

Breast Cancer Screening in Minority Women

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Overall Breast Cancer Rates

Est. # new invasive cancer cases
2022

- 287,850

Est. # cancer deaths 2022

- 43,780



Minority Group

- Refers to a category of people who experience a relative disadvantage as compared to members of a dominant social group
 - Typically based on differences in observable characteristics or practices – ethnicity, race and religion, for example

2020 US Census

- Hispanic or Latino Americans (of any race): 32.7%



Self-identified race	% of Population
White alone	61.6
Black or African American	12.4
Asian	6.0
Native American or Alaskan Natives	1.1
Native Hawaiians or Other Pacific Islanders	0.2
Two or more races	10.2
Some other race	8.4
Total	100.0

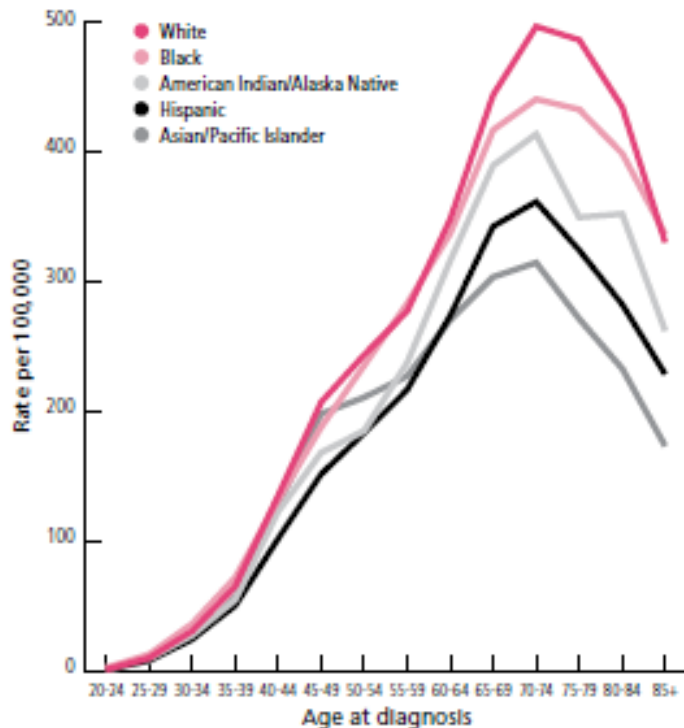
Breast Cancer Rates in Minorities

- Incidence (2022) and mortality rates (2022) in ethnic groups vary substantially

	Incidence Rate/100,000	Mortality Rate/100,000
Non-Hispanic white	133.7	19.7
Non-Hispanic black	127.8	27.6
Asian and Pacific Islander	101.3	11.7
American Indian and Alaska Native	111.3	20.5
Hispanic/Latino	99.2	13.7

American Cancer Society

Figure 2. Age-specific Female Breast Cancer Incidence Rates by Race/Ethnicity, US, 2015-2019

