• Secondary
• Tertiary
Primary Cancer Prevention

• Primary focus is to prevent a cancer from developing or delay the development of the malignancy.

• Encompasses a healthy lifestyle and includes all measures to avoid carcinogen exposure and promote health.

• May also include chemoprevention measures.

(Onconlogy Nursing Society, 2013)

Secondary Cancer Prevention

• Early detection and treatment of subclinical, asymptomatic, or early signs and symptoms of cancer.

• Identifying people who are at risk for developing a malignancy and implementing appropriate screening recommendations based on the risk assessment.

• Screenings seek to decrease morbidity and mortality associated with cancer.

• Following a positive screening test further diagnostic testing is required.

(Onconlogy Nursing Society, 2013)

Tertiary Cancer Prevention

• Monitors for and prevents recurrence of the original cancer in patients with the disease.

• Screens for second primary cancers.

• Aimed at long-term survivors when treatment is most likely to be effective and ultimately improve their quality of life.

(Onconlogy Nursing Society, 2013)
Effective Cancer Screening Programs

• Detect disease at a stage when treatment can be more effective than it would be after the patient develops signs and symptoms.

• Evidence shows that treatment initiated earlier as a consequence of screening results in improved outcomes. (NCI, 2013)

• Identify risk factors that increase the likelihood of developing the disease and use of this knowledge to prevent or lessen the disease by modifying the risk factors. (Herman et al., 2002)

Considerations: Harm vs. Benefit

• What makes a screening tool "good"?
  o Able to detect high proportion of disease in preclinical state.
  o Safe to administer.
  o Reasonable in cost.
  o Lead to demonstrated improved health outcomes.
  o Be widely available, as must the interventions that follow a positive result.

  (Herman, 2006)

Considerations: Harm vs. Benefit

• Must be reproducible
• Risk of overdiagnosis
• Risk of false positives
  • True vs. false positives
• Risk of false negatives
  • True vs. false positives
• Sensitivity
• Specificity
**Lead time vs. Length Bias**

- **Lead time bias:** When screening finds a cancer earlier than that cancer would have been diagnosed because of symptoms, but the earlier diagnosis does nothing to change the course of the disease.

- **Length bias:** Screening is more likely to pick up slower-growing, less aggressive cancers, which can exist in the body longer than fast-growing cancers before symptoms develop.

(National Cancer Institute, 2013)

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**Risk Determination**

- Important consideration with cancer screening
- Absolute risk
- Relative risk
- Odds ratio
- Risk or rate differences

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**High Risk vs. Average Risk Individuals**

- Risk determined by patient and family medical history.
- Risk Assessment Tools
- General cancer screening recommendations aimed at average risk individuals.
- Different screening recommendations for those found to be at higher risk for a particular type of cancer.
Clinical Practice Guidelines

- National Guideline Clearinghouse includes a collection of 3000 clinical practice guidelines.
- More than 180 guidelines for early detection of cancer.
- “intended to translate research into practice, to reduce practice variation, and to promote excellence in care.”
  - Systematic reviews of the best available evidence
  - Development of methodologies & recommendations

Who Determines Cancer Screening Recommendations?

- Cancer screening guidelines written by different organizations can, and often, differ – even when based on the same evidence.
- This can lead to confusion by both health care providers and consumers.
- Improvement efforts

(Brawley et al., 2011)

United States Preventive Service Task Force (USPSTF)

- Convened by the Public Health Service in 1984 to rigorously evaluate clinical research in order to assess the merits of preventive measures, including screening tests, counseling, immunizations, and preventive medications.
- Independent panel of non-federal experts in prevention and evidenced based medication.
- Strives to make accurate, up to date and relevant recommendations about preventive services in primary care.
<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 only if other considerations support offering or 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 net benefit or that the harms outweigh the benefits.</td>
<td>Discourage the use of this service</td>
</tr>
<tr>
<td>I statement</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 the USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.</td>
</tr>
</tbody>
</table>

**American Cancer Society (ACS)**

- Established 1913
- Nationwide, community-based voluntary health organization dedicated to eliminating cancer as a major health problem.
- Following principles highlighted by IOM, screening guidelines written following independent systemic review of level of evidence, grading strength of each recommendation, and external review of proposed guidelines from outside experts.

