MAMMOGRAPHY AND BREAST CANCER SCREENING: THE NEW GUIDELINES

Ted A James, MD, MHCM, FACS
UVM Professor, Department of Surgery
Director, Skin & Soft Tissue Surgical Oncology
University of Vermont Medical Center
THE BREAST CANCER SCREENING DEBATE
THE BREAST CANCER SCREENING DEBATE
EXCEPTIONS TO THE RULE

- Lifetime risk of breast cancer > 20 to 25%
  - Known genetic predisposition (e.g. BRCA)
  - Strong family history
  - Early therapeutic chest irradiation
NEW YORK HEALTH INSURANCE PLAN TRIAL

First RCT screening; 62,000 women ages 40-64

Michael Shimkin  Samuel Shaprio  Phillip Strax
NEW YORK HIP TRIAL

![Graph showing probability of death (case fatality rate, percent) over years after diagnosis of breast cancer. The graph compares the control group with the study group (total).](image-url)
HISTORY OF MAMMOGRAPHY

EARLY DETECTION SAVES LIVES...
... IT MAY SAVE YOURS!

Detección a tiempo
salva vidas... Quizas la suya!

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BREAST CANCER SCREENING MOVEMENT
EFFECT OF MAMMOGRAPHY AGE 40-49

15-23% reduction in mortality; however, includes women continuing screening in their 50s

Armstrong K et al., Ann Int Med 2007
IMPACT OF SCREENING

1964-1986: 5YS Breast Cancer

- Harlem Hospital: 39%
- SEER White: 73%
- SEER Black: 69%

Large majority presented with advanced stage disease

Freeman HP et al., Cancer, 1989
IMPACT OF SCREENING

Harlem Hospital, 1959

1964–1986

<table>
<thead>
<tr>
<th>Stage</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>27</td>
<td>6</td>
</tr>
<tr>
<td>II</td>
<td>195</td>
<td>45</td>
</tr>
<tr>
<td>III</td>
<td>171</td>
<td>39</td>
</tr>
<tr>
<td>IV</td>
<td>44</td>
<td>10</td>
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</tbody>
</table>

- Five-year survival: 39%

Freeman HP et al., Cancer, 1989
IMPACT OF SCREENING

• Five-year survival: 70%

Harlem Hospital Today

<table>
<thead>
<tr>
<th>Stage</th>
<th>n</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>36</td>
<td>12</td>
</tr>
<tr>
<td>I</td>
<td>87</td>
<td>29</td>
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<tr>
<td>II</td>
<td>116</td>
<td>38</td>
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<td>III</td>
<td>44</td>
<td>14</td>
</tr>
<tr>
<td>IV</td>
<td>22</td>
<td>7</td>
</tr>
</tbody>
</table>

Oluwole SF et al., JACS 2003
ADVANCES IN SCREENING
RADIATION RISKS?

Which button do I push?

Usually we just punch 'em both.

Detect cancer, cause cancer.

Mammogram 5000 control panel.

Concept: Mike Adams, Art: Dan Berger. www.naturalnews.com
RISK OF RADIATION

- Annual screening 40-55 and then biennial to age 74
- Estimated risk of causing cancer is 86 per 100,000 (0.086%)
- Estimated risk of death 11 per 100,000 (0.011%)

Ratio of benefit to risk
- 4.5-to-1 for lives saved
- 9.5-to-1 for life-years saved

Yaffe MJ et al., Radiology 2011
RISKS OF SCREENING

- **Stress** and **Anxiety** from call backs

- Biopsy and interventions for **False Positive** findings

- **Over treatment** of “indolent” cancers

- **Limitations** of mammography in **younger women**
STRESS AND ANXIETY

A. F. W. van der Steeg et al., BJS 2010
OVER DIAGNOSIS

• Cochrane Review

• For every 2000 women screened over a 10 years
  
  ❑ 1 life prolonged
  
  ❑ 10 healthy women treated unnecessarily
  
  ❑ 200+ women psychological distress false positive

Gøtzsche PC et al., Cochrane Library 2011
# IMPACT OF SCREENING ON OUTCOMES

## TABLE IV. Age- and Year-Adjusted Odds Ratios for Adverse Tumor Characteristics According to Screening Participation (1996–2012) AGES 40–49

<table>
<thead>
<tr>
<th></th>
<th>Screened</th>
<th>Non-screened</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invasive (vs. in situ)</td>
<td>1.00 (Ref)</td>
<td>4.85 (3.40, 6.91)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Late stage</td>
<td>1.00 (Ref)</td>
<td>2.77 (2.20, 3.48)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Large size</td>
<td>1.00 (Ref)</td>
<td>3.70 (2.90, 4.73)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>High grade (vs. low/intermediate)</td>
<td>1.00 (Ref)</td>
<td>1.33 (1.04–1.69)</td>
<td>0.02</td>
</tr>
<tr>
<td>ER negative</td>
<td>1.00 (Ref)</td>
<td>1.50 (1.11, 2.03)</td>
<td>0.01</td>
</tr>
<tr>
<td>Any nodes removed</td>
<td>1.00 (Ref)</td>
<td>1.89 (1.44, 2.48)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Regional nodes removed</td>
<td>1.00 (Ref)</td>
<td>1.94 (1.54–2.44)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Nodes positive</td>
<td>1.00 (Ref)</td>
<td>2.48 (1.97, 3.13)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Mastectomy</td>
<td>1.00 (Ref)</td>
<td>1.28 (1.00, 1.62)</td>
<td>0.05</td>
</tr>
</tbody>
</table>

*aAll analysis adjusted for year and age.*

SUMMARY: SCREENING MAMMOGRAPHY

- Reduced mortality ✓
- Extent of lives saved ?
- Harms of screening ×
- Impact on quality of life ?
OVERVIEW OF THE ACS RECOMMENDATION

New Breast Cancer Screening Guideline
for women with average risk

AGE 40
Talk with your doctor about when to begin screening. Women should have the opportunity to begin screening if they choose.

AGE 45
Begin yearly mammograms by age 45.

AGE 55
Transition to mammograms every other year at age 55 or continue with annual mammography, depending on your preferences.

AGE 55 +
Continue to have regular mammograms for as long as you're in good health.
### ACS AND USPSTF 2015 BREAST CANCER SCREENING GUIDELINES

<table>
<thead>
<tr>
<th>Mammography Screening Parameter</th>
<th>ACS</th>
<th>USPSTF</th>
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<tbody>
<tr>
<td>Starting age (y)</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td>Screening frequency</td>
<td>Annually to age 54 y, then biennially</td>
<td>Biennially, beginning at age 50 y</td>
</tr>
<tr>
<td>Stopping age (y)</td>
<td>As long as in good health and a life expectancy of at least 10 y</td>
<td>75</td>
</tr>
<tr>
<td>Total lifetime mammograms if screening continued to age 74 y (n)</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>Lifetime risk of dying of breast cancer (%)</td>
<td>1.8-1.9</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Lifetime risk of dying of breast cancer with no screening is 2.7%.
CLINICAL BREAST EXAM
THANK YOU

Ted A. James, MD, MHCM, FACS
UVM Professor of Surgery and Medical Director, UVM Medical Center.
Board Member, New England Division American Cancer Society