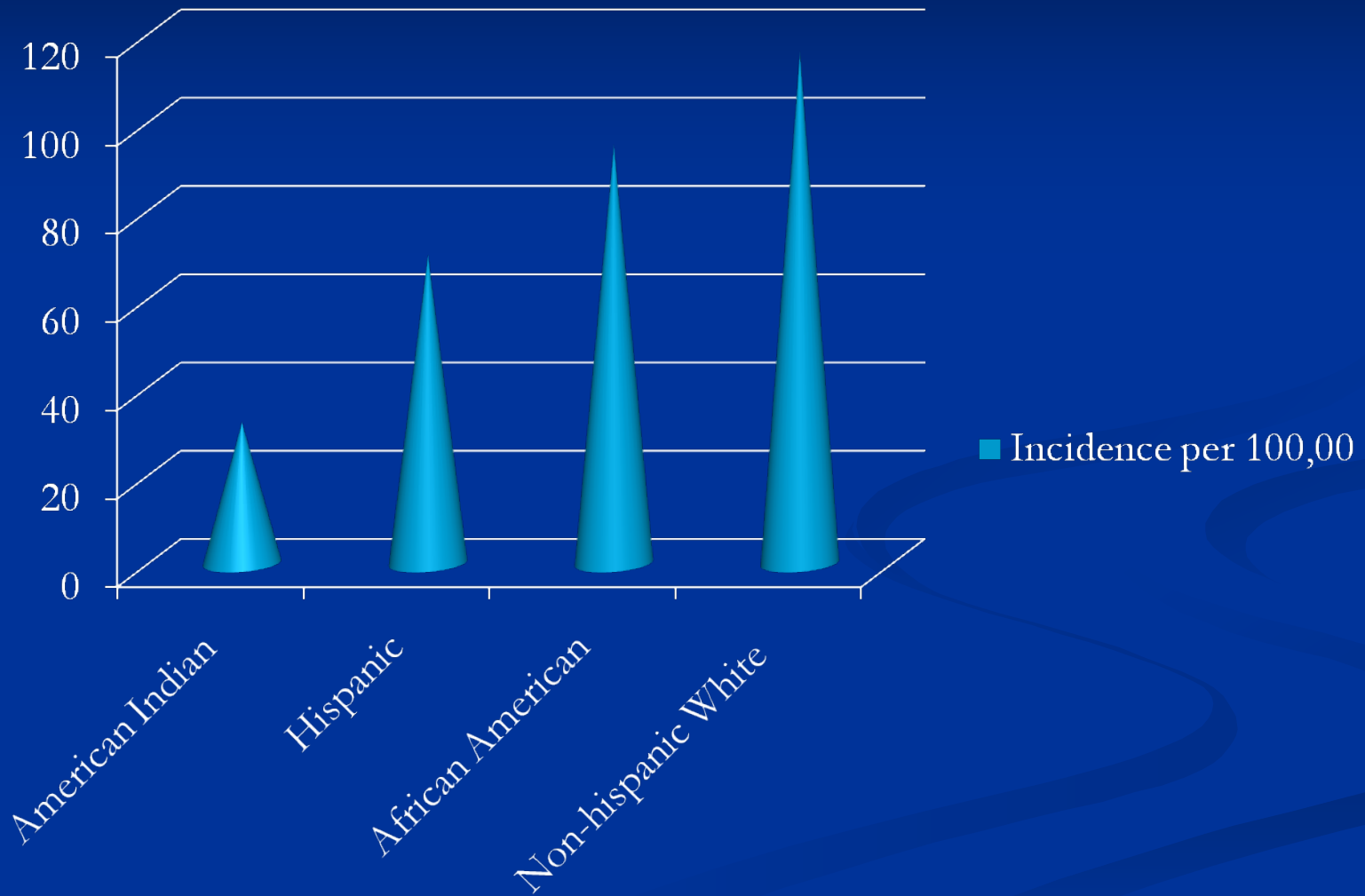# Breast Cancer Screening

Shannon Myers FNP-C

Objectives

- Discuss differences in malignant breast disease in the American Indian/Alaska Native population vs. the general population

- Discuss Tillman / Myers study

- Discuss how to improve mammography screening and GPRA mammography rates

Incidence of Breast Cancer in United States

Compared with other ethnic/racial groups in the United States, AI/AN women have:

- the lowest incidence of breast cancer

- the lowest breast cancer survival rate or any ethnic group in U.S.

