ACS Cancer Screening Update

Georgia Chapter of the American College of Physicians
Pine Mountain, GA
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American Cancer Society
Disclosures

- No financial disclosures or conflicts of interest to declare
Cancer Screening—A Sampling of Current Issues

- Cancer in Georgia...how does GA compare with the rest of the U.S.?
- ACS and USPSTF Guidelines—What are they, how do they differ, and why do they differ?
- What is the underlying evidence supporting the current recommendations?
- What factors influence screening in the population?
- What’s on the horizon?
Female Breast Cancer, Colorectal Cancer, Lung Cancer and Prostate Cancer Incidence, Georgia, 2011

Breast Cancer

Colorectal Cancer

Lung Cancer

Prostate Cancer
Female Breast Cancer, Colorectal Cancer, Lung Cancer and Prostate Cancer Mortality, Georgia, 2011

Breast Cancer

Colorectal Cancer

Lung Cancer

Prostate Cancer

21st

16th

6th

16th
ACS/USPSTF Cancer Screening Guidelines for Average Risk Adults—Breast, Colorectal, Prostate & Lung
Breast Cancer Screening
### Breast Cancer Screening in Average Risk Women: ACS (2003); USPSTF (2009)

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>ACS</th>
<th>USPSTF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast Self Exam (BSE)</td>
<td>Not recommended</td>
<td>Against clinicians teaching BSE (D)</td>
</tr>
</tbody>
</table>
Ages 40+: Annual | Insufficient evidence (I)                                                   |
| Mammography          | Ages 40+: Annual  
End screening when curative therapy would not be offered due to life-limiting co-morbidity | Against routine screening in women ages 40-49 (C)  
Ages 50-74: Biennial (B)  
Ages 75+ : *Routine* screening not recommended (C)  
Ages 85+ Not recommended (D) |

Updates expected from ACS and USPSTF in 2015
The USPSTF argument against screening women in their 40s

- Risk of developing and dying from breast cancer during the decade of the 40s is low
- While the reduced risk of dying from breast cancer associated with screening in women ages 40-49 is similar to women ages 50-59, the absolute benefit is lower
- The risk of harms (false positives, etc.) is high
- Thus, the balance of benefits and harms indicates a recommendation against routine screening (C rating)
Premature mortality and incidence based mortality from breast cancer, U.S Women

- Percent of deaths from breast cancer by age at diagnosis, U.S., 2005-2006
  - < 40: 7.7%
  - 40-49: 17.8%
  - 50-59: 22.3%
  - 60-69: 19.0%
  - 70-79: 18.8%
  - 80+: 14.5%

The Evolving Evidence for Breast Cancer Screening—Benefits & Harms
RCTs of screening mammography: Overall results in terms of breast cancer mortality

Overall RR = 0.79 (95% CI: 0.73, 0.86)

Heterogeneity p = 0.3
29 Year Follow-up of the Swedish Two County Trial

- **133,065 women ages 40-47 randomized to screening or usual care**
- **Screening phase = 7 years**
- **Screening interval**
  - 40-49 = 24 months
  - 50-74 = 33 months
- **Protocol**
  - One view mammography
  - Single reader
  - No physical exam
- **1st mortality results published in 1985**
• Two important points:
  – Long term follow-up is necessary to measure the full benefit of breast cancer screening
  – With long follow-up, the number-needed-to-screen to save one life steadily improves

Table 3

Local End Point Committee Data: Breast Cancer Deaths Avoided and Number of Women Needed to Screen for 7 Years to Prevent One Death according to Follow-up Time

<table>
<thead>
<tr>
<th>Time between Randomization and Follow-up (y)</th>
<th>RR*</th>
<th>Deaths from Breast Cancer in ASP Group</th>
<th>Expected Deaths in ASP Group†</th>
<th>Deaths Prevented in ASP Group</th>
<th>No. of Women Needed to Screen*</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>0.74 (0.57, 0.98)</td>
<td>206</td>
<td>277</td>
<td>71</td>
<td>922 (515, 4410)</td>
</tr>
<tr>
<td>15</td>
<td>0.70 (0.56, 0.87)</td>
<td>284</td>
<td>408</td>
<td>124</td>
<td>526 (351, 1055)</td>
</tr>
<tr>
<td>20</td>
<td>0.70 (0.57, 0.85)</td>
<td>324</td>
<td>465</td>
<td>141</td>
<td>464 (316, 871)</td>
</tr>
<tr>
<td>25</td>
<td>0.70 (0.57, 0.85)</td>
<td>347</td>
<td>497</td>
<td>150</td>
<td>436 (297, 815)</td>
</tr>
<tr>
<td>29</td>
<td>0.70 (0.57, 0.85)</td>
<td>351</td>
<td>509</td>
<td>158</td>
<td>414 (286, 748)</td>
</tr>
</tbody>
</table>

* Numbers in parentheses are 95% confidence intervals.
† Expected deaths if the ASP had the same mortality rate as the PSP, calculated by dividing the observed deaths by the RR (eg, at 10 years, 206/0.7435 = 277 expected deaths).

31% fewer deaths After 29 years
The publication of 25 year results of the Canadian Trial received vastly more media attention

Vast Study Casts Doubts on Value of Mammograms

By GINA KOLATA  FEB. 11, 2014

One of the largest and most meticulous studies of mammography ever done, involving 90,000 women and lasting a quarter-century, has added powerful new doubts about the value of the screening test for women of any age.

It found that the death rates from breast cancer and from all causes were the same in women who got mammograms and those who did not. And the screening had harms: One in five cancers found with mammography and treated was not a threat to the woman’s health and did not need treatment such as chemotherapy, surgery or radiation.

