I have no financial disclosures

I am a medical oncologist with a practice focused on breast cancer
The Questions

• What clinical considerations should drive the choice of screening method, i.e., mammogram, ultrasound, or MRI?
• What screening intervals are now recommended?
• What is the evidence regarding clinical breast examination and breast self-examination?
Definitions

• ACS-American Cancer Society
• NCCN-National Comprehensive Cancer Network
• USPSTF-United States Preventive Services Task Force
Breast Cancer Statistics: US Women

• 231,000 new cases of invasive breast cancer
  – 60,000 new cases of noninvasive breast cancer
• 40,290 deaths per year
  – Lung cancer deaths 70,734 in 2012
• 12.4% of women born in the US will develop breast cancer during their lifetime
• Median age at diagnosis is 62
  – Slightly younger for African American women

2.9 million in US living with and beyond breast cancer
Risks by Age

• Age 30 1 in 227 (0.44%)
• Age 40 1 in 68  (1.47%)
• Age 50 1 in 42  (2.38%)
• Age 60 1 in 28  (3.56%)
• Age 70 1 in 26  (3.82%)

• Translates to 1 in 8 lifetime risk
  • SEER data, NCI, 2016
Risk Factors

- Female
- Age: median 57-62
- Family history
- Previous biopsies
- Atypical changes
- BRCA positive (High)
- Hormone replacement
- Alcohol use

- Obesity
- North European
- No pregnancies
- Late in life pregnancies
- Dense breasts
- Chest wall irradiation (High)
- Oral contraceptives: ?long term use
Reason for Screening

• The goal with any screening test is to reduce morbidity and mortality from a disease
• It should be cost effective
• It should have minimum adverse effects
• Ideally, it should be readily available with good quality controls
• For this talk: we are referring to the woman who has not had breast cancer
Breast Cancer Screening

• Women often overestimate their risks of getting and dying from breast cancer
• Pink: commercialization of breast cancer
• Habits are hard to alter
• Risk reduction strategies are limited
• How do you define the average risk woman?
• Do physicians have the time to adequately explain risks and benefits of screening?
Breast Self Exams

- BSEs first started in the 1930s; gained more recognition in the 1950s-1960s due to teaching film; by the 1970s, questions about usefulness arose.
- Long standing recommendations were to start by age 30, do monthly, for years.
  - Does this increase fear and anxiety?
  - Does this lead to more MD visits and biopsies for benign lumps?
  - Are women adequately trained to do good self exams?
- No benefit to BSE especially between ages 40-50.
  - CMAJ 2001 Jan 26
- ACS and USPSTF: do not recommend routine breast self exams.
- Other medical groups: women should be aware of their breasts and report any changes.
  - Changes include new lumps, nipple discharge, puckering of skin, redness, dimpling.
- Advocacy groups: many still suggest regular exams.
Clinical Exam by Medical Provider

• Breast exam may alter type of mammogram ordered (screening vs diagnostic)

• Who do the most exams before imaging?
  – OBGYN 81.6%
  – Family Practice 50.5%
  – Internal Medicine 45.5%
    • Breast J 2015, Dec.

• Is there clear mortality reduction?
  – Difficult to assess
Current Recommendations

• ACS does not recommend regular breast exams (no impact on mortality)
• USPSTF recommends yearly breast exams and mammograms
• Several studies, especially, in areas with limited mammogram access, recommend breast exam as part of early detection
• Shouldn’t we as internists do a breast exam if doing a physical? We listen to the heart, etc.
  – One review suggested physician time better spend on discussion about risks/benefits of imaging rather than on physical exam
Breast Imaging Modalities

Mammography is the only modality shown to impact mortality by early detection.
Ultrasonography

- Not indicated for routine cancer screening
- Most useful in younger women to assess lumps
- May have a role as adjunct to mammogram for screening dense breasts
- Role of automated ultrasound has yet to be determined
- May not be reimbursed if used for screening
Mammogram 2D

• Best data for reducing mortality (by early detection) from breast cancer particularly between ages of 50-70

• Digital has supplanted film in most centers
  – May have some advantage in dense breasts

• Breast imaging accreditation is available for imaging centers
3D or Tomosynthesis

- New technique-similar process for a woman as the 2D
- Not always covered by insurance
- No clear data that it is better than 2D
- Used in combination with 2D there may some improvement in early detection with dense breasts
Magnetic Resonance Imaging (MRI)

- Very limited role in screening
- Should always be done in conjunction with mammography
- Can be considered for women who have a lifetime risk of 20-25% or greater
- Past history of breast cancer does not automatically put a woman in a high risk category
  - Contralateral risk 10-15%
  - Ipsilateral after radiation therapy 5%
What is considered high risk?