Tillman & Myers Study
Status of Patients at Presentation

- 21% abnormal mammogram

- 68% palpable mass
  - Patient discovered the mass herself 89%
  - Healthcare provider found the mass 11%

- 11% evidence of advanced disease

Tillman, Myers, et. al. *Breast Cancer in Native American Women Treated at an Urban-based Indian Health Referral Center 1982-2003*. Am J Surg 190 (2005) 895-902

Tillman & Myers Study:
Status of PIMC Patients at Presentation

- 68% had one or more co-morbid condition and almost 1/3rd were diabetic *Co-morbid disease had no correlation with tumor size or stage

- History of any hormone use was significant
  *Hormone use correlated with smaller tumor size at diagnosis (p=0.003)

Status of PIMC Patients at Presentation

- Over 80% were overweight or obese (increased risk of regional or metastatic disease - more serious disease - with higher BMI)

- 42.9% of overweight and 59% of obese patients (p=0.019) had more serious disease at presentation

  80% of normal BMI patients had in situ or local disease (less serious) at presentation

Patient Outcomes

- Average age at diagnosis was <u>54</u>

Nationally, average age at diagnosis is 64

- Average tumor size at diagnosis was <u>3.3 cm</u>

Nationally, average tumor size is about 2 cm

# Why are we diagnosing patients at a later stage?

- We have lower screening rates

- Our patients and providers may have the misconception that breast cancer is rare in the Native population, so rigorous screening is not pursued

Why are we diagnosing patients at a later stage?

- In 1999, a total of 14 / 50 IHS hospitals had fixed mammography units

- One study found that only 1/3rd of Native diabetic women aged 50-69 and living in Phoenix had ever had a mammogram, despite having a co-morbid condition for which they were seeing a healthcare provider

Giroux J, Welty TK, Oliver FK, et al. Low National Breast and Cervical Cancer-Screening Rates in American Indian and Alaska Native Women with Diabetes. JABFP. 2000;13:239-245