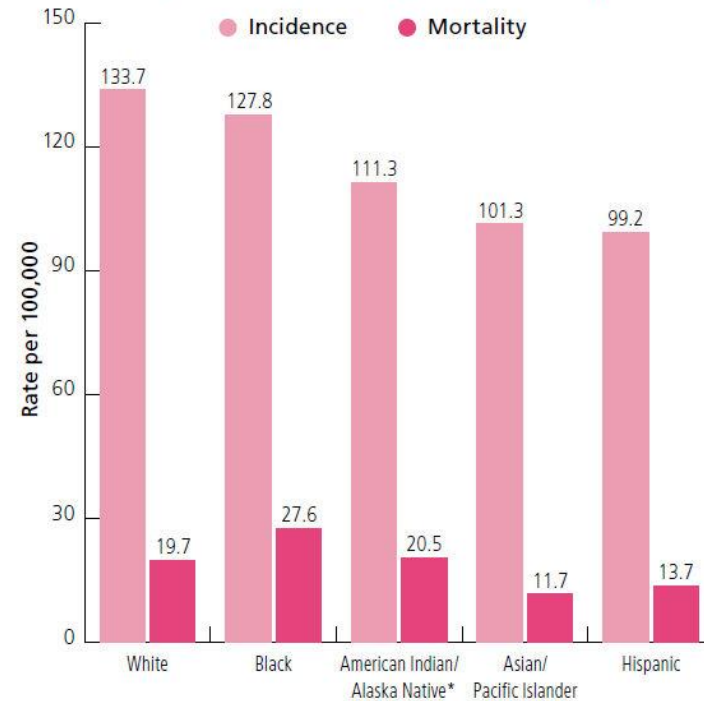


Note: Rates are per 100,000 and age adjusted to the 2000 US standard population. Race is exclusive of Hispanic origin. Data for American Indians/Alaska Natives are based on Purchased/Referred Care Delivery Area (PRCDA) counties.

Source: NAACCR, 2022.

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Figure 3. Female Breast Cancer Incidence (2015-2019) and Death (2016-2020) Rates by Race/Ethnicity, US



Note: Rates are per 100,000 and age adjusted to the 2000 US standard population. Race is exclusive of Hispanic origin. *To reduce racial misclassification, incidence data are confined to PRCDA counties, while mortality data are for the entire US with adjustment factors for racial misclassification applied. (See Sources of Statistics, page 34).

Sources: Incidence – NAACCR, 2022. Mortality – National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, 2022.

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Incidence Trends

- 2005 to 2014 - overall BC incidence rates **increased** among:
 - Asian/Pacific Islander (1.7% per year)
 - Non-Hispanic black (NHB) (0.4% per year)
 - Hispanic (0.3% per year)
 - Stable in:
 - Non-Hispanic white (NHW)
 - American Indian/Alaska Native (AI/AN)

Increasing trends driven by increases in hormone receptor-positive BC, which increased among all racial/ethnic groups, whereas rates of hormone receptor-negative BC decreased

Mortality Trends

- **Overall death rates increased by 0.4% per year from 1975 to 1989, but since have decreased, for a total decline of 39% through 2015**
- 2006 - 2015, BC death rates declined annually:
 - 2.6% in AI/ANs
 - 1.8% in NHWs
 - 1.5% in NHBs
 - 1.4% in Hispanics
 - 0.9% in APIs
- Decline among AI/AN women began in 2005, more than a decade later than other racial/ethnic group

Breast Cancer Survival Rates

- Crude 10-year survival rates
 - 80% for white women
 - 78% for Hispanic American women
 - 66% for Black women
 - 82% for Asian women
- Haji-Jama (2016) showed that women of color in their study were twice as likely to pass within 7 years of being diagnosed with BC than the non-Hispanic white women in the study

Hunt 2014- Black:white disparities

- Race specific mortality rates 1990 – 2009
- The 50 largest cities in the U.S. were analyzed
 - Numerator - cause of death from malignant breast neoplasm
 - Denominator - population-based numbers from U.S. census 1990, 2000, 2010
 - Rate ratios were calculated for Hispanic black:non-Hispanic white and five-year annual rates -1990-1994; 1995-1999; 2000-2004; 2005-2009

Black:White Disparities in Mortality in the U.S.- Hunt 2014

9 cities excluded due to fewer than 20 deaths

41 cities remained for analysis

- 35 cities saw an increase in the Black:White rate ratio between 1990-1994 and 2005-2009
 - ***In many cities the increase in disparity occurred because White rates improved while Black rates did not***

This study revealed large and growing disparities in Black:White breast cancer mortality

Hunt 2016- Black:white disparities in breast cancer mortality

- Review of national death files and compared rate ratios from 2005 to 2009 and 2010 to 2014
 - Study was conducted the same as the 2014 study