The study, published Tuesday in The British Medical Journal, is one of the few rigorous evaluations of mammograms conducted in the modern era of more effective breast cancer treatments. It randomly assigned Canadian women to have regular mammograms and breast exams by trained nurses or to have breast exams alone.
25 Year Follow-up of the Canadian NBSS 1 & 2 Trials

- 89,835 volunteer women ages 40-59 were provided with a physical exam, including clinical breast exam and instruction in BSE, and then randomized (unblinded) to:
  - 40-49: Annual mammography and CBE vs. usual care
  - 50-59: Annual mammography + CBE vs. annual CBE only
- Protocol: 15 screening centers
  - 4 screening rounds
  - Two view mammography
  - Single reader
- 1st mortality results published in 1992
In the first year of the trial, there were more than 3.5 x the number of palpable, node positive tumors “randomized” to the screening arm compared with the control arm. The odds of this imbalance are .003.
Canadian NBSS 1& 2: Overdiagnosis in the Mammography Arm

<table>
<thead>
<tr>
<th>Year of study</th>
<th>Mammography arm (n=44,925)</th>
<th>Control arm (n=44,910)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No of cancers detected</td>
<td>Mean size (cm)</td>
</tr>
<tr>
<td>1</td>
<td>253</td>
<td>1.87</td>
</tr>
<tr>
<td>2</td>
<td>109</td>
<td>2.05</td>
</tr>
<tr>
<td>3</td>
<td>101</td>
<td>1.64</td>
</tr>
<tr>
<td>4</td>
<td>111</td>
<td>2.01</td>
</tr>
<tr>
<td>5</td>
<td>92</td>
<td>1.98</td>
</tr>
<tr>
<td>Subtotal years 1-5</td>
<td>666</td>
<td>1.91</td>
</tr>
<tr>
<td>6</td>
<td>83</td>
<td>2.15</td>
</tr>
<tr>
<td>7</td>
<td>82</td>
<td>1.99</td>
</tr>
<tr>
<td>8</td>
<td>107</td>
<td>2.01</td>
</tr>
<tr>
<td>9</td>
<td>115</td>
<td>1.86</td>
</tr>
<tr>
<td>10</td>
<td>127</td>
<td>1.69</td>
</tr>
<tr>
<td>Subtotal years 6-10</td>
<td>514</td>
<td>1.93</td>
</tr>
<tr>
<td>Subtotal years 11-25</td>
<td>2070</td>
<td>—</td>
</tr>
<tr>
<td>Subtotal years 6-25</td>
<td>2584</td>
<td>—</td>
</tr>
<tr>
<td>Total years 1-25</td>
<td>3250</td>
<td>—</td>
</tr>
</tbody>
</table>

Overdiagnosis was measured at 15 years of follow-up, and estimated to be 22%.

However, at 25 years of follow-up, the difference in the 2 arms is a non-significant 3.7%.
Effectiveness of Population-Based Service Screening With Mammography for Women Ages 40 to 49 Years

• Contemporaneous comparison of breast cancer mortality in Swedish counties offering mammography vs. those not offering mammography

• 1986-2005

• Average follow-up = 16 years
Effectiveness of Population-Based Service Screening With Mammography for Women Ages 40 to 49 Years

• No difference in breast cancer mortality in the counties prior to the introduction of screening

• During the study period
  – 803 breast cancer deaths in the study group (7.3 million person-years)
  – 1238 breast cancer deaths in the control group (8.8 million person-years).

Cancer 2010; published online: 29 SEP 2010
Map of Study and Control Group Areas, and Crude Cumulative Breast Cancer Mortality per 100,000 Person Years

RR = 0.74; 95% CI 0.66 – 0.83

Figure 1. This is a simplified map of the areas that were included in the study group and the control group.

Figure 2. This chart illustrates the crude cumulative breast cancer mortality per 100,000 person-years. Solid line indicates the study group; dashed line, control group.
Relative and absolute reduction in mortality

- Most overviews/meta-analyses of the trials find an approximate 20% relative reduction in breast cancer mortality associated with an invitation to screening
  - The Nordic Cochrane Institute’s estimate of 19% was downgraded to 15% based on opinion.

- The “controversial” issue is the estimate of the absolute reduction in the risk of dying of breast cancer
## Number Needed to Screen (NNS) vs. Number Needed to Invite (NNI) to Avoid One Breast Cancer Death

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Swedish data (NNS)(^1)</th>
<th>USPSTF (NNI)(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>464</td>
<td>1224</td>
</tr>
<tr>
<td>40-49</td>
<td>726</td>
<td>1,904</td>
</tr>
<tr>
<td>50-59</td>
<td>260</td>
<td>1,339</td>
</tr>
<tr>
<td>60-69</td>
<td>198</td>
<td>377</td>
</tr>
</tbody>
</table>

\(^1\) Number Needed to Screen (NNS) Every 2 Years (40-49—18 mos.) for a Period of Ten Years, with 20 Years of Follow-up, to Save One Life.

\(^2\) Number Needed to Invite (NNI), estimated from randomized trial data with variable screening intervals, variable screening rounds, different rates of adherence and non-compliance, and variable periods of follow-up (14 yrs.)
## Quoted absolute benefits—(NNS vs. NNI)

<table>
<thead>
<tr>
<th>Source</th>
<th>No. needed to screen*</th>
<th>Follow-up period (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK review (2012)</td>
<td>179</td>
<td>20</td>
</tr>
<tr>
<td>USPSTF, depending on age (2009)</td>
<td>377-1904†</td>
<td>15</td>
</tr>
<tr>
<td>Nordic Cochrane Review (2011)</td>
<td>2000†</td>
<td>10</td>
</tr>
<tr>
<td>EUROSCREEN (2012)</td>
<td>90</td>
<td>30</td>
</tr>
</tbody>
</table>

*Number of women needed to screen (NNS) for ten years to prevent one breast cancer death
†Number needed to invite (NNI) to screening
Adjusted absolute risk estimates of the number needed to screen to save one life based on UK Review Standard*

<table>
<thead>
<tr>
<th>Source</th>
<th>No. needed to screen/invite (original)*</th>
<th>No. needed to screen (adjusted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK review (2012)</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>USPSTF, depending on age (2009)</td>
<td>377-1904</td>
<td>193</td>
</tr>
<tr>
<td>Nordic Cochrane Review (2011)</td>
<td>2000†</td>
<td>257</td>
</tr>
<tr>
<td>EUROSCREEN (2012)</td>
<td>90</td>
<td>64-96</td>
</tr>
</tbody>
</table>

* Original estimates are adjusted to the same scenario used in the UK Independent Review, i.e., the impact of screening UK women ages 50-51 every 3 years for 20 years on mortality in women ages 55-79.
Adverse Effects and Harms