5-year survival for PIMC patients 62%; compared to 86% nationally - why?
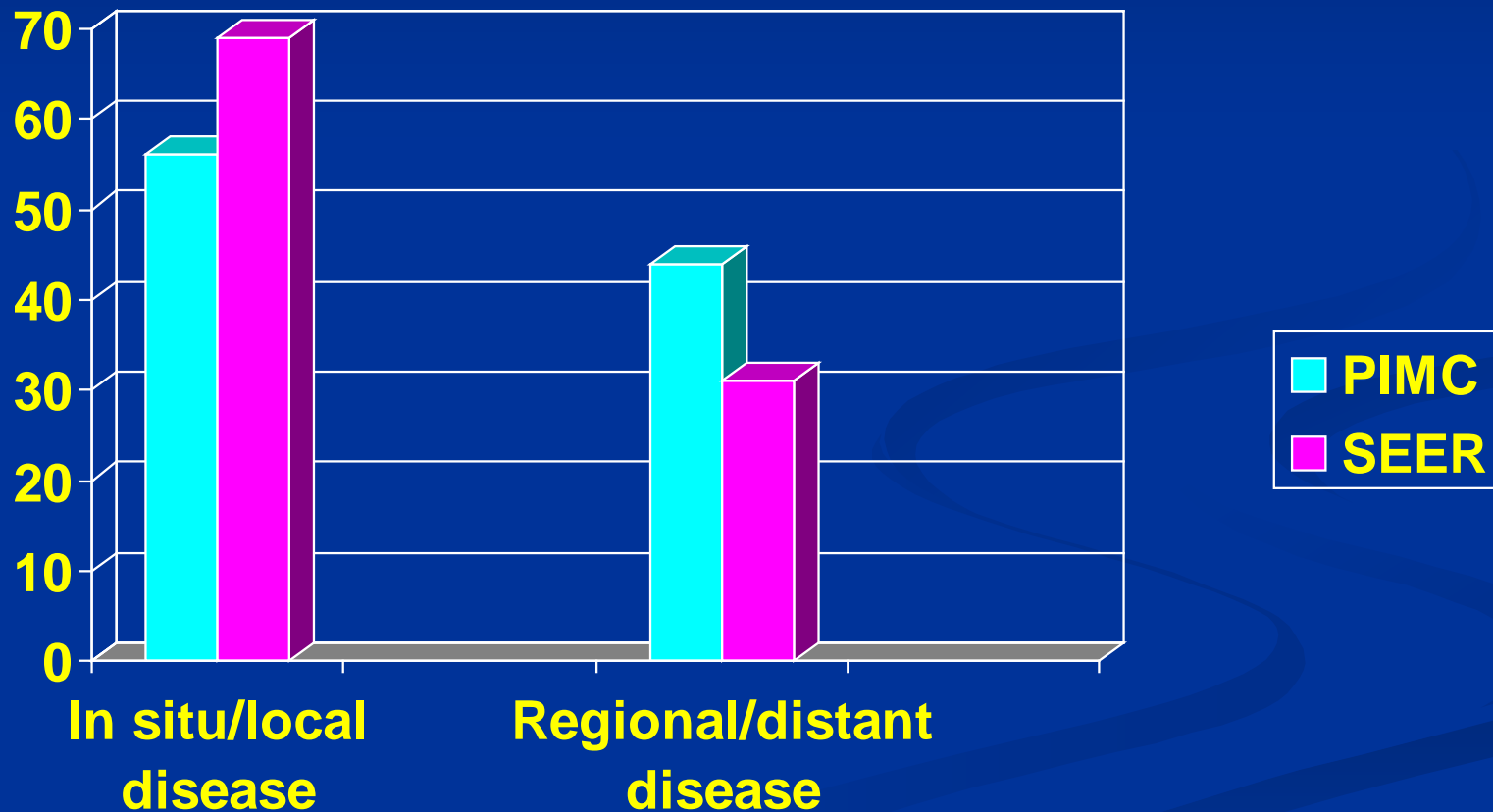
Tillman, Myers, et. al. *Breast Cancer in Native American women treated at an urban-based Indian health referral center 1982-2003.* Am J Surg 190 (2005) 895-902

AI/AN women in Tillman's Study:

- Presented at later stage of malignancy
- Were more likely to undergo mastectomy
- Had greater delays to seeking treatment

* This data suggests a need for increased breast cancer education for AI/AN women and their providers to facilitate earlier detection and adequate treatment

Effects of lower screening rates

From 1992 to 2002, death rates in the from breast cancer in the U.S. declined annually by:

- 2.4% for whites

- 1.8% for Hispanics

- 1.0% for African Americans and Asian Americans

- 0% for AI / AN

American Cancer Society, Breast Cancer Facts and Figures 2005-2006
http://www.cancer.org/downloads/STT/CAFF2005BrF.pdf

Mammography Screening

- Mammography is the best way to detect breast cancer in its earliest, most treatable stage—it takes an average of 1-3 years before a woman can feel a lump.

- Mammography detects cancers too small to be felt during a clinical breast examination (CBE).

- Mammography detects an average of 90% of breast cancers in women without symptoms!

Regular mammography screening reduces breast cancer mortality rates

- Since the 1980's, thanks to more widespread use of mammography and improved treatment, over-all breast cancer mortality rates in the United States have declined.

- Between 1990 and 2002, the overall breast cancer death rate in the United States declined 2.3% each year.

Regular mammography screening reduces breast cancer mortality rates

- One major review study found an average 24% percent mortality reduction associated with regular mammography screening (age =>40).

- According to the CDC, regular screening of women ages =>40 can reduce breast cancer mortality by approximately 16% overall, and up to 30% for women over age 50.