	2005-2009	2010-2014
Black rate	32.6	30.7
White rate	23.3	21.4

Black women continue to die at a higher rate than white women, however Memphis, Boston and Philadelphia showed a decrease in the black white breast cancer mortality disparity between these dates

Ahmed - Racial Disparities in Screening Mammography

- Meta-analysis of racial disparities in screening mammography in the U.S.
 - Studies published from 1946 – 2015 comparing mammography utilization in racial groups
 - 5,818,380 patients in 39 relevant studies
 - 43.1% White
 - 33.3% Black
 - 17.4% Hispanic
 - 6.2% Asian/Pacific Islander

Ahmed: Mammography Attendance

- Black and Hispanic populations had lower odds of utilizing screening compared to white population
 - African Americans- disparities were present in the 40-65 age group and 65 and over group
 - Hispanics- disparities were present in the 40-65 group
 - No difference in utilization between Asians/Pacific Islanders and whites
- Racial disparities evident in Black and Hispanic populations- further studies needed to understand reasons, trends, effective interventions
- Focus needed to ensure **all eligible women have access**

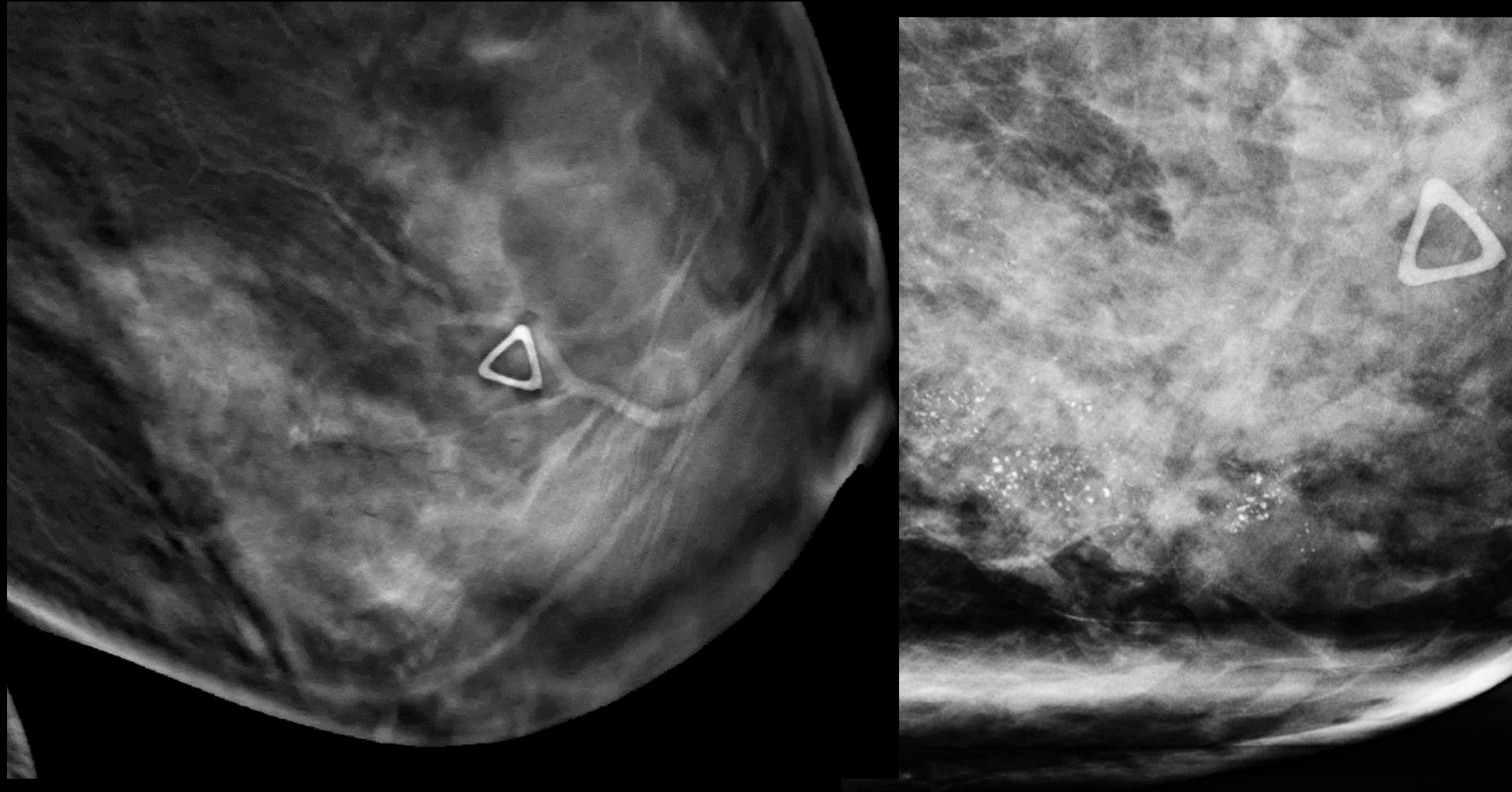
Mammography Screening

- Findings from national surveys indicate current screening rates are similar between black and white women
 - Estimates likely overestimate mammography rates, especially for black women
 - As treatment has improved, racial disparity widened; in 2015, breast cancer death rates were 39% higher in black than white women

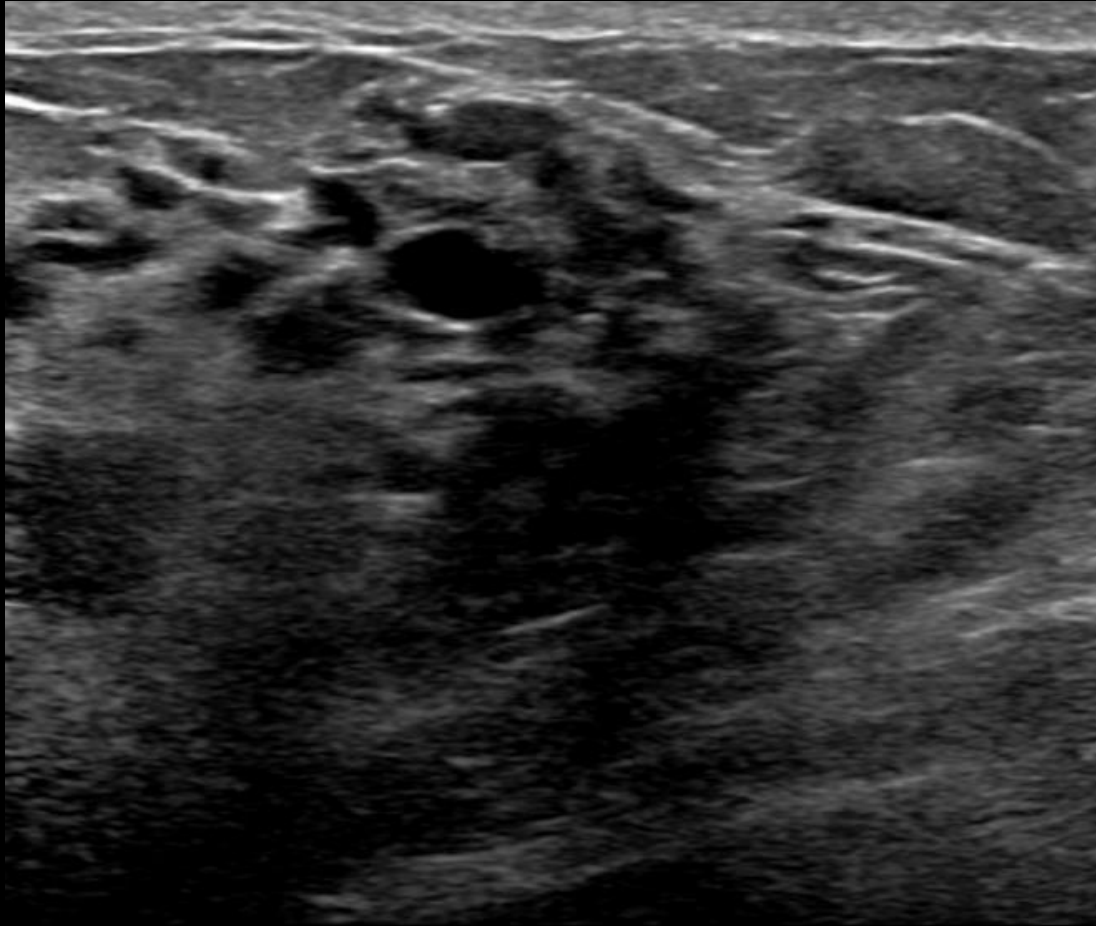
Alexandraki - Barriers to Mammography Use