**National Comprehensive Cancer Network (NCCN)**

- Alliance of 23 leading cancer centers
- Guidelines determined by results of panel member review of best evidence available at time they are derived.
- Categories of evidence and consensus
- Continuously updated to revise new data
NCCN Categories of Evidence and Consensus

<table>
<thead>
<tr>
<th>Level of Evidence and Consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1</td>
</tr>
<tr>
<td>Category 2A</td>
</tr>
<tr>
<td>Category 2B</td>
</tr>
<tr>
<td>Category 3</td>
</tr>
</tbody>
</table>

All recommendations are category 2A unless otherwise noted.

Cancer Screening Guidelines: Specialty Groups

- American Association for Thoracic Surgery (ATS)
- American College of Chest Physicians (ACCP)
- American Urological Association (AUA)
- American College of Obstetricians and Gynecologists (ACOG)
- American College of Gastroenterologists (ACG)
- American College of Radiology (ACR)
- Many, many more.

How to Sort It Out?

- Know the evidence
- Know the guidelines
  - Institution or practice policy?
- Consider patient's risk
- Educate patient
Breast Cancer: Statistics

- About 1 in 8 U.S. women will develop invasive breast cancer.
- Based on 2013 estimates, 234,580 new cases of invasive breast cancer will be diagnosed this year.
- Second leading cause of cancer death in women in the U.S.

(Smith et al., 2013)

Breast Cancer Guidelines: Risk Assessment

- USPSTF: aimed at average risk
- NCCN: average vs. increased risk
- ACS: average vs. high risk

(ACS, 2013; NCCN, 2013a; USPSTF, 2009)
Breast Cancer: High Risk

- Have known BRCA1 or BRCA2 gene mutation
- Have a first degree relative with a BRCA1 or 2 gene mutation, and have not had genetic testing themselves
- Have a lifetime risk of breast cancer of 20-25% according to risk assessment tools based on family history
- Radiation therapy to the chest when they were between the ages of 10 and 30 years

(American College of Radiology, 2012)

Breast Self Exam (BSE): Average Risk

<table>
<thead>
<tr>
<th>USPSTF</th>
<th>Cancer Screening Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>D Recommendation: Recommends against this service.</td>
<td></td>
</tr>
</tbody>
</table>

| ACS | Age ≥20: Beginning in 20s, women should be told about the benefits and limitations of BSE. Women have the option to perform or not. Women who choose to perform should receive instruction and have technique reviewed. Whether or not a woman performs, importance of prompt reporting of new breast symptoms should be emphasized. |
| NCCN | Ages 25-39: Breast awareness encouraged |
|      | Ages ≥40: Breast awareness encouraged |

(ACS, 2013; NCCN, 2013a; USPSTF, 2009)

Clinical Breast Exam (CBE): Average Risk

<table>
<thead>
<tr>
<th>USPSTF</th>
<th>Cancer Screening Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I statement: Current evidence insufficient to assess the balance of benefits and harms beyond screening mammography for women age ≥40.</td>
<td></td>
</tr>
</tbody>
</table>

| ACS | Ages 20-30: Every 1-3 years |
|     | Age ≥40: Annually, prior to mammography |
| NCCN | Ages 25-39: Every 1-3 years |
|      | Age ≥40: Annually |

(ACS, 2013; NCCN, 2013a; USPSTF, 2009)
Screening Mammography: Average Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
<th>USPSTF</th>
<th>ACS</th>
<th>NCCN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 75: Current evidence is insufficient to assess the additional benefits and harms of screening with mammography.</td>
<td>Age ≥50: Annually with no specified age to stop. As long as woman is in good health and would be a candidate for treatment if diagnosed, mammography should continue.</td>
<td>Ages ≥75: Current evidence is insufficient to assess the additional benefits and harms of screening with mammography.</td>
<td></td>
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</tbody>
</table>

Breast Cancer Screening: High Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
<th>USPSTF</th>
<th>ACS</th>
<th>NCCN</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specific recommendations.</td>
<td>BSE, CBE, and screening mammography as presented. MRI recommended for women with a 20-25% or higher lifetime risk for developing breast cancer including women with a strong family history of breast or ovarian cancer and those treated with chest XRT for Hodgkin disease. MRI should be performed annually beginning at age 30 in these women.</td>
<td>Specific screening combinations based on reasoning for “high risk” status.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(ACS, 2013; NCCN, 2013a; USPSTF, 2009)</td>
<td></td>
</tr>
</tbody>
</table>