GPRA Mammography Measure

- Denominator: All active female clinical patients aged 52 through 64, without a documented bilateral mastectomy or two separate unilateral mastectomies.

- Numerator: Active female clinical patients with documented mammogram in the past two years.

Mammography Screening at IHS

Percentage of eligible women (active clinical patients) who have received a mammogram within the past several years (GPRA data):

- 2003: 40%
- 2004: 40%
- 2005: 41%
- 2006: 41%
- 2007: 43%
- 2008: 45%
- 2009: 45%

Mammography Screening at IHS

- GPRA screening rates by site varies widely - some sites screen <u>less than 15% of women</u> who are => 50 years

- The Healthy People 2010 goal was to screen 70% of women aged 40 and above; few if any IHS sites are close to screening 70% of 50 year old women

- * Screening rates correlate directly with tumor size at diagnosis – the lower the screening rate, the bigger the tumor!

CDC's MMWR Vol. 59 July 6, 2010

- MMWR Vital Signs: Breast Cancer Screening Among Women Aged 50-74 Years – United States, 2008

- According to BRFSS data: The mammography prevalence for U.S. women all races, aged 50-74 was 81.1%

- <u>Among the lowest prevalences reported were AI/AN women at 70.4%</u>

How can we improve our mammography screening rates?

- Use software that allows providers to identify patients due for a mammogram screening;

- Send patient reminders to women due for a mammogram; if they do not respond, send CHR or PHN to educate and encourage screening;

- More convenient mammography access using mobile mammography vans

How can we improve our mammography screening rates?

- Ultimately, mammography screening needs to be accessible to busy women:

    - Allow eligible women (50 yrs and over) to schedule their mammograms on demand, without a provider order;

    - Engage CHRs to transport high risk women without wheels (50 yrs and over);

    - Engage PHSs to educate pts.

Provider recommendation is one of the strongest predictors of mammography use

- One study found that "the most frequent reason cited by women for failure to have mammography is that a physician did not recommend one."

- Another study found that "94% of women whose physicians had recommended mammograms had had one in the last 2 years, while only 36% of women whose physicians had not made the recommendation had had a mammogram."

New U.S. Preventive Task Force Recommendations

- Biennial (every other year) screening mammography for women aged 50 to 74 years;

- Decision to initiate regular, biennial screening earlier is an individual one taking patient context into account, including patient values regarding benefits and harms;

- Recommends against the BSE;

New U.S. Preventive Task Force Recommendations

- Insufficient evidence of additional benefits and harms of:
  - screening mammography for women =>75 yrs;

  - CBE beyond screening mammography in women =>40 yrs;

  - of digital mammography or MRI

The GPRA Measure and the US Preventive Task Force Recommendations

- The new recommendations do not mean women can't be screened earlier

- Women can request earlier screening

- Clinicians can recommend earlier screening

# So your patient's screening mammogram comes back abnormal!

Now what?

Spectrum of Breast Diseases: Benign to Malignant

- **Benign breast conditions:** breast pain, fibrocystic disease, fibroadenoma, infections, male gynecomastia, ectopic breast tissue, nipple discharge

- **Conditions with increased risk of breast cancer:** atypical ductal hyperplasia, Lobular Cancer In-situ (LCIS), strong family history

- **Pre-malignant conditions:** Ductal Cancer In-situ (DCIS)

