Screening Mammography: Who, what, where, when, why and how?

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Disclosures

I have no disclosures.
What is the controversy?

• Historically, screening mammography was recommended annually starting at the age of 40.

• However, in 2009, USPTF came out with preliminary recommendations recommending biennial screening mammography for 50-74; optional before 50 and optional for 75+.
  • This was based on ACTUARIAL data regarding breast cancer diagnoses per decade, along with call back rates, false positive rates, biopsy numbers, # cancers diagnosed per biopsy, etc.
The controversy unfolds...

• Congress acted quickly to ensure that women were still able to undergo annual mammograms in spite of the USPTF recommendations.

• Then in October 2015, ACS came out with new recommendations that recommended women to start annual SM from 45-54, then biennial SM from 55-life expectancy is <10 years

• In 2016, USPTF came out with its final recommendations, which affirmed the previous recs.
What about other groups?

• ACOG continues to support annual SM from 40 onwards.
• ASBrS has a hybrid recommendation (Oct. 2015)
  • Discuss risks and benefits between 40-44
  • Annual SM from 45-54
  • Annual or biennial for 55+
  • Biennial SM for 75+ if life expectancy is >10 years
  • Consider tomosynthesis for screening
• RISK ASSESSMENT TOOL TO DETERMINE RISK AND SCREEN ACCORDING TO RISK
So why the change?

http://ww5.komen.org/BreastCancer/GettingOlder.html
So who gets called back?

More biopsies are done to diagnose younger women

Positive predictive value at 40 is ~15%
Positive predictive value at 79 is ~50%

PPV doesn’t magically change at age 50

Who to screen?

• Women

When to screen?

• Consensus from all groups that screening needs to be based on RISK.
How do you determine risk?

• Risk Calculators
  • Can either help you determine if a patient is at risk for
    • GENETIC cancer syndrome
    • INCREASED RISK of breast cancer in their lifetime.
  • In this case, what we care about is INCREASED RISK of breast cancer.
  • The GENETIC piece ought to be referred to a high risk center for genetic counseling and testing, if appropriate.
Risk models: What do they include?

• Hereditary information –
  • History of breast cancer in the family
  • Personal history of breast cancer
• Hormonal information –
  • Menarche, menopause, reproductive info
  • BMI
• Pathologic information –
  • History of biopsies
  • Atypia on biopsies
Risk Calculator example

• IBIS risk tool
Each model estimates risk differently:
What are the risk categories (lifetime)?

- **Average**: < 20%
- **Moderate**: >20%
- **High**: >50%
What are the risk categories (lifetime)?

**Average**
- No/low family history
- Benign biopsy
- Low MMG density

**Moderate**
- Strong family history
- Atypia on biopsy, LCIS
- High MMG density
- Chest wall XRT as child

**High**
- BRCA mutation (and others)
- Very strong family history
- ? LCIS at young age
Who do you screen once you know the risk?

Very high risk: BRCA >50% lifetime risk

- Age 18 – Breast Awareness
- Age 25
  - Clinical breast exam every 6-12 months
  - Start BC screening with annual MRI
- Age 30-75
  - Annual SM and annual MRI
- Discuss Risk-reducing mastectomy
- Discuss removal of tubes and ovaries (age 35-40)
Who do you screen once you know the risk?

Moderate risk: > 20% lifetime risk

- Breast Awareness, healthy lifestyle
- No earlier than age 30:
  - Clinical breast exam every 6-12 months
  - Annual mammography, consider tomosynthesis
  - Consider annual MRI
- Recommend risk reduction strategies
- Discuss Risk-reducing mastectomy*

Degnim Breast Cancer Risk Lecture ASBrS 2016
Who do you screen once you know the risk?

- Breast Awareness, healthy lifestyle
- Discuss SM risks/benefits around age 40
- Annual SM 45-55, every few years > 55
- Consider supplemental screening for high density

Average risk: \( \leq 20\% \) lifetime risk

NCCN Breast Cancer Screening and Diagnosis 1.2016
What is the best screening test?

• Digital Mammography (2D)
  • Limits: 2D image of 3D structure – overlapping tissue, especially in dense breasts.

• 3-D Mammography
  • Advantages: improved sensitivity, decreased callbacks
  • Limits: slightly higher radiation dose, longer time to interpret, more costly

• Screening Ultrasound
  • Advantages: safe, relatively cheap, sensitivity not impacted by dense background
  • Limits: user dependent!, high rate of benign findings, low yield for avg risk, high density women

• MRI – only for use when lifetime risk > 20%
  • Advantages: high sensitivity, high cost
  • Limits: low specificity, high call backs, required IV contrast
Where should your patient be screened?

• Preferably the same place every time.
• Preferably on a digital unit
• Preferably at an NAPBC approved location.
What about density?

• What is breast density?
  • More fibrous or glandular tissue compared to fat.

• Who determines density?
  • Radiologist reading the film. Not a physical exam finding. There are 4 categories of density.
Breast Density Categories

Predominantly Fatty: 10%
Scattered Fibroglandular: 40%
Heterogeneously Dense: 40%
Extremely Dense: 10%
What’s the problem with density?

- Decreased sensitivity of mammograms

<table>
<thead>
<tr>
<th>Study</th>
<th>Fatty</th>
<th>Extremely Dense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carney et al</td>
<td>87%</td>
<td>63%</td>
</tr>
<tr>
<td>Kerlikowske</td>
<td>86%</td>
<td>68%</td>
</tr>
<tr>
<td>Kavanaugh</td>
<td>85%</td>
<td>55%</td>
</tr>
</tbody>
</table>
What’s the problem with density?

- Increased risk of breast cancer

<table>
<thead>
<tr>
<th>% DENSITY</th>
<th>RELATIVE RISK (COMPARED TO &lt;5%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5- 24</td>
<td>1.79</td>
</tr>
<tr>
<td>25- 40</td>
<td>2.11</td>
</tr>
<tr>
<td>50- 74</td>
<td>2.92</td>
</tr>
<tr>
<td>&gt;= 75</td>
<td>4.64</td>
</tr>
</tbody>
</table>
What influences breast density?

• Many factors influence breast density
  – Obesity
  – Age
  – Stage of menstrual cycle
    • Density tends to decrease during and after menopause
  – Number of live births (parity)
    • Lower density and overall lower cancer risk
  – Genetics
  – Hormone replacement therapy
    • Estrogen and progesterone combo increases breast density to a greater degree than estrogen alone
So what am I supposed to do with these dense breast reports???

• For all women with dense breasts, consider tomosynthesis.
• For average risk women with dense breasts, ultrasound
• For intermediate and high risk women, MRI
C’Mon, Lloyd, WHAT IS THE TAKEHOME?

• Screen based on RISK
• Determine RISK by a calculator
• 3D for dense breasts
• When in doubt, e-mail or call.
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  • 305-9218