• False positive findings
• Anxiety
• Overdiagnosis
Two Key Points

1) There is *no* dramatic improvement in performance at age 50

2) Sensitivity, Specificity, and PPV improve steadily with increasing age

### Performance Measures for 3.6 Million Screening Mammography Examinations, 1996-2006, NCI-BCSC

<table>
<thead>
<tr>
<th>Age</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>Recall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>80.2%</td>
<td>91.4%</td>
<td>4.3%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Age 40-49</td>
<td>70.8%</td>
<td>89.8%</td>
<td>1.5%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Age 45-49</td>
<td>74.3%</td>
<td>89.8%</td>
<td>2.3%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Age 50-54</td>
<td>78.4%</td>
<td>90.9%</td>
<td>3.3%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Age 55-59</td>
<td>81.6%</td>
<td>91.5%</td>
<td>4.6%</td>
<td>8.8%</td>
</tr>
<tr>
<td>Age 60-64</td>
<td>80.0%</td>
<td>91.9%</td>
<td>5.4%</td>
<td>8.4%</td>
</tr>
<tr>
<td>Age 65-69</td>
<td>82.5%</td>
<td>92.4%</td>
<td>6.3%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Age 70-74</td>
<td>82.9%</td>
<td>93.1%</td>
<td>7.9%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Age 75-89</td>
<td>84.5%</td>
<td>93.6%</td>
<td>9.8%</td>
<td>6.9%</td>
</tr>
</tbody>
</table>

Source: National Cancer Institute Breast Cancer Surveillance Consortium
10 Year Probability of a False Positive Exam Based on Age at First Mammogram

**Overall**

- **False-positive recall probability:**
  - 16.3% at first mammogram
  - 9.6% at subsequent exams

- **Probability of false-positive biopsy recommendation:**
  - 2.5% at first mammogram
  - 1.0% at subsequent exams
US women’s attitudes to false positive mammography results and detection of ductal carcinoma in situ: cross sectional survey
Lisa M Schwartz, Steven Woloshin, Harold C Sox, Baruch Fischhoff, H Gilbert Welch

Abstract

Objective To determine women’s attitudes to and knowledge of both false positive mammography results and the detection of ductal carcinoma in situ after screening mammography.

Design Cross sectional survey.

Setting United States.

Participants 479 women aged 18-97 years who did not report a history of breast cancer.

Main outcome measures Attitudes to and knowledge of false positive results and the detection of ductal carcinoma in situ after screening mammography.

Results Women were aware that false positive results do occur. Their median estimate of the false positive rate for 10 years of annual screening was 20% (25th percentile estimate, 10%; 75th percentile estimate, 45%). The women were highly tolerant of false positives: 63% thought that 500 or more false positives per life saved was reasonable and 37% would tolerate 10,000 or more. Women who had had a false positive result (n = 76) expressed the same high tolerance: 39% would tolerate 10,000 or more false positives. 62% of women did not want to take false positive results into account when deciding about screening. Only 8% of women thought that mammography could harm a woman without breast cancer, and 94% doubted the possibility of non-progressive breast cancers. Few had heard about ductal carcinoma in situ, a cancer that may not progress, but when informed, 60% of women wanted to take into account the possibility of it being detected when deciding about screening.

Conclusions Women are aware of false positives and seem to view them as an acceptable consequence of screening mammography. In contrast, most women are unaware that screening can detect cancers that may never progress but feel that such information would be relevant. Education should perhaps focus less on false positives and more on the less familiar outcome of detection of ductal carcinoma in situ.
Schwartz & Colleagues found:

- Women had high awareness of false positives from mammography
- Women were highly tolerant of false positives
  - 63% felt 500 FP per life saved was reasonable
  - 37% felt 10,000 FP per life saved was reasonable
- Women who had had experienced a FP result had the same level of tolerance as women who had not had experienced a FP
- 63% did not regard false positives as an important factor in decisions about screening
Overdiagnosis

- Estimates of overdiagnosis of screen detected breast tumors range from 0 - > 50%, with some claiming that it is the major harm of screening

- Overdiagnosis- is diagnosis by screening of cancer that never would have arisen symptomatically in the person’s lifetime, and never would have been detected if screening had not taken place

- Reality: To estimate overdiagnosis, we must examine incidence rates over time, and adjust for:
  - Pre-existing trend of increasing incidence
  - Lead time
Overdiagnosis Estimates Based on Adjustment for Incidence Trends and Lead-time

Adjusted Estimates

Not Adequately Adjusted Estimates
Are there harms from not screening?

- A study on 1977 women aged 40-49 diagnosed with breast cancer compared the tumor characteristics, treatment regimens used, and long-term outcome of women with symptomatic versus women with mammographically detected breast cancer.

- Women with symptomatically detected breast cancer had:
  - A higher rate of mastectomy (47% vs. 25%)
  - Larger average tumor size (3.02 vs. 1.63 cm)
  - Significantly worse disease survival

Radiology 2012;262:797-806.)
Is there a role for ultrasound screening in women with significant breast density?

- 2809 women with heterogeneously dense breasts in at least one quadrant were recruited to undergo both mammography and ultrasound, with the exams delivered in a randomized order.
Performance of Screening With Combined Mammography and Ultrasound vs. Mammography or Ultrasound Alone

<table>
<thead>
<tr>
<th></th>
<th>Mammography Plus Ultrasound</th>
<th>Mammography Alone</th>
<th>Comparison of Mammography Plus Ultrasound vs Mammography Alone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No./total</td>
<td>Difference</td>
<td>P Value</td>
</tr>
<tr>
<td>Yield per 1000</td>
<td>31/2637</td>
<td>4.2 (1.1 to 7.2)</td>
<td>.003</td>
</tr>
<tr>
<td>(95% CI)</td>
<td>11.8 (8 to 16.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>31/40</td>
<td>20/40</td>
<td>27.5 (9.5 to 45.5)</td>
</tr>
<tr>
<td>No./total</td>
<td>2322/2597</td>
<td>-6.12 (-7.24 to -5)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>% (95% CI)</td>
<td>77.5 (61.6 to 89.2)</td>
<td>50 (33.8 to 66.2)</td>
<td></td>
</tr>
<tr>
<td>Specificity</td>
<td>2481/2597</td>
<td>-6.12 (-7.24 to -5)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>No./total</td>
<td>2383/2596</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% (95% CI)</td>
<td>89.41 (88.16 to 90.57)</td>
<td>95.53 (94.67 to 96.30)</td>
<td></td>
</tr>
<tr>
<td>Area under ROC curve</td>
<td>BI-RADS</td>
<td>0.91 (0.84 to 0.96)</td>
<td>0.13 (0.04 to 0.22)</td>
</tr>
<tr>
<td></td>
<td>% Probability of malignancy</td>
<td>0.90 (0.83 to 0.95)</td>
<td>0.23 (0.10 to 0.35)</td>
</tr>
</tbody>
</table>

Screening with mammography and ultrasound improves the detection of cancer, but at a significant increase in false positives.