- **Malignant conditions:** Invasive breast carcinoma

Benign Breast Conditions
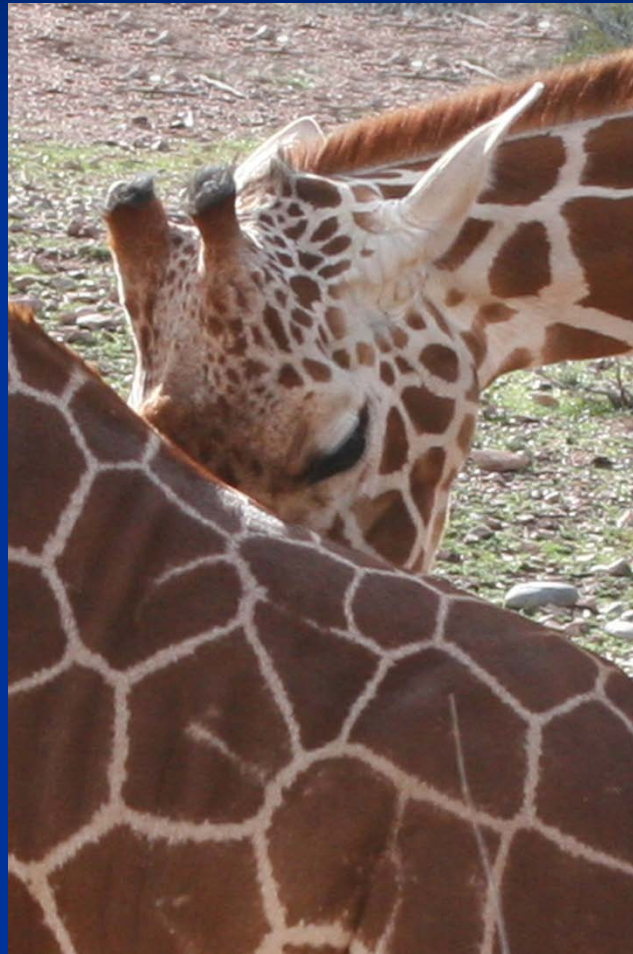
43 y/o female presents to Emergency Room c/o right breast mass discovered on BSE

- PMHx: HTN, Type 2 DM, s/p cholecystectomy
- Breast hx: no risk factors identified
- Patient has never had mammogram or CBE (In a study from 2000, only 1/3rd of Native diabetic women living in Phoenix aged 50-69 had ever had a mammogram & less than 1/3rd had ever had a CBE, despite having a co-morbid condition for which they were seeing a healthcare provider!)
- Patient scheduled for mammograms and referred to breast clinic

Giroux et al. Low National Breast and Cervical Cancer-Screening Rates in American Indian and Alaska Native Women with Diabetes. JABFP. 2000;13:239-245

Mammogram: smooth round density, ultrasound (BIRADS 0)

Ultrasound: lesion is solid, wider than tall, (BIRADS 3)

Breast Imaging Reporting and Data System (BIRADS)

BIRADS	What it means…
0	Assessment incomplete (need to review prior studies or obtain additional imaging)
1	Normal mammogram, continue routine screening
2	Benign finding, continue routine screening
3	Probably benign finding, rec. short term interval follow-up in 6 months
4	Suspicious abnormality, rec. biopsy
5	Highly suspicious for malignancy, rec. biopsy
6	Known biopsy-proven malignancy

Physical exam in breast clinic reveals a smooth, mobile 2 cm mass in the right breast.

- Imaging and exam are c/w fibroadenoma, but a solid breast mass in a patient over 40 (or other risk factors) needs tissue diagnosis to safely observe

Core biopsy confirms diagnosis of fibroadenoma, options of excision versus observation discussed with patient

Benign lesions can often be completely removed with image guided vacuum assisted biopsy; or excisional biopsy with periareolar incision

Patient opts for excision; lesion is excised completely under ultrasound guidance with vacuum assisted device

Benign nipple discharge

- In 2/3rd of non-lactating women fluid can be expressed from the nipple ducts

- Physiologic secretions can be white, yellow, green, brown; may be from multiple ducts and vary in color

- Blood in nipple discharge during pregnancy or lactation is benign, probably due to hypervascularity of developing breast tissue

Galactorrhea

- Galactorrhea is *copious bilateral* milky discharge not associated with pregnancy or lactation

- Careful drug history for drugs such as OCPs, antihypertensives, or psychotropic agents that can cause hyperprolactinemia

- Elevated blood prolactin levels without drug cause should prompt evaluation for pituitary tumor