- Possible social, economic, cultural, behavioral and system barriers to breast cancer screening in minorities through literature search
 - Pain/embarrassment
 - Low income/lack of insurance
 - Poor knowledge of screening
 - Lack of physician recommendation
 - Lack of trust in hospitals/doctors
 - Language barriers
 - Lack of transportation
- ***Multiple barriers limit screening, we may improve screening by recognizing the predictors and address culturally specific barriers***

44-year-old black woman presents for evaluation of left breast lump- no priors



6.7cm area of pleomorphic calcifications, with associated density



Invasive ductal carcinoma,
grade 2
ER +, PR -, Her2 +
Clinical Stage III
Treatment with neoadjuvant
chemotherapy prior to
surgery

LT BREAST 5:00 Long | PALP 5cm from nipple

Calcs within dilated ducts, no discrete mass

Hirko (2022) - Factors That Can Lead to Disparities in Women of Color

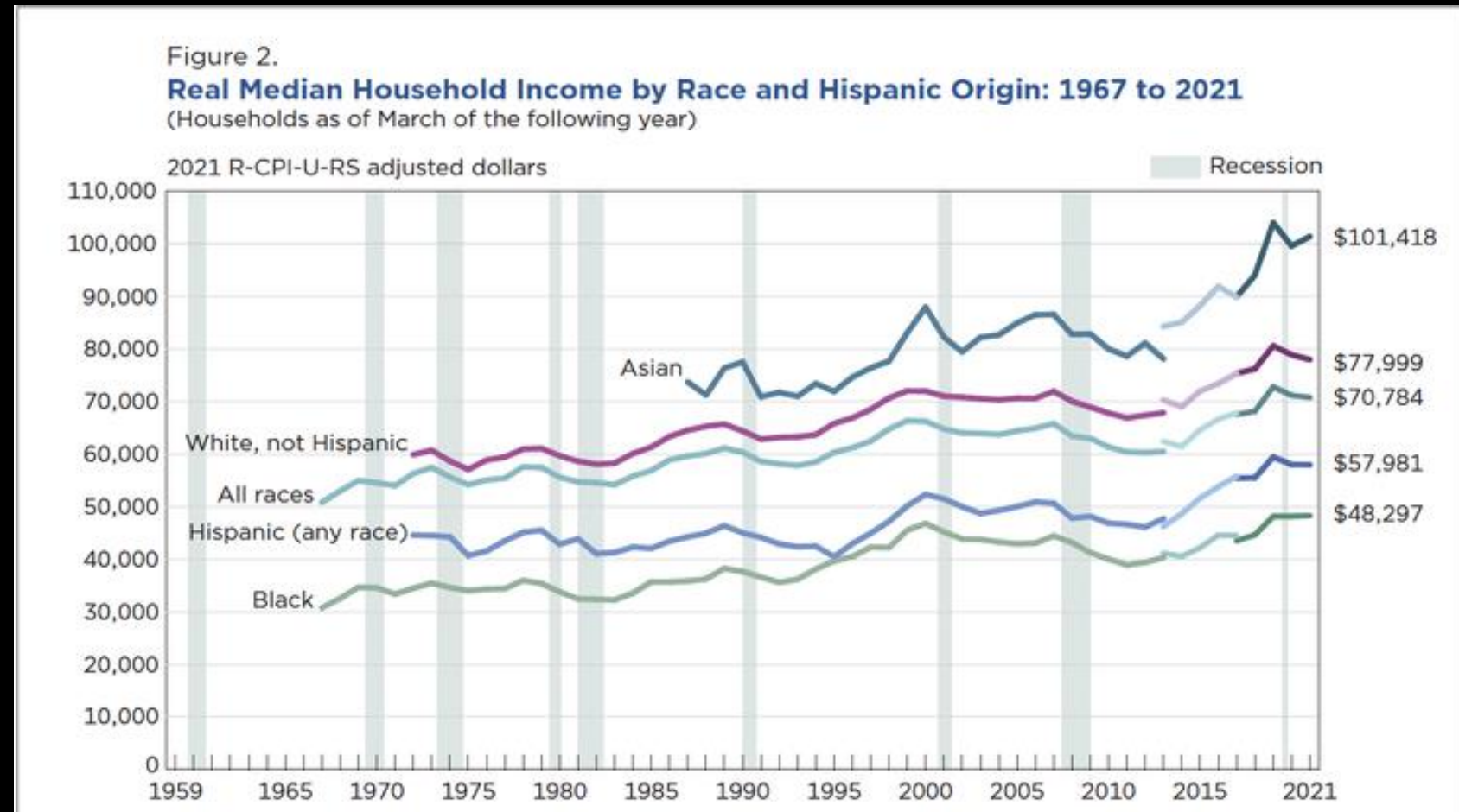
- Social determinants of health (inadequate housing, food insecurity, neighborhood access, etc)
- Allostatic load (chronic state of stress due to experiencing racism)
- Tumor biology
- Low access to high-quality cancer care
- Minimal access to clinical trial opportunities
- Unequal wealth distribution
- Low funding and staffing at local health facilities
- Few leadership roles occupied by people of color

