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# Breast Cancer

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# Breast Cancer Screening

- Ten clinical trials suggest mammography reduces relative risk of mortality by 20% for women aged 40 to 75.
- Mammography and Clinical Breast Examination are Recommended for normal risk women
- Controversies
  - Age 40 and over vs age 50 and over (soon age 45?)
  - Every year vs every two years
  - Quality of image and quality of radiologist



# Breast Cancer Screening

- Screening will miss some disease that we wish we could find especially among younger women with dense breasts (False Negatives).
- Screening will find some disease that does not need treatment (overdiagnosis).

Smith RA et al, CA Cancer J Clin 2012




# Breast Cancer Screening

High quality programs in which women aged 50 to 75 years receive a mammogram and breast examination every one to two years appear to reduce risk of breast cancer death.

- The breast examination should be done by a trained professional\*
- The programs are more efficient among older women

\*No study shows CBE beneficial



# Important Questions in Mammography Screening

- At What Age Should Screening Start?
  - Age 40 or Age 50
- How Often Should Screening Be Done?
  - Annual or Biennial

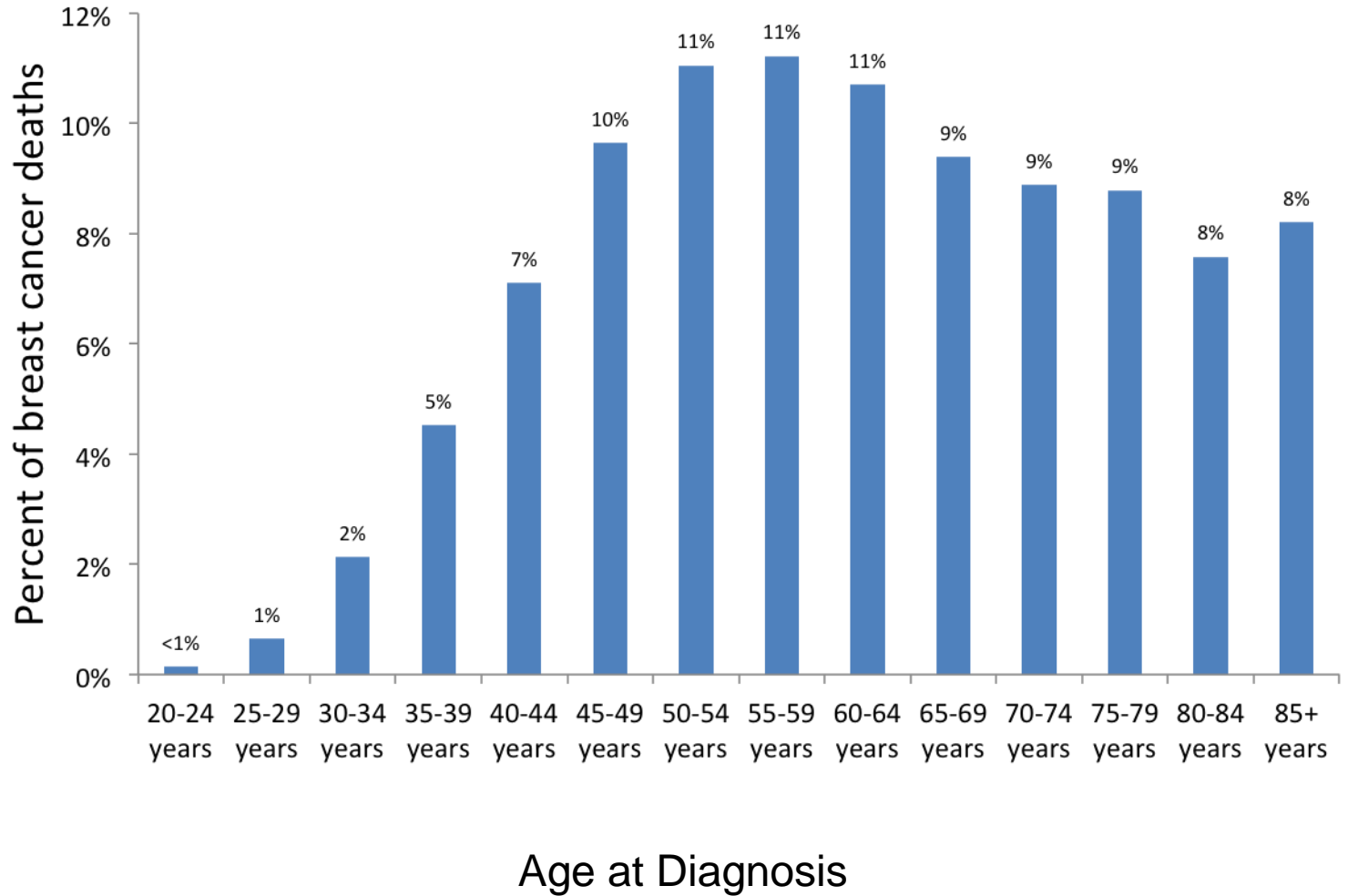


# Breast Cancer Screening

Screening women aged 40 to 49 is controversial. Most studies show a very large number of women need to be screened to benefit one woman.