Breast Cancer Screening: NCCN High Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
<th>Women with lifetime risk of &gt;20%</th>
<th>Prior h/o BC</th>
<th>Women ≥age 35 with risk ≥1.7% OR LCIS</th>
<th>Prior chest XRT b/t ages of 10-30</th>
<th>Pedigree suggestive of genetic predisposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consideration of annual MRI in additional annual mammogram and CBE every 6-12 months beginning at age 30. Consideration of risk reduction strategies.</td>
<td>NCCN Breast Cancer Surveillance guidelines.</td>
<td>Annual mammogram and CBE every 6-12 months; breast awareness; consider risk reduction in women ≥age 35 with risk ≥1.7%.</td>
<td>&lt;25: annual CBE beginning 8-10 years after XRT, breast awareness. &gt;25: annual mammogram and CBE every 6-12 months beginning at age 40 or 8-10 years after XRT (whichever comes first); annual breast MRI as adjunct to mammogram and CBE; breast awareness.</td>
<td>Women at age 25: CBE every 6-12 months; annual mammo and breast MRI (or individualized based on earliest age of onset); breast awareness; consider risk reduction. Men at age 35: CBE every 6-12 months starting at age 35; consider baseline mammo at age 40; annual if gynecomastia or parenchymal/glandular density at baseline; breast awareness.</td>
<td></td>
</tr>
<tr>
<td>(ACS, 2013; NCCN, 2013a; USPSTF, 2009)</td>
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</tr>
</tbody>
</table>
Special Considerations: Dense Breasts

- Digital Mammography
  - Can be more accurate in dense breasts
- Ultrasound
- MRI
  - CT, TX, VA, CA, and NY require radiology reports to say “dense” breasts before insurance will pay for an ultrasound

Breast Cancer Screening Guidelines

- When to start screening?
- What tests to use?
- How often to screen?
- When to use MRI?
- When to stop screening?

CERVICAL CANCER
Cervical Cancer Statistics

• Based on 2013 estimates, about 12,340 new cases of invasive cervical cancer will be diagnosed.

• Once one of the most common causes of cancer death for American women, cervical cancer’s mortality rate declined by almost 70% between 1955 and 1992 due in large part to the Pap smear.

(Smith et al., 2013)

Cervical Cancer Guidelines: Risk Assessment

• USPSTF: aimed at average risk

• NCCN: endorse ACS guidelines (average risk)

• ACS: average risk

(ACS, 2013; NCCN, 2013d; USPSTF, 2012)

Cervical Cancer: Increased Risk

• Personal history of HPV infection

• Personal history of HIV infection

• Compromised immune system

• In utero exposure to diethylstilbestrol

• Previous treatment of a high-grade precancerous lesion or cervical cancer
### Pap Smear: Average Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USPSTF</strong></td>
</tr>
<tr>
<td>A recommendation: Ages 21-65: Every three years, OR Ages 30-65: Pap and HPV testing every 5 years OR D recommendation: Avoid screening in women age &lt;21 years or &gt; 65 years who have had adequate prior screening and are not otherwise at high risk for cervical cancer; women post hysterectomy with removal of the cervix and who do not have a history of a high-grade precancerous lesion (i.e., cervical intraepithelial neoplasia [CIN] grade 2 or 3) or cervical cancer.</td>
</tr>
<tr>
<td><strong>ACS</strong></td>
</tr>
<tr>
<td>Age &lt;21: No screening Age 21-29: Every three years Age 30-65: Every 5 years with HPV testing if preferred OR every 3 years Discontinue screening at age 65 if woman has had ≥3 consecutive negative Pap smears or ≥2 consecutive negative HPV + Pap within past 10 years Discontinue in women post hysterectomy</td>
</tr>
<tr>
<td><strong>NCCN</strong></td>
</tr>
<tr>
<td>Endorses ACS guidelines as above</td>
</tr>
</tbody>
</table>

(ACS, 2013; NCCN, 2013d; USPSTF, 2012)

### HPV testing: Average Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
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</thead>
<tbody>
<tr>
<td><strong>USPSTF</strong></td>
</tr>
<tr>
<td>A recommendation: Ages 30-65: Every 5 years with Pap in women not undergoing Pap every 3 years OR D recommendation: Avoid screening in women age &lt;21 years or &gt; 65 years who have had adequate prior screening and are not otherwise at high risk for cervical cancer; women post hysterectomy with removal of the cervix and who do not have a history of a high-grade precancerous lesion (i.e., cervical intraepithelial neoplasia [CIN] grade 2 or 3) or cervical cancer. OR D recommendation: Avoid screening for cervical cancer with HPV testing, alone or in combination with cytology, in women younger than age 30 years.</td>
</tr>
<tr>
<td><strong>ACS</strong></td>
</tr>
<tr>
<td>Age &lt; 21: No screening Age 30-65: Every 5 years with Pap (preferred) if not undergoing HPV and Pap every 5 years Discontinue screening at age 65 if woman has had ≥3 consecutive negative Pap smears or ≥2 consecutive negative HPV + Pap within past 10 years Discontinue in women post hysterectomy</td>
</tr>
<tr>
<td><strong>NCCN</strong></td>
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<tr>
<td>Endorses ACS guidelines as above</td>
</tr>
</tbody>
</table>