- The positive predictive value of biopsy recommendation after full diagnostic workup was:
  - Mammography: **22.6% (95% CI, 14.2%-33%)**
  - Ultrasound: **8.9% (95% CI, 5.6%-13.3%)**
  - Combination: **11.2% (95% CI, 7.8%-15.6%)**

What is State of the Art Breast Cancer Screening?

• Take and regularly update family history
  – Include maternal and paternal sides for 3 generations
• Counsel your patients about signs and symptoms of breast cancer
• Follow ACS (preferred) or USPSTF guidelines, with particular attention to adherence
• Identify a screening services with radiologists who specialize in breast imaging
• Advise patients to regularly use the same service, which reduces the odds of false positives
Consequences of False Positive Mammograms

**Objective:** To measure the effect of false-positive mammograms on quality of life by measuring personal anxiety, health utility, and attitudes toward future screening.

**Data:** The Digital Mammographic Imaging Screening Trial (DMIST) quality-of-life substudy of women with positive and negative mammograms.
Consequences of False Positive Mammograms

- False-positive mammograms were associated with increased short-term anxiety but not long-term anxiety.
- There was no measurable health utility decrement.
- False-positive mammograms increased women’s intention to undergo future breast cancer screening, and did not increase their stated willingness to travel to avoid a false-positive result.
Colorectal Cancer Screening
(Last update, 2008)
# Colorectal Screening in Average Risk Adults: Update 2008

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>ACS, USMSTF, ACR</th>
<th>USPSTF</th>
</tr>
</thead>
</table>
| Age to begin and end screening      | Begin screening at age 50  
End screening at a point where curative therapy would not be offered due to life-limiting co-morbidity | Begin screening at age 50 (A)  
*Routine* screening in adults aged 76-85 is not recommended (C).  
There may be considerations that support screening in an individual patient.  
Screening after age 85 is not recommended (D) |
## CRC Screening in Average Risk Adults: Update 2008

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>ACS, USMSTF, ACR</th>
<th>USPSTF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stool Testing</td>
<td>Annual screening with high sensitivity gFOBT or FIT</td>
<td>Annual screening with high sensitivity gFOBT or FIT</td>
</tr>
<tr>
<td>- gFOBT</td>
<td>Low sensitivity gFOBT not recommended</td>
<td></td>
</tr>
<tr>
<td>- FIT</td>
<td>Annual screening with high sensitivity gFOBT or FIT</td>
<td></td>
</tr>
<tr>
<td>Flexible sigmoidoscopy</td>
<td>Screening every 5 years</td>
<td>Screening every 5 years, with gFOBT or FIT every 3 years</td>
</tr>
<tr>
<td></td>
<td>Screening every 5 years, with annual gFOBT or FIT is an option</td>
<td></td>
</tr>
<tr>
<td>Colonoscopy</td>
<td>Screening every 10 years</td>
<td>Screening every 10 years</td>
</tr>
<tr>
<td>CT Colonography</td>
<td>Screening every 5 years</td>
<td>Insufficient evidence (I)</td>
</tr>
</tbody>
</table>
Stool Tests: Low sensitivity vs. high sensitivity stool tests: gFOBT, FIT, and sDNA
FOBT’s history

Guaiac-based methods

1970  Hemoccult®

1988  Hemoccult-Sensa®

Qualitative tests
InmunoCare®
FlexSure OBT®
Immudia Hem SP®
OC-Hemodia®
Monohaem®

2000

Qualitative tests
InSure®
Instant View®
Hemeselect,
Hemoccult-ICT®
OC-Light®

2005

Quantitative tests
OC-Sensor®,
SENTiFOB®,
Immudia RPH
(Magstream 1000)®

Immunochemical methods (FIT)

Source: Castells A. 2nd CRC Patient Conference, Barcelona, 2013
Single Test Performance Characteristics of gFOBT Variants: Hemoccult & Hemoccult II

- Low test sensitivity (vs. program sensitivity)
- Sensitivity improved with rehydration, but specificity suffers
- Dietary restrictions reduce patient adherence
- Interpretation of test results is subjective
- Lower patient completion compared with FIT
- **Low Sensitivity gFOBT NOT RECOMMENDED BY ACS or USPSTF FOR CRC SCREENING**
- **Single sample In-Office stool testing NOT RECOMMENDED**

<table>
<thead>
<tr>
<th>Study with One-Time Testing</th>
<th>Sensitivity for Cancer</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collins, et al. AIM, 2005</td>
<td>9.5% [In Office, Single Panel gFOBT]</td>
<td>97.5%</td>
</tr>
<tr>
<td>Lieberman, et al. NEJM, 2001</td>
<td>50% (w/rehydration)</td>
<td>93.8%</td>
</tr>
<tr>
<td>Imperiale, et al. NEJM, 2004</td>
<td>14.1%</td>
<td>95.2%</td>
</tr>
<tr>
<td>Allison, et al. NEJM, 1996</td>
<td>37.1%</td>
<td>97.7%</td>
</tr>
</tbody>
</table>
Stool Test: Immunochemical (FIT)

• Specific for human blood and for lower GI bleeding
• Results not influenced by foods or medications
• Some types require only 1 or 2 stool specimens
• Higher sensitivity for cancer & adenomas than older forms of guaiac-based FOBT
• Slightly more costly than guaiac tests
• Patients prefer FIT to gFOBT
Diagnostic characteristics of FIT tests have been difficult to estimate, with reported sensitivities ranging from 25% to 100% for CRC and specificities usually exceeding 90%.

Study Selection: All studies evaluating the diagnostic accuracy of FITs for CRC in asymptomatic, average-risk adults.

Data Sources: Online databases, including MEDLINE and EMBASE, and bibliographies of included studies from 1996 to 2013.

Nineteen eligible studies were included and meta-analyzed.
Pooled sensitivity and specificity for FIT

In summary, this systematic review and meta-analysis suggests that FITs have high accuracy, high specificity, and moderately high sensitivity for detection of CRC.

**Key Points**

- Increasing the number of FIT samples did not affect the pooled sensitivity or specificity.
- *Thus, a 1-sample FIT regimen for CRC screening may be preferable given the importance of optimizing adherence in repeated rounds of testing.*

<table>
<thead>
<tr>
<th>Study</th>
<th>FIT</th>
<th>Guaiac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoffman (2010)</td>
<td>61.4%</td>
<td>50.5%</td>
</tr>
<tr>
<td>Hol (2010)</td>
<td>61.5%</td>
<td>49.5%</td>
</tr>
<tr>
<td>Van Rossum (2008)</td>
<td>59.6%</td>
<td>49.6%</td>
</tr>
<tr>
<td>Cole (2003)</td>
<td>39.6%</td>
<td>23.4%</td>
</tr>
</tbody>
</table>

Adherence with FIT is consistently better than with guaiac-based stool tests. Source: TR Levin, MD
FITs are an evolving technology with a range of characteristics

- The diversity in fecal immunochemical tests makes performance data and clinical study outcomes difficult to compare.