- Lifetime risks of 20% or greater as defined by risk calculator tools such as Claus
- Known BRCA1/BRCA2 mutation
- First degree relative with BRCA mutation
- Radiation to chest between the ages of 10 to 30
- Other known familial syndromes with breast cancer risk: Cowden, Li-Fraumeni
The in between

• There are women who have a lifetime risk of between 10-20%  
  – The role of MRI screening in these women has yet to be determined  
  – Some women who have had previous breast cancer fit in this group
Other Modalities

- Thermography
  - No data to show that it detects cancer early
  - 2012 review suggests that it misses 3 out of 4 ca.
- Galactogram
  - Only in special situations
- PET Scan
  - Not sensitive enough
- Scintimammography
  - Less effective
- Electrical Impedence-exp
- Optical imaging-exp.
- Molecular breast imaging
  - Experimental
- Positron Emission mammography-experimental
Mammogram Screening

• Standard-NCCN
  – Start at age 40
  – Yearly
  – Stopping – discussion with physician – life expectancy <10 years

• USPSTF
  – Age 40-49-discussion with MD
  – Age 50-74-every 2 years
  – After age 74-insufficient evidence
Mammogram Screening

• American Cancer Society
  – Age 40-44-discussion with MD
  – Age 45-55 yearly
  – >age 55 every 2 years
  – Continue unless life expectancy <10 years
  – Patient choice for yearly trumps all
    » ACS, Oct 2015

• ACOG
  – Follows NCCN with yearly starting at age 40
Breast Cancer-Survival at 5 years

- Stage 0 100% ductal carcinoma in situ
- Stage 1 100% <2 cm, no nodes
- Stage 2 93% may be as low as 85%
- Stage 3 72%
- Stage 4 22% Distant disease

- Stage is at the time of original diagnosis
  - ACS 2015/SEER/ASCO
Age-Adjusted U.S. Mortality Rates
By Cancer Site
All Ages, All Races, Female
1975-2012

Cancer sites include invasive cases only unless otherwise noted.
Mortality source: US Mortality Files, National Center for Health Statistics, CDC.
Rates are per 100,000 and are age-adjusted to the 2000 US Std Population (19 age groups – Census P25-1130). Regression lines are calculated using the Joinpoint Regression Program Version 4.2.0. April 2015, National Cancer Institute.
Why are the changes controversial?

• Breast cancer mortality is declining
  – Hard to tease out how much is better treatment vs. earlier detection
  – The number of late stage breast cancers has not changed

• Still much to learn about predicting growth rate of cancers
  – Change to biennial in part based on cancer growth rates
The Worries

• Will we see more advanced cancers if mammogram intervals are increased or if initiation is delayed?
  – So far not seen in retrospective reviews

• Do the call backs and additional biopsies cause more harm or are they reassuring for women?
  – Most call backs are on the first mammograms

• Is there time to adequately counsel patients on pros and cons?
Should menopausal state play a role?

- Breast Cancer Surveillance Consortium in JAMA Nov 2015
  - Premenopausal women with biennial mammograms were more likely to have less favorable tumor characteristics
  - Postmenopausal women had no differences based on screening intervals unless they were on HRT (a risk factor)

- New ACS guideline starts screening at age 45
  - 45-50 year olds are closer to postmenopausal
The Physician Discussion

• The ACS and USPSTF recommend that physicians discuss the risks and benefits of mammography and the intervals
  – If there are risk factors, then consider yearly mammograms
• With physician help, women are to determine what is right for them
  – Will this lead to patient comfort or contribute to future guilt if the decision is to do less intensive screening and a later stage cancer is found?
• A woman’s choice trumps the guidelines
  – Does the fear of breast cancer drive the decision?
Overdiagnosis?

• Mammograms and MRIs may show abnormalities prompting biopsies
• Many early detected cancers are unlikely to contribute to mortality---how do we determine which ones?
  – Now, we treat based on limited characteristics
  – It is imperative that we help women understand the risks of recurrence of their cancer so that they can make informed treatment decisions
Overtreatment

• Need to better understand which cancers are at the biggest risk of recurrence
  – Information derived from cancer gene patterns helps define recurrence risk and treatment needs thus often eliminating chemotherapy
    • Oncotype, Pam 50, Mammoprint
  – Radiation therapy trials now support the elimination of XRT in some low risk patients

• Misplaced fears about recurrence risks
  – Too many double mastectomies
Virginia

5-Year Rate Changes - Mortality
Virginia, 2008-2012
All Ages, Females, All Races (incl Hisp)

Created by statecancerprofiles.cancer.gov on 02/08/2016 10:46 pm.

Source: Death data provided by the National Vital Statistics System public use data file. Death rates calculated by the National Cancer Institute using SEER*Stat. Death rates (deaths per 100,000 population per year) are age-adjusted to the 2000 US standard population (19 age groups: <1, 1-4, 5-9, ..., 80-84, 85+). Population counts for denominators are based on Census populations as modified by NCI. The 1990-2015 US Population Data file is used with mortality data. Please note that the data comes from different sources. Due to different years of data availability, most of the trends are AAPCs based on APCs but some are FAPCs calculated in SEER*Stat. Please refer to the source for each graph for additional information.

* = Unable to calculate annual percent change due to insufficient counts.
# = The annual percent change is significantly different from zero (p<0.05)
What do I do?

- Women (and men) need to be aware of their bodies. They need to report changes to their physicians.
- I still support yearly mammograms starting at age 40 until we can better understand cancer behavior. I can support waiting until mid 40s in an average-risk woman.
- When we can better determine how a cancer could act, then we can reduce our early screening.
- Stop mammograms if <10 year predicted survival or individual would not have additional surgery or evaluation.
Take Back Pink

• I am ever grateful to those who focus on breast cancer awareness and education and provide significant financial support for research. Research will make the difference.

• However, we should not celebrate breast cancer; we celebrate that more are living beyond it and that there are people dedicated to increasing those numbers and trying to understand why cancer happens.
Read More About It


• American Cancer Society www.cancer.org

• Annals of Internal Medicine: Feb.16,2016

• ASCO Post November 25, 2015-multiple discussions on imaging
Read More About It


Thank you