Beginning Screening at 50 vs 40 significantly decreases a woman's lifetime risk of a false positive screen while having little effect on her risk of breast cancer death.

Distribution of breast cancer deaths by age at diagnosis, 2007-2011.  
Source: SEER 9 registries, patients followed for 15 years after diagnosis







# Mammography

## Women Age 40 to 49

- Lower risk of cancer
- Tend to have higher density
- Effective false positive rate is 21 to 24% higher than women 50 to 59
- Tumors tend to be faster growing

Ong and Mandl, Health Affairs 2015



# Mammography

- Operational Characteristics are dependent on radiologist's skill.
- Increasing with patient age:
  - Sensitivity
  - Specificity
  - Positive Predictive Value(translated mammography is not as good a test for women age 40 to 49 vs 50 and over!)



# 2015 ACS Breast Cancer Screening Guideline – Preface Statement

- These recommendations represent guidance from the American Cancer Society (ACS) for women with an average risk of breast cancer - an individual may reach a decision about breast cancer screening that is different from this guidance.
- The ACS recommends that all women should become familiar with the known benefits, limitations, and potential harms associated with breast cancer screening.



## Preface Statement, cont.

- We considered average-risk women as those without a personal history of breast cancer, a genetic mutation known to increase risk of breast cancer (e.g., BRCA), or a history of previous radiotherapy to the chest at a young age.



## The Risk within Average Risk Varies

- 80% to 90% of women will fall into the average risk category
- Risk is not equal within this group:
  - Family history
  - Age of childbearing
  - African American women may be at slightly `higher risk



# Grading Recommendation Statements

- A ***Strong Recommendation*** conveys the consensus that the benefits of adherence to that intervention outweigh the undesirable effects that may result from screening.
- A ***Qualified Recommendation*** indicate there is clear evidence of benefit of screening but less certainty about the balance of benefits and harms, or about patients' values and preferences, which could lead to different decisions about screening.



# 2015 ACS Breast Cancer Screening Guideline

1. Women with an average risk of breast cancer should undergo regular screening mammography starting at age 45 years. **(Strong Recommendation)**

1a: Women who are ages 45 to 54 years should be screened annually. **(Qualified Recommendation)**

1b: Women who are 55 years and older should transition to biennial screening or have the opportunity to continue screening annually. **(Qualified Recommendation)**

1c: Women should have the opportunity to begin annual screening between the ages of 40 and 44 years. **(Qualified Recommendation)**



## 2015 ACS Breast Cancer Screening Guideline, cont.

2. Women should continue screening as long as their overall health is good and they have a life expectancy of 10 years or longer. (Qualified Recommendation)
3. The ACS does not recommend clinical breast examination for breast cancer screening among average-risk women at any age. (Qualified Recommendation)



# Current Breast Cancer Screening Guidelines for Average Risk Women: ACS (2015); Draft USPSTF (2015)

Recommendation	ACS	USPSTF (Draft)
Breast Self Exam (BSE)	Not recommended	Against clinicians teaching BSE (D)
Clinical Breast Exam (CBE)	Not recommended	Insufficient evidence (I).
<p>Mammography USPSTF GRADES (A &amp; B, C, D, I)</p> <p>ACS S = Strong Q = Qualified</p>	<p>40-44: Opportunity for informed decision (Q), Annual (Q)</p> <p>45-54 (S): Annual (Q)</p> <p>55+ Biennial (Q), with option to continue annual screening (Q)</p> <p>75+ Continue screening as long as health is good and life expectancy 10+ yrs (Q)</p>	<p>40-49: Individual decision (C)/Biennial</p> <p>Ages 50-74: Biennial (B)</p> <p>Ages 75+ : Insufficient evidence (I)</p>

# Clinical Breast Exam (CBE)

- Important to not place too much emphasis on CBE screening.
- While CBE will detect some tumors, it will not detect the majority of breast cancers.
- CBE is important where mammography is not available

## Breast Cancer Detection Among US Women 20-44

<b>Self</b>	71.2%
<b>CBE</b>	9.3%
<b>Mammography</b>	19.6%

# Concluding Fact:

We need to understand the limitations of our current technologies:

- A test that leads to a 20 percent reduction in relative risk of death means that test does not help 80 percent of the people who are destined to die of the disease
- We need a better test!!!!

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