Causes of Disparities

- Poverty is the largest contributing factor to obstacles to receiving health care services related to cancer prevention, early detection, high-quality treatment
- 2021 [US Census Bureau]:
 - 19.5% of blacks, 17.1% of Hispanics/Latinos lived below poverty line
 - Compared to 8.1% of non-Hispanic whites
 - 9.6% of blacks and 17.7% of Hispanics/Latinos uninsured
 - Compared to 5.7% non-Hispanic whites

Causes of Disparities

- <https://www.census.gov/>



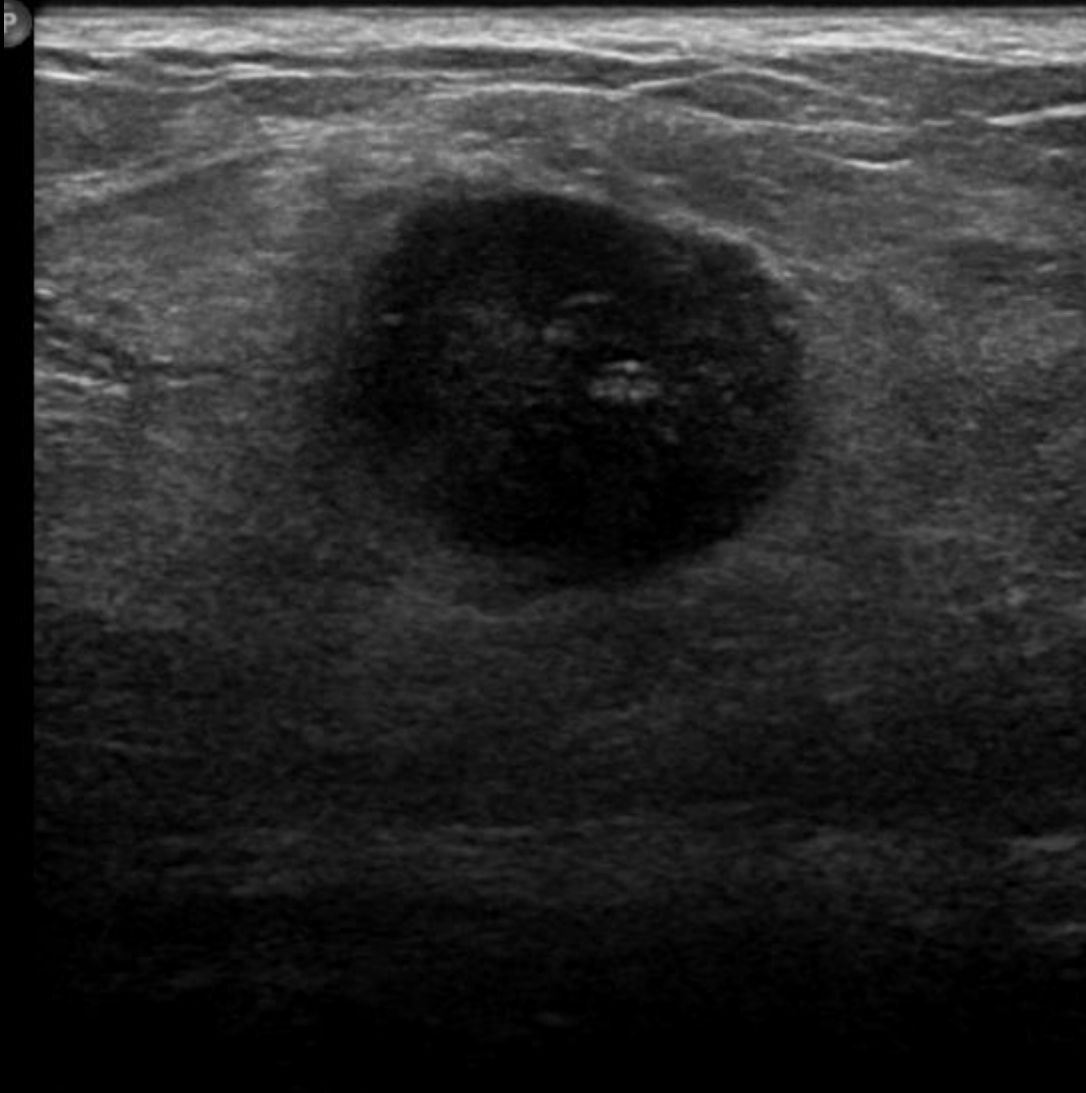
Note: The data for 2017 and beyond reflect the implementation of an updated processing system. The data for 2013 and beyond reflect the implementation of the redesigned income questions. Refer to Table A-2 for historical race footnotes. The data points are placed at the midpoints of the respective years. Median household income data are not available prior to 1967. More information on the R-CPI-U-RS dollar adjustment and recessions is available in Appendix A. Information on confidentiality protection, sampling error, non-sampling error, and definitions is available at <<https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar22.pdf>>. Source: U.S. Census Bureau, Current Population Survey, 1968 to 2022 Annual Social and Economic Supplements (CPS ASEC).

Causes of Disparities

- Lack of health insurance
 - Those without insurance less likely to attend screening mammography
 - In women ages 40-64 (2015), 31% of those with no health insurance had a mammogram in the past 2 years
 - 68% of those with health insurance had a mammogram in the last 2 years
- Non-Hispanic Whites were the least likely to be uninsured pre-Affordable Care Act (ACA)
 - ACA Increased the utilization of mammograms for Non-Hispanic Black breast cancer survivors

57-year-old non-English speaking Asian woman presents for diagnostic evaluation of Left lump, first mammogram