Nipple discharge

- Clear/serous or Bloody nipple discharge are only indications for galactography

- Greenish, grayish, TURBID = benign

- Straw colored, CLEAR ~ 6 % malignant

- BLOODY ~ 13 % malignant

Galactography shows a single filling defect; surgical excision of the duct reveals a benign papilloma

Paget's disease

- Eczema-like patch of irritated skin *starts at the nipple* and can spread onto areola

- Very rarely bilateral

- Will not improve with local treatment such as steriod creams

- Paget's is almost always a sign of an underlying malignancy, and treatment is that of the underlying disorder

Breast Cancer Screening

Age	Breast Cancer Risk	Mammography	Clinical Breast Exam	Breast Self Exam
20-39	Average	Not needed	Every 3 years	Regular BSE Recommended
20-39	Average to High	Mammography or other imaging may be indicated	Yearly	Regular BSE Recommended
40 and older (while in good health)	Average to High	Yearly	Yearly	Regular BSE Recommended

RISK FACTOR	RELATIVE INCREASE IN RISK
Mother/sister/daughter with breast cancer	2 X
2 first degree relatives with breast cancer	5 X
Personal history of breast cancer	3-4 X
Prior biopsy with atypical hyperplasia	4-5 X
Alcohol 2-5 drinks per day	1.5 X
Obesity	Increased risk
Early menses ($\leq$12)or late menopause($\geq$55)	Slightly increased risk
Nulliparous or 1st child after age 30	Slightly increased risk
HRT w/ estrogen and progesterone	Increased risk goes back to baseline 5 years after discontinuing tx

Lifetime risk is 1 in 8; but varies by age:

Decade of life	Risk of breast cancer
30-39	0.43 % (1 in 233)
40-49	1.44 % (1 in 69)
50-59	2.63 % (1 in 38)
60-69	3.65 % (1 in 27)

NCI Website www.cancer.gov

Breast Cancer Risk Assessment Tool: Gail model

- Medical hx (age, number of prior breast biopsies, presence of atypical hyperplasia)
- Reproductive hx (age at 1st menses, age of 1st live birth)
- Family hx (breast cancer in a mother, sister or daughter)
- Calculates 5 year and lifetime risk compared to general population

Breast Cancer Risk Assessment Tool: Gail model

- May underestimate risk for some minority groups

- Has not been validated in AI/AN populations

- Risk Calculator is available on the NCI website: www. Cancer.gov/bcrisktool

Genetic counseling

- Genetic counseling session estimates patients' probability of an inherited susceptibility, proceeding with genetic testing is then their choice

- Indications for referral:

✓ Relative on *maternal or paternal* side of family with breast cancer under age 50

✓ Breast and ovarian cancer in the family, esp. in the same individual

✓ Male breast cancer in the family

✓ Ashkenazi Jewish heritage

# An inherited susceptibility accounts for only 5-10 % of breast cancers

Cancer type	Risk in BRCA 1 or 2 Carriers (Lifetime to age 70)	General Population Risk (Lifetime to age 70)
Breast	40-85 %	8 %
Contralateral Breast	40-65 %	2-11 %
Ovarian	BRCA 1: 25-65 % BRCA 2: 15-25 %	1 %
Prostate	BRCA 1: Elevated BRCA 2: 19 %	8 %
Male breast	6-7 % (<10%)	0.1 %
Pancreatic	3-7 % (< 10%)	0.4 %