- FITs differ in terms of:
  - fecal collection technique
  - number of samples collected
  - hemoglobin stability after collection
  - susceptibility to temperature
  - device technology
  - analytical methodology
  - the technique to determine the analytical result
  - antibody characteristics, and
  - calibration material and derivation of its assigned hemoglobin concentration
A Proposal to Standardize Reporting Units for Fecal Immunochemical Tests for Hemoglobin

Callum G. Fraser, James E. Allison, Stephen P. Halloran, Graeme P. Young; on behalf of the Expert Working Group on Fecal Immunochemical Tests for Hemoglobin, Colorectal Cancer Screening Committee, World Endoscopy Organization

Some remaining challenges with Quantitative FIT

• Screening programs commonly accept manufacturer’s cut point for a positive test, thus quantitative FIT is used like a qualitative FIT

• Interpretation of test results, i.e., x ng hemoglobin per mL buffer is not standardized--variations in mass of stool and volume of buffer--making comparisons between tests difficult

• The same device may produce different results based on geographical, climatic, sample handling techniques, storage arrangements, and transport protocols
Colonoscopy

- Polypectomy prevents Colorectal Cancer

- The National Polyp Study observed a 76-90% reduction in CRC incidence after polypectomy

Winawer et al, NEJM 1993
Influence of colonoscopic polypectomy on risk of death from colorectal cancer

Colonoscopic polypectomy was associated with a 53% reduction in colorectal cancer mortality.
Minnesota Colon Cancer Control Study

- 33,020 participants, with 30 years of follow-up
- Rehydrated guaiac–based FOBT
- Screening reduced colorectal-cancer mortality
- Relative risk for annual screening:
  - 0.68; (95% CI, 0.56 to 0.82)
- Relative risk for biennial screening:
  - 0.78; (95% CI, 0.65 to 0.93) through 30 years of follow-up.
- **Conclusion:** After 30 years of follow-up, an invitation to annual FOBT screening was associated with 32% fewer CRC deaths, and a biennial invitation was associated with 22% fewer deaths
Over- and Under-utilization of Colonoscopy

- Among 24,000 Medicare beneficiaries who had normal colonoscopy between 2001-2003, 46.2% underwent repeat colonoscopy within 7 years.

- Among 12,071 Medicare beneficiaries 70+ who underwent polypectomy or biopsy during 2001-2004, only 45.7% had undergone another colonoscopy within 5 years.

- Among gastroenterologists and surgeons who perform screening colonoscopy, 24% of gastroenterologists and 54% of surgeons recommended surveillance for a hyperplastic polyp.
Problems with the quality of colonoscopy are well documented

Q. Are all colonoscopists equally effective at finding polyps and cancers during colonoscopy?

A. Colonoscopy is what we in medicine call a highly “operator dependent” procedure. That is, some doctors are not only better than others at doing colonoscopy, they are a lot better.

Stated in reverse, some doctors are really bad at doing colonoscopy. Virtually every study that has looked for evidence that some people are better than others has found it, and the differences between doctors in how many precancerous polyps they find varies by 4- to 10-fold.
Quality Issues with Colonoscopy

- Poor pre-procedure documentation
- Poor prep
- Failure to reach the cecum
- Rapid withdrawal time
- Adverse events
- Highly variable adenoma detection rate
- Interval cancers
- Over and under utilization of the procedure
- Highly variable reports
- Poor feedback
- Most endoscopists are unaware of “their numbers,” since most facilities do not track their data.
What do the quality data on colonoscopy show?

• **Adenoma detection rate (ADR) is highly variable.**

• In one large series, ADR varied from 7% - 52%
  – 8% interval cancer rate
  – ADR inversely associated with the interval cancer rate
  – ADR inversely associated with colorectal cancer death
**Key Quality Indicators**

- **Adenoma Detection Rate (ADR)**
  - Entire Unit and Individual Endoscopists
  - Improvement plans are initiated if ADR rate is not $\geq 25\%$ for men and $\geq 15\%$ for women, or $> 20\%$ overall

- **Cecal Intubation Rate (CIR)**
  - Improvement plans are initiated if complete colonoscopy is not accomplished in $> 90\%$ of all patients and $> 95\%$ of those undergoing screening and surveillance procedures, for both the unit as a whole and for each individual endoscopist

- **Quality of Preparation**
  - Improvement plans are initiated if prep quality is not “adequate for detection of all polyps $\geq 5\ mm$” in $> 90\%$ of patients.
Key Quality Indicators

• Complete Procedure Documentation
  – Patient demographics
  – **ASA Score** (assessment of procedural risk)
  – **Procedure Indications** (screening, surveillance, symptoms, etc.)
  – **Procedural Technical Description** (medications, extent of exam, adequacy of preparation, ease and tolerance, retroflexion, other maneuvers)
  – Colonoscopic Findings
  – Diagnosis and Assessment
  – Unplanned Events
  – Follow-up Plan

• Incomplete unit or endoscopist documentation shall initiate improvement plan
The National Colorectal Cancer Round Table Evidence-Based Toolkit and Guide to Increase Colorectal Cancer Screening Rates

Available at http://nccrt.org

Four Essentials for Improved Screening Rates

1. Your Recommendation

2. An Office Policy
   A. An Office Policy is Vital
   B. Fit the Policy to Your Practice
      • Determine Individual Risk Level
      • Identify Local Medical Resources
      • Assess Insurance Coverage
      • Consider Patient Preference
      • Attend to Office Implementation

3. An Office Reminder System
   A. Options for Patients: Education and Cues to Action
   B. Options for Physicians:
      • Chart Prompts
      • Audits and Feedback
      • Ticklers and Logs
      • Staff Assignments

4. An Effective Communication System
   A. Options for Action
      • Stage-based Communication
      • Shared Decisions, Informed Decisions, Decision Aids
      • Staff Involvement
Current Guidelines for Prostate Cancer Screening

American Cancer Society Guideline for the Early Detection of Prostate Cancer
Update 2010

Andrew M. D. Witte, MD; Richard C. Wender, MD; Ruth B. Ehrlich, PhD; Ian M. Thompson, MD; Anthony Y. D'Amico, MD, PhD; Robert J. Wirtz, MD, PhD; Donald L. Brooks, MD, MPH; Christopher Ganz, MD; John Guevara, MD; Kimberly Andrews;