(ACS, 2013; NCCN, 2013d; USPSTF, 2012)

### Cervical Cancer Screening: High Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USPSTF</strong></td>
</tr>
<tr>
<td>No specific recommendations.</td>
</tr>
<tr>
<td><strong>ACS</strong></td>
</tr>
<tr>
<td>No specific recommendations.</td>
</tr>
<tr>
<td><strong>NCCN</strong></td>
</tr>
<tr>
<td>No specific recommendations.</td>
</tr>
</tbody>
</table>

(ACS, 2013; NCCN, 2013d; USPSTF, 2012)
Cervical Cancer Screening: Controversies

- Fewer controversies exist
- Consensus not to screen those under 20, but should screening begin at age 20 or 30?

Colon Cancer Statistics

- Based on 2013 estimates (ACS):
  - 102,480 new cases of colon cancer
  - 40,340 new cases of rectal cancer
- Overall lifetime risk of developing colorectal cancer is about 1 in 20.
- Risk is slightly lower in women than in men.
  (Smith et al., 2013)
Colorectal Cancer Guidelines: Risk Assessment

- USPSTF: aimed at average risk
- NCCN: average vs. increased vs. high risk
- ACS: average vs. high risk

(ACS, 2013; NCCN, 2013b; USPSTF, 2008)

Colon Cancer: Increased Risk

- Personal history of adenomatous polyps or sessile serrated polyp (SSP)
- Personal history of colorectal cancer and/or inflammatory bowel disease
- Positive family history of colorectal cancer

(National Comprehensive Cancer Network, 2013b)

Colon Cancer: High Risk

- Lynch syndrome [hereditary nonpolyposis colorectal cancer (HPNCC)]
- Polyposis syndromes
- Cowden syndrome
- Li-Fraumeni syndrome

(National Comprehensive Cancer Network, 2013b)
### Colonoscopy: Average Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
<th>USPSTF</th>
<th>A recommendation: Beginning at age 50 and continuing through age 75, screening with colonoscopy every 10 years is recommended.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACS</td>
<td>Age ≥50: Every 10 years</td>
</tr>
<tr>
<td></td>
<td>NCCN</td>
<td>Age ≥50: Every 10 years</td>
</tr>
</tbody>
</table>

OR...

(ACS, 2013; NCCN, 2013b; USPSTF, 2008)

### Flexible Sigmoidoscopy: Average Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
<th>USPSTF</th>
<th>A recommendation: Beginning at age 50 and continuing through age 75, screening with flexible sigmoidoscopy every 5 years in combination with high-sensitivity fecal occult blood testing every 3 years. Consider individual patient prior to recommending screening.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACS</td>
<td>Age ≥50: Every 5 years</td>
</tr>
<tr>
<td></td>
<td>NCCN</td>
<td>Age ≥50: Every 5 years</td>
</tr>
</tbody>
</table>

OR...

(ACS, 2013; NCCN, 2013b; USPSTF, 2008)

### Stool Screening: Average Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
<th>USPSTF</th>
<th>A recommendation: Beginning at age 50 and continuing through age 75, screening with annual high-sensitivity fecal occult blood testing is recommended. Evidence is insufficient to assess the benefits and harms of fecal DNA testing as screening modality for colorectal cancer. Consider individual patient prior to recommending screening.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACS</td>
<td>Age ≥50: fecal occult blood testing annually. OR Yearly fecal immunochemical test (FIT) annually. These tests primarily find cancer as opposed to polyps and/or cancer. It is preferred that tests such as colonoscopy, flexible sigmoidoscopy, double contrast barium enema, or virtual colonoscopy be undergone when available and when patient willing to undergo more invasive testing as they are able to detect polyps as well as cancer.</td>
</tr>
<tr>
<td></td>
<td>NCCN</td>
<td>Age ≥50: stool testing (guaiac or IHC testing) annually +/- flexible sigmoidoscopy every 5 years.</td>
</tr>
</tbody>
</table>

OR...