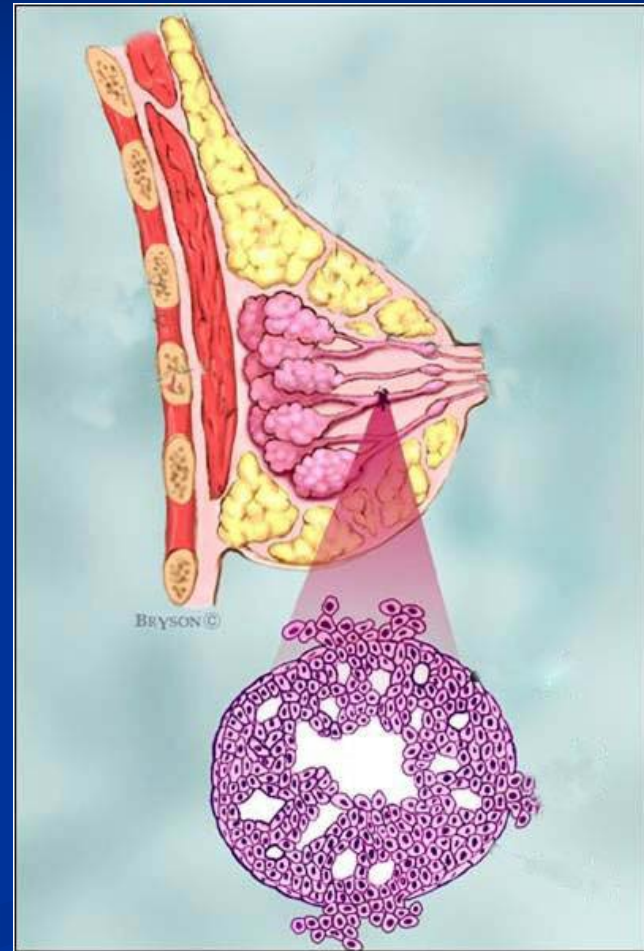# Mammogram with clustered microcalcifications
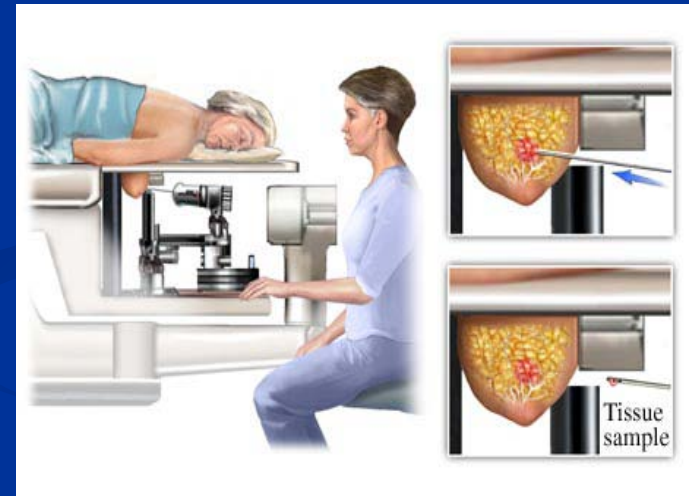
Patient sent for stereotactic biopsy which reveals ductal carcinoma in situ, ER+
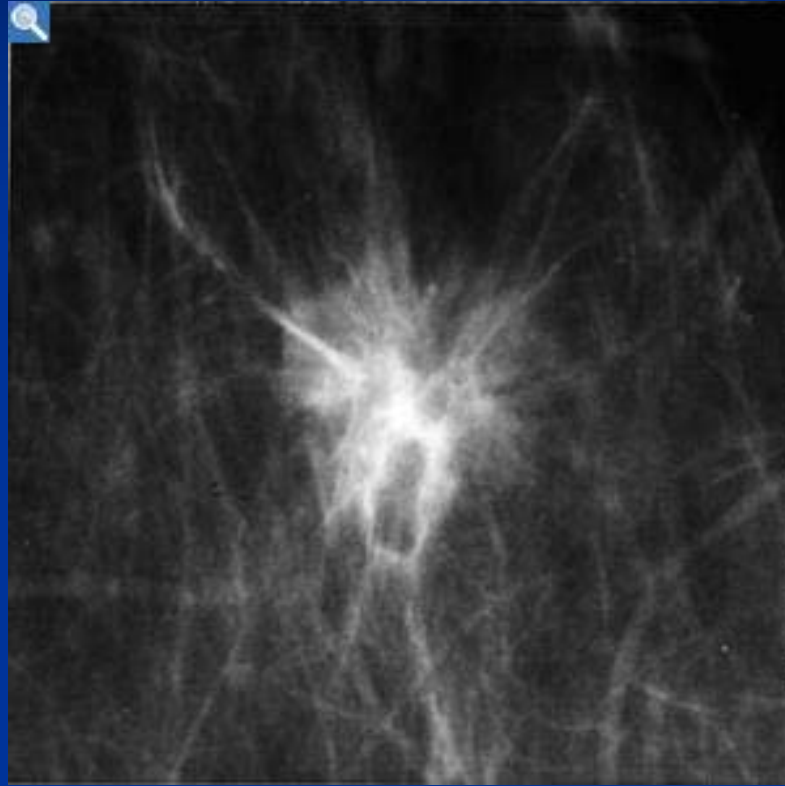
Ductal Carcinoma In Situ
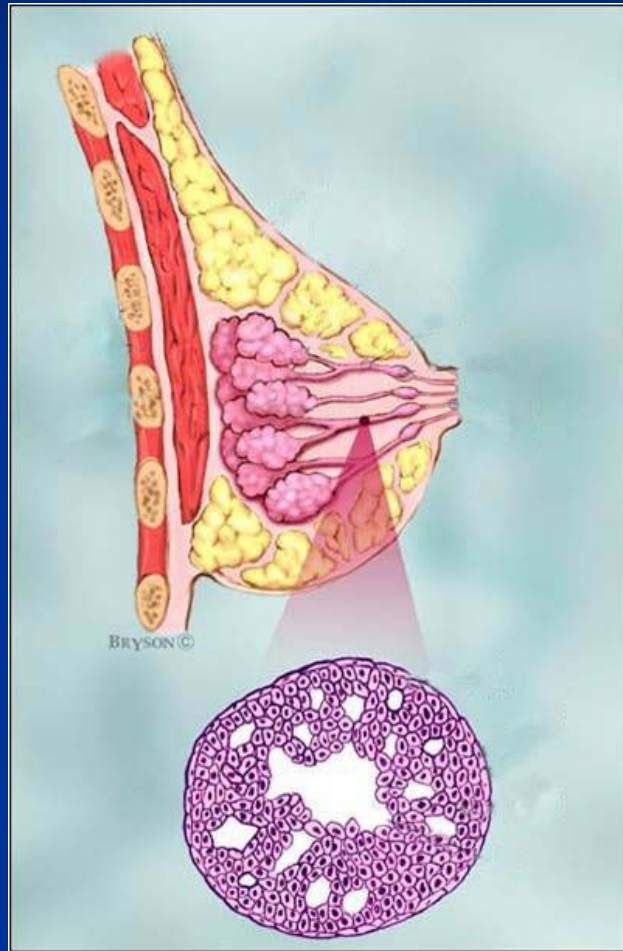
Invasive Ductal Carcinoma