Cara Gallucci, MPH; Michel A. Smith, MD

Abstract

In 2009, the American Cancer Society (ACS) prostate cancer advisory committee began the process of a complete update of recommendations for early prostate cancer detection. A series of systematic reviews and evidence reviews was conducted focusing on evidence related to the early detection of prostate cancer, best practices, harms of testing for localized prostate cancer, and selected and related decision making in prostate cancer screening. The results of the systematic and evidence reviews were evaluated by the ACS prostate cancer advisory committee, and deliberations about the evidence occurred at committee meetings and conference calls. On the basis of the evidence and a consensus process, the prostate cancer advisory committee developed the guideline, and a writing committee drafted a guideline document that was circulated to the entire committee for review and revision. The document was then circulated to peer reviewers for feedback and finally to the ACS mission outcomes committee and the ACS board of directors for approval.

The U.S. Preventive Services Task Force (USPSTF) makes recommendations about the effectiveness of screening for prostate cancer after they receive information about the uncertainties, risks, and potential benefits associated with prostate cancer screening. Prostate cancer screening should not occur without an informed decision-making process. Men at average risk should receive this information beginning at age 50 years. Men in higher-risk groups should receive this information before age 50 years. Men should either receive this information directly from their health care providers or refer to patient education websites. Patient education leaflets are helpful in preparing men to make a decision whether to be tested for prostate cancer.

Executive Summary

Although there have been substantive advances in our understanding of prostate cancer screening since the last American Cancer Society (ACS) guidelines update in 2003, there remain significant uncertainties regarding the overall value of detecting prostate cancer early. Emerging evidence that periodic testing with prostate-specific antigen (PSA) may reduce the likelihood of dying from prostate cancer must be weighed against the serious risks associated with routine PSA testing. The USPSTF recommends against routine PSA-based screening for prostate cancer (grade D recommendation). See the Clinical Considerations section for a discussion about implementation of this recommendation.

Clinical Guideline

Screening for Prostate Cancer: U.S. Preventive Services Task Force Recommendation Statement

Virginia A. Anderer, MD, MPH, on behalf of the U.S. Preventive Services Task Force

Description: Update of the 2008 U.S. Preventive Services Task Force (USPSTF) recommendation statement on screening for prostate cancer.

Methodology: The USPSTF reviewed new evidence on the benefits and harms of prostate-specific antigen (PSA)-based screening for prostate cancer, as well as the benefits and harms of treatment of localized prostate cancer.

Recommendation: The USPSTF recommends against PSA-based screening for prostate cancer (grade D recommendation).

The U.S. Preventive Services Task Force (USPSTF) makes recommendations about the effectiveness of screening for prostate cancer after they receive information about the uncertainties, risks, and potential benefits associated with prostate cancer screening. Prostate cancer screening should not occur without an informed decision-making process. Men at average risk should receive this information beginning at age 50 years. Men in higher-risk groups should receive this information before age 50 years. Men should either receive this information directly from their health care providers or refer to patient education websites. Patient education leaflets are helpful in preparing men to make a decision whether to be tested for prostate cancer.

Rationale

Prostate cancer is the most commonly diagnosed non-skin cancer in men in the United States, with a lifetime risk for diagnosis currently estimated at 15.4%. Most cases of prostate cancer have a good prognosis even without treatment, but some cases are aggressive. The lifetime risk for death of prostate cancer is 2.3%. Prostate cancer is rare before age 50 years, and very few men die of prostate cancer before age 60 years. Seventy percent of deaths due to prostate cancer occur after age 75 years.

Detection

Contemporary recommendations for prostate cancer screening are based on a variety of considerations, including findings from clinical and population-based studies as well as expert consensus. The USPSTF recommends against periodic PSA-based screening for prostate cancer because there is little evidence that PSA-based screening is an effective intervention for reducing disease-specific mortality or reducing the risk of prostate cancer death. The USPSTF considers that PSA-based screening may increase the number of men subjected to toxicologic and psychoemotional consequences, including unnecessary treatment for prostate cancer.

Summary of Recommendation and Evidence

The USPSTF recommends against prostate-specific antigen (PSA)-based screening for prostate cancer (grade D recommendation).

See the Clinical Considerations section for a discussion about implementation of this recommendation.

See also:
Print
- Related articles: 135, 137
- Summary for Elders: 144
Web-Only
- CMS web preview on pages 1-20

Annals of Internal Medicine

Volume 158 Number 7 10 July 2013

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Prostate Cancer Screening in Average and High Risk Men: ACS (2010); USPSTF (2012)

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>ACS</th>
<th>USPSTF</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA Testing</td>
<td>Shared Decision Making</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asymptomatic men who have at least a 10-year life expectancy should have an opportunity to make an informed decision with their health care provider about whether to be screened for prostate cancer, after receiving information about the uncertainties, risks, and potential benefits associated with prostate cancer screening.</td>
<td>Recommends against prostate-specific antigen (PSA)-based screening for prostate cancer (D).</td>
</tr>
</tbody>
</table>
PLCO Trial

- At 7 years of follow-up
  - Screening: 50 deaths
  - Controls: 44 deaths
  - Rate ratio = 1.13
  - 95% CI, 0.75 – 1.70

- At 10 years of follow-up
  - Screening: 92 deaths
  - Controls: 82 deaths
  - Rate ratio = 1.11
  - 95% CI, 0.83 – 1.50

11% more prostate cancer deaths in the group invited to screening compared with the control group
Cumulative risk from prostate cancer in the ERSPCS

- As of 12/2006
  - Average follow-up of 8.8 years
  - 214 deaths in the screening group vs. 326 in the control group
  - The adjusted rate ratio for prostate specific mortality was 0.80, (95% CI, 0.65 – 0.98, P = 0.04)
  - Adjusted for non-compliance, RR = 0.73, (95% CI, 0.56 – 0.90)

20% fewer prostate cancer deaths in the group invited to screening compared with the control group
Cumulative Incidence of Prostate Cancer Mortality in the Screening Group vs. the Control Group

- The absolute cumulative risk reduction of death from prostate cancer at 14 years was 0.40% (95% CI 0.17–0.64), from 0.90% in the control group to 0.50% in the screening group.

- The rate ratio for death from prostate cancer was 0.56 (95% CI 0.39–0.82; p=0.002) in the screening compared with the control group.