(ACS, 2013; NCCN, 2013b; USPSTF, 2008)
Virtual Colonoscopy (CT colonography: Average Risk)

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
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</thead>
<tbody>
<tr>
<td>USPSTF</td>
</tr>
<tr>
<td>ACS</td>
</tr>
<tr>
<td>NCCN</td>
</tr>
</tbody>
</table>

(ACS, 2013; NCCN, 2013b; USPSTF, 2008)

Colon Cancer Screening: Increased Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
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<tbody>
<tr>
<td>USPSTF</td>
</tr>
<tr>
<td>ACS</td>
</tr>
<tr>
<td>NCCN</td>
</tr>
</tbody>
</table>

(ACS, 2013; NCCN, 2013b; USPSTF, 2008)

Colon Cancer Screening: NCCN Increased Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal h/o adenomatous polyps or SSPs</td>
</tr>
<tr>
<td>• ≤2 polyps, &lt;1 cm, tubular: repeat colonoscopy within 5 yrs</td>
</tr>
<tr>
<td>• 3-10 polyps, high grade, ≥1cm, villous: repeat colonoscopy within 3 yrs</td>
</tr>
<tr>
<td>• &gt;10 polyps, individual management, consider polyposis syndrome</td>
</tr>
<tr>
<td>• Incomplete polypectomy or polypectomy of large polyps: repeat colonoscopy in 2-6 months</td>
</tr>
<tr>
<td>Prior h/o CRC</td>
</tr>
<tr>
<td>Personal h/o IBD</td>
</tr>
<tr>
<td>Positive FH</td>
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</table>

(National Comprehensive Cancer Network, 2013b)
Colon Cancer Screening NCCN: High Risk

<table>
<thead>
<tr>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lynch Syndrome (HNPCC)</td>
</tr>
<tr>
<td>Follow Criteria for Further Risk Evaluation for High Risk Syndromes</td>
</tr>
<tr>
<td>Polyposis Syndromes</td>
</tr>
<tr>
<td>Follow Criteria for Further Risk Evaluation for High Risk Syndromes</td>
</tr>
<tr>
<td>Cowden syndrome</td>
</tr>
<tr>
<td>Follow NCCN Guidelines for genetics / familial high risk assessment: Breast and Ovarian</td>
</tr>
<tr>
<td>Li-Fraumeni Syndrome</td>
</tr>
<tr>
<td>Follow NCCN Guidelines for genetics / familial high risk assessment: Breast and Ovarian</td>
</tr>
</tbody>
</table>

(National Comprehensive Cancer Network, 2013b)

Colon Cancer Screening Controversies

- What tests to use?
  - Stool screening
  - CT colonography
- When to stop screening?
Lung Cancer: Statistics

• Lung cancer is the second most common cancer in both men and women, but leading cause of cancer death in both sexes.

• About 228,190 new cases of lung cancer projected in 2013.
  o 118,080 cases in men
  o 110,110 cases in women

(Smith et al., 2013)

Lung Cancer Screening: History

• Prior to 1980, ACS recommended annual chest x-ray and sputum cytology for asymptomatic persons who were high risk for lung cancer.

• In 1980, ACS “lung cancer screening…has not been demonstrated to be a benefit in reducing mortality.”

(Smith et al., 2013)

Lung Cancer Screening: Recent Advances

• National Lung Cancer Screening Trial (NLST)
  – Age 55-74
  – Smoking History 30 pack years
  – Former smoker must quit within 15

• Exclusion Criteria
  – Metallic implants or devices in the chest or back
  – Requirements for home oxygen supplementation
  – Poor health
  – Limited longevity

(National Cancer Institute, 2011)
Lung Cancer Screening: Recent Advances

- Compared chest x-ray vs. low dose CT scan as screening tools.
- Results found that those undergoing annual low dose helical CT showed 20% fewer lung cancer deaths as compared to those in the CXR arm.