Vs.

Mammogram:

Spiculated mass left breast, 2 cm, BIRADS 4

Breast cancer staging

Primary Tumor	Definitions
Tis	Carcinoma *in situ*
T0	No evidence of primary tumor
T1	Tumor 2 cm or less
T2	Tumor > 2 cm, < 5 cm
T3	Tumor more than 5 cm
T4	Any size tumor with direct extension into chest wall or skin; inflammatory carcinoma
Regional Nodes	
N0	No regional lymph node metastasis
N1	Metastasis in 1-3 axillary lymph nodes
N2	Metastasis in 4-9 axillary lymph nodes
N3	Metastasis in 10 or more axillary lymph nodes, Ipsilateral supraclavicular lymph nodes
Distant Mets	
M0	No distant metastasis
M1	Distant metastasis

Breast cancer staging

Stage	Definition	5 year Relative Survival Rate
0	Tis N0 M0	100 %
I	T1 N0 M0	100 %
IIA	T0-1 N1 M0 T2 N0 M0	92 %
IIB	T2 N1 M0 T3 N0 M0	81 %
IIIA	T0-2 N2 M0 T3 N1-2 M0	67 %
IIIB	T4 N0-2 M0	54 %
IV	anyT any N M1	20 %

Summary

- Most breast disease is benign!!

- Rigorous screening practices will improve survival in our population by catching disease at earlier stages