- The rate ratio of death from prostate cancer for attendees compared with the control group was 0.44 (95% CI 0.28–0.68; p=0.0002).

- Overall, 293 (95% CI 177–799) men needed to be invited for screening and 12 to be diagnosed to prevent one prostate cancer death.

Critique of the USPSTF’s D Rating for Prostate Cancer Screening

• Erroneous conclusions when addressing *time-to-event* data
  – The USPSTF stated, “48 men received treatment for every prostate cancer-specific death prevented.”
  – This is incorrect, since the number represents men diagnosed, not treated (many were on surveillance protocols).
  – Further, number needed to treat is highly dependent on the duration of follow-up
    • ERSPC at 11 years (NND = 37)
    • Göteborg at 14 years (NND = 12)

Critique of the USPSTF’s D Rating for Prostate Cancer Screening

• **Overestimation of harms**
  - The USPSTF estimated the 30-day perioperative mortality rate after radical prostatectomy as 0.5%, a outcome based on Medicare data from 1991-1994 (i.e., 20 years ago).
  - Today, men 65+, who are at higher risk for adverse outcomes, are a minority of the radical prostatectomy series
  - Contemporary estimates based on all men are closer to 0.1%

Prostate Cancer—the Current Challenge

FREE TESTING
Check the Nationwide Drive Against Prostate Cancer Schedule

PSA Test
Prostate Cancer Screening
Home Collection Kit
CLIA Certified Laboratory
PSA testing today

While there is a sound basis to disagree with the USPSTF recommendations, PSA testing in the U.S. does not commonly adhere to any recommendation:

- PSA testing begins too early, stops too late, and too many men with limited life expectancy or significant co-morbidity are being tested.
- Little evidence that shared decision making is taking place
- Patients report that their doctors tend to encourage PSA testing
- Men with elevated PSA commonly are encouraged to undergo radical treatment
The real problem with the PSA test is how we’re using it

- Two observations:
  - PSA levels are very strongly correlated with clinically significant prostate cancer
  - PSA has only modest diagnostic specificity and positive predictive value at commonly used thresholds for a positive finding.

- Routine screening with PSA leads to an excessive number of negative biopsies, and an excessive rate of diagnosis of indolent cancers

- *How might we screen more effectively and in particular, put PSA to better use?*
State of the Art Screening for Prostate Cancer

- Take and regularly update family history, beginning at an early age
- Follow ACS or ACP guidelines—Understand the issues and provide opportunities for shared decision making
- For men who choose to be screened for prostate cancer after considering the possible benefits and risks:
  - Screening is recommended with PSA with or without DRE.
State of the Art Screening for Prostate Cancer

• For men whose **PSA is less than 2.5 ng/mL**, screening intervals can be extended to every 2 years.
• Screening should be conducted **yearly for men whose PSA level is 2.5 ng/mL or greater**.
• For **PSA levels between 2.5 ng/mL and 4.0 ng/mL**, health care providers should consider an individualized risk assessment that incorporates other risk factors for prostate cancer, particularly for high-grade cancer, that may be used to recommend a biopsy.
• **A PSA level of 4.0 ng/mL** or greater historically has been used to recommend referral for further evaluation or biopsy, which remains a reasonable approach for men at average risk for prostate cancer.
Looking forward--Rethinking screening, diagnosis, and treatment for prostate cancer

• Determine if men with low PSA (≤ 1ng/mL) can be screened less often
• Identify a stopping age for men with persistently low PSA
• New strategies for identifying men at high and low risk
• Consider alternative approaches to screening, diagnosis and treatment decisions
Clinicians with access to high-volume, high-quality lung cancer screening and treatment centers should initiate a discussion about screening with apparently healthy patients aged 55 years to 74 years who have at least a 30–pack-year smoking history and who currently smoke or have quit within the past 15 years.

A process of informed and shared decision-making with a clinician related to the potential benefits, limitations, and harms associated with screening for lung cancer with low-dose computed tomography should occur before any decision is made to initiate lung cancer screening.

Smoking cessation counseling remains a high priority for clinical attention in discussions with current smokers, who should be informed of their continuing risk of lung cancer. Screening should not be viewed as an alternative to smoking cessation.
# Table 1: Eligibility Criteria for the National Lung Screening Trial

<table>
<thead>
<tr>
<th>Age</th>
<th>55-74</th>
</tr>
</thead>
</table>
| **Smoking history**  | 30 pack years.  
|                      | (A pack year is the equivalent of 1 pack of cigarettes per day per year.  1 pack per day for 30 years or 2 packs per day for 15 years would both be 30 pack-years). |
| **Former smoker**    | Must have quit within 15 years |
| **General health exclusions** | Metallic implants or devices in the chest or back  
|                      | Requirement for home oxygen supplementation  
|                      | Prior history of lung cancer or other lung cancer symptoms |
Reduced Lung-Cancer Mortality with Low-Dose Computed Tomographic Screening

The National Lung Screening Trial Research Team*

The NEw England JourNal of Medicine

Original Article

Reduced Lung-Cancer Mortality with Low-Dose Computed Tomographic Screening

The National Lung Screening Trial Research Team*

Introduction

The aggressive and heterogeneous nature of lung cancer has thwarted efforts to reduce mortality from this cancer through the use of screening. Blood tests and imaging techniques have not been effective, with studies indicating that low-dose CT detects many tumors at early stages. The National Lung Screening Trial (NLST) was conducted to determine whether screening with low-dose CT could reduce mortality from lung cancer.

Methods

From August 2002 through April 2004, we enrolled 53,454 persons at high risk for lung cancer at 33 U.S. medical centers. Participants were randomly assigned to undergo three annual screenings with either low-dose CT (2,732 participants) or single-view posteroanterior chest radiography (26,722 participants). Data were collected on cases of lung cancer and deaths from lung cancer that occurred through December 31, 2009.

Results

The rate of adherence to screening was more than 90%. The rate of positive screening tests was 24.3% with low-dose CT and 6.3% with radiography over all three rounds. A total of 96.6% of the positive screening results in the low-dose CT group and 94.9% in the radiography group were false positive results. The incidence of lung cancer was 645 cases per 100,000 person-years (3960 cancers) in the low-dose CT group, as compared with 572 cases per 100,000 person-years (941 cancers) in the radiography group (rate ratio, 1.15; 99% confidence interval [CI], 1.05 to 1.26).