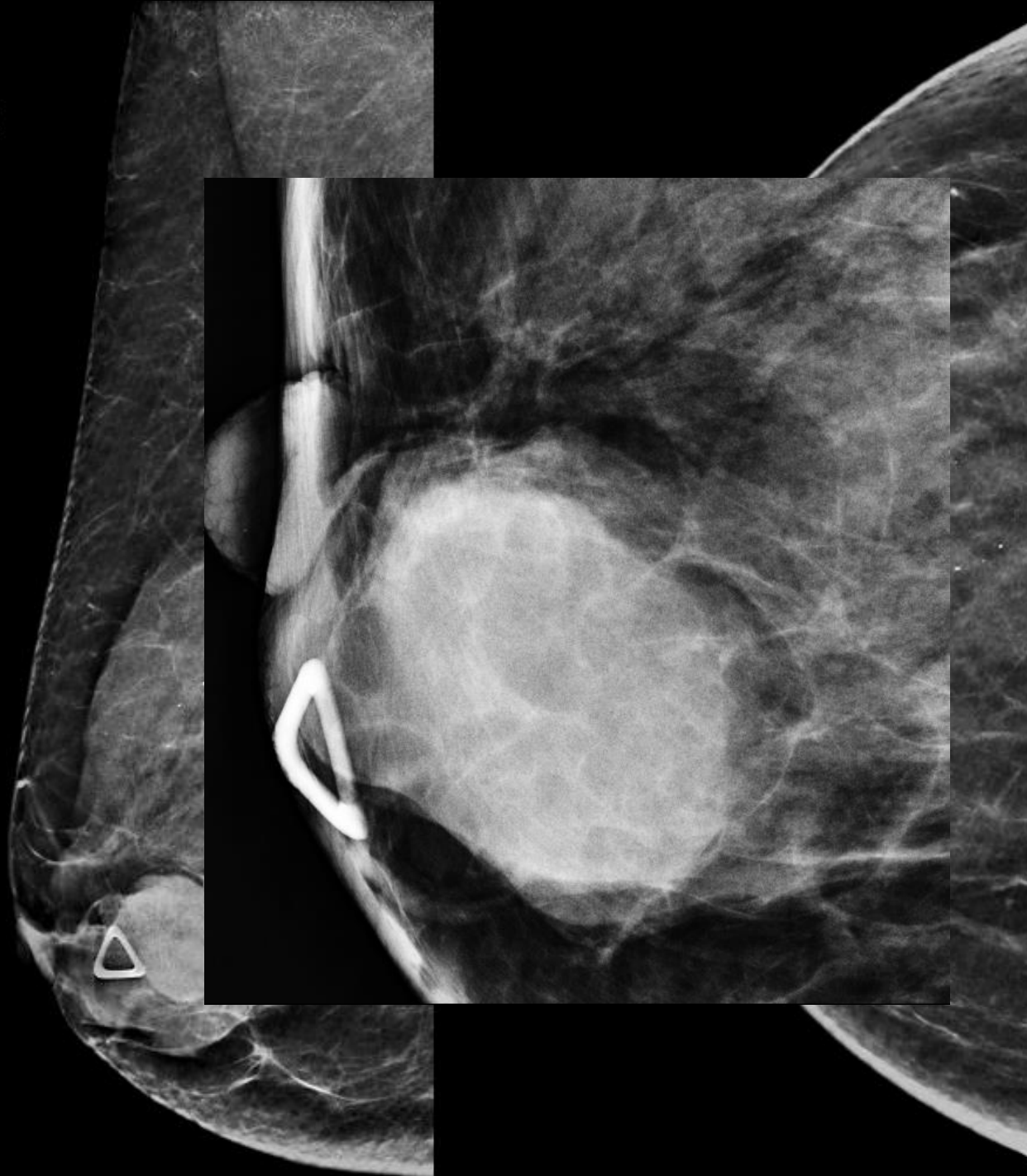
Multifocal high-grade IDC with
3/20 LN positive, Triple
Negative, extensive lymphatic
invasion
Stage IIB