(National Cancer Institute, 2011)

Lung Cancer Guidelines: Risk Assessment

- USPSTF*: aimed at high risk
- NCCN: high risk
  - does not recommend screening those at low to moderate risk
- ACS: high risk

*: approved July 2013; out for public comment August 2013; currently awaiting final version

(ACS, 2013; NCCN, 2013c; USPSTF, 2013)

Lung Cancer: High Risk

- USPSTF / ACS: Age 55-74 (ACS) or 79 (USPSTF) who have a 30 pack-year h/o smoking, and currently smoke or who have quit <15 years.
- NCCN: Either those age 55-74 with > 30 pack yr h/o smoking and smoking cessation <15 years (category 1) or those ≥ 50 yrs and ≥ 20 pack year h/o smoking and 1 additional risk factor (other than second hand smoke).
- Risk factors include: radon exposure, occupational exposure, h/o cancer, family history, or disease history

(ACS, 2013; NCCN, 2013c; USPSTF, 2013)
Low dose helical CT scans: High Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USPSTF</strong> B recommendation: Annual testing for those persons at high risk for lung cancer based on age and smoking history (ages 55 to 79, healthy, with a 30 pack year or more history of smoking and have smoked within the past 15 years)</td>
</tr>
<tr>
<td><strong>ACS</strong> Ages 55-74 who are current or former smokers (quit within the past 15 years) in good health with at least a 30 pack year history: Annually</td>
</tr>
<tr>
<td><strong>NCCN</strong> Ages 55-74 who have a greater than 30 pack year history of smoking and those who have quit less than 15 years prior OR those over 50 years with 20 or greater pack year history of smoking and one additional risk factor: Annually</td>
</tr>
</tbody>
</table>

(ACS, 2013; NCCN, 2013c; USPSTF, 2013)

Lung Cancer: Screening Controversies

- When to stop?
  - Differing end ages (age 74 vs. 79)
- Impact of additional risk factors
- Small Cell vs. Non-Small Cell Lung Cancer
- Where to screen?
- Who pays for screening?
Prostate Cancer: Statistics

- Prostate cancer is the most common cancer in American men, other than skin cancer.
- 238,590 new cases of prostate cancer are estimated to be diagnosed in 2013.
- About 1 man in 6 will be diagnosed with prostate cancer during his lifetime.
- Prostate cancer occurs mainly in older men.
  - Nearly 2/3 of men are diagnosed at age 65 or older
  - Risk of prostate cancer low in men age < 40

(Smith et al., 2013)

Prostate Cancer Screening History

- For many years, screening with PSA and DRE recommended by various organizations.
- PSA testing has limitations.
- Elderly men frequently die “with” rather than “from” prostate cancer.

(Smith et al., 2013)

Prostate Cancer Guidelines: Risk Assessment

- USPSTF: recommends against screening
- NCCN and ACS: screening should occur only following discussion of risks vs. benefits with physician

(ACS, 2013; NCCN, 2012; USPSTF, 2011)
Prostate Cancer Screening: Increased Risk

• African American race
• Family History
• Men taking 5-alpha-reductase inhibitors (5ARI)

(Smith et al., 2013; NCCN, 2011)

PSA and DRE testing: Average and Increased Risk

<table>
<thead>
<tr>
<th>Cancer Screening Recommendation</th>
<th>USPSTF</th>
<th>ACS</th>
<th>NCCN</th>
</tr>
</thead>
<tbody>
<tr>
<td>D recommendation: Recommends against screening</td>
<td></td>
<td>Men must make an informed decision with their doctor about whether to be screened. Discussion should begin at age 50 for those at average risk and life expectancy of at least 10 years. Discussion should begin at age 45 for African Americans or those with father or brother who had prostate cancer before age 65 (increased risk). Those who opt to be tested, should undergo PSA with or without DRE. Follow up testing depending on PSA level.</td>
<td>Start risk and benefit discussion about offering baseline DRE and PSA at age 40. If opt to be screened, subsequent follow up pending PSA level. Those felt to be at increased risk should participate in the discussion earlier than those at average risk.</td>
</tr>
</tbody>
</table>

(ACS, 2013; NCCN, 2012; USPSTF, 2011)

Prostate Cancer Screening Controversies

• Should screening be performed?
• PSA or no PSA?
• Factor of race?
• Factor of positive family history?
Current and Future Cancer Screening Influence

- Affordable Care Act
  - Screening tests will be covered
  - [www.healthcare.gov](http://www.healthcare.gov)
- Aging Population
  - In 2009 there were 39.6 million individuals that were 65 years or older
  - In 2030 it is projected there will be 72.1 million older adults
- Changing health care costs (short vs. long term)

Conclusion

- The recommendations for screening of the common cancers are changing rapidly.
- Keep up with the evidence, and the controversies of the guidelines.
- Provide up to date patient education related to the guidelines.

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