There were 238 deaths from lung cancer per 100,000 person-years in the low-dose CT group and 309 deaths per 100,000 person-years in the radiography group, representing a relative reduction in mortality from lung cancer with low-dose CT screening of 20.4% (99% CI, 6.8 to 26.2; P = 0.004). The rate of death from any cause was reduced in the low-dose CT arm, as compared with the radiography arm, by 6.7% (99% CI, 1.2 to 13.6; P = 0.02).

Conclusion

Screening with low-dose CT reduces mortality from lung cancer. (Funded by the National Cancer Institute; National Lung Screening Trial ClinicalTrials.gov number, NCT00047385.)

There were 20% fewer lung cancer deaths in the LDCT arm compared with the CXR arm.

There were 6.7% fewer deaths from all causes in the LDCT arm compared with the CXR arm.
One of the most significant challenges in the implementation of lung cancer screening will be the management of positive findings.

Approximately 40% of adults experienced a false positive finding during 3 rounds of LDCT screening.

<table>
<thead>
<tr>
<th>Screening Round</th>
<th>Low-Dose CT</th>
<th>Chest Radiography</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total No. Screened</td>
<td>Positive Result</td>
</tr>
<tr>
<td>T0</td>
<td>26,309</td>
<td>7191 (27.3)</td>
</tr>
<tr>
<td>T1</td>
<td>24,715</td>
<td>6901 (27.9)</td>
</tr>
<tr>
<td>T2</td>
<td>24,102</td>
<td>4054 (16.8)</td>
</tr>
</tbody>
</table>
Nodule Size vs. Volume

• Historically, workup and surveillance has been based on nodule size and growth.
  – Fleishner Society
  – IELCAP
  – NLST
  – Nagano, Japan
  – Italian RCTs
  – Mayo
  – Etc

• Newer nodule management protocols are based on tumor volume and volume doubling time
Using Lung Lesion Size Alone as the Definition of a Positive Result

Objective: Assess alternative thresholds for the definition of a positive test.

- Measure the frequency of solid and part-solid pulmonary nodules and the rate of lung cancer diagnosis by using current (5 mm) and more restrictive (7 – 8 mm) thresholds of nodule diameter.
In the ELCAP Study, there were 21,136 participants, 12,078 with a nodule ≥ 1 cm, and 3,396 with a nodule ≥ 5 cm.

<table>
<thead>
<tr>
<th>Size of Largest NCN, mm</th>
<th>Frequency, n (%)</th>
<th>Cases of Cancer Diagnosed, n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0 to &lt;9.0</td>
<td>2558 (75.3)</td>
<td>8 (0.3)</td>
</tr>
<tr>
<td>9.0 to &lt;15.0</td>
<td>553 (16.3)</td>
<td>26 (4.7)</td>
</tr>
<tr>
<td>≥15.0</td>
<td>285 (8.4)</td>
<td>85 (29.8)</td>
</tr>
<tr>
<td>Total</td>
<td>3396 (100.0)</td>
<td>119 (3.5)</td>
</tr>
</tbody>
</table>

NCN = noncalcified nodule.
* Solid or part-solid.

Frequency of Positive Test Results (%) and Lung Cancer

Figure. Frequency of a positive result and cases of lung cancer diagnosed within 12 mo of baseline enrollment.

U.S. Primary Care MD’s Lung Cancer Screening Beliefs and Recommendations

- Nationally representative mailed survey of practicing PCPs was conducted in 2006–2007.
- 962 PCPs completed the survey
- Response rate = 70.6%
- 68% reported that > 1 patient had inquired about lung cancer screening

Primary care physicians’ recommendations for lung cancer screening, by patients’ smoking status

<table>
<thead>
<tr>
<th>Vignette</th>
<th>% Recommending Screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy never smoker aged 50 years</td>
<td>17.4</td>
</tr>
<tr>
<td>Healthy never smoker aged 50 years with smoking spouse</td>
<td>48.3</td>
</tr>
<tr>
<td>Otherwise healthy former smoker aged 50 years with 20 pack-year history who quit smoking 15 years ago</td>
<td>52.8</td>
</tr>
<tr>
<td>Otherwise healthy former smoker aged 50 years with 20-pack-year history who quit smoking 1 year ago</td>
<td>63.8</td>
</tr>
<tr>
<td>Otherwise healthy current smoker aged 50 years who has smoked 1 pack of cigarettes per day for 20 years</td>
<td>66.3</td>
</tr>
</tbody>
</table>

This slide is from an imaging center in Atlanta, using GROUPON to promote its services

Posted on May 29, 2013
Virtual Imaging, Inc. – Perimeter Center
Heart Scan and Consultation with Option for Lung Scan (Up to 96% Off)

From $19

Value: $499
Discount: 96%
You Save: $480

Give as a Gift
Learn more

Limited time remaining!

Over 1,000 bought
Limited quantity available

The deal is on!

In a Nutshell
Advanced CT scanner obtains diagnostic images that can show internal warning signs and help patients thwart major disease and illness.

The Fine Print
Expires 180 days after purchase. Limit 2 per person, may buy multiple additional as gifts. Must book appointment within 90 days of purchase. Valid only for option purchased. Appointment required. Not valid for patients with metallic implants, including pacemakers and splints as they may affect test results. Must be between 45 and 72 years old. Must be under 5’4”. Max weight 320 lbs. Married couples must redeem at the same time.
See the rules that apply to all deals.
Cancer Screening in the U.S....**How are we doing?**

- The *Healthy People 2020* target of 81% screening rate for *breast cancer* was not met in 2010, which reached 72.4%.
- The rate for *cervical cancer* was 83% compared to the 93% target.
- The rate for *colorectal cancer* was 58.6% compared to a target of 70.5%.
Interventions to Increase Preventive Care

- **Opportunistic Screening** (i.e., *coincidental*) is inherently limited compared with **Organized Screening**
  - Encounter based, not population based
  - Situational context of encounter is a limiting factor
  - Depends on MD (preoccupation, forgetfulness, lack of familiarity with recommendations, and most important, lack of systems)
  - Partial adherence is more likely than complete adherence, i.e., *some screening tests but not all screening tests*
  - More complex situations (follow-up, greater risk, etc.) are less likely to be properly addressed
The Current Challenge

• There are a number of effective interventions to increase cancer screening, but their individual impact is modest
• Multi-modal interventions hold the greatest promise
• The current system does not support the most effective interventions
  – A health care professional engaged with your care
  – Supportive reminder and tracking systems
The Current Challenge

• Health care reform, and in particular, the ACA and the Medical Home, offer great potential to increase rates of regular screening through:
  – Access
  – Personalized preventive health plans
  – Time for prevention
  – Systems

• However, Payment models must accommodate these needs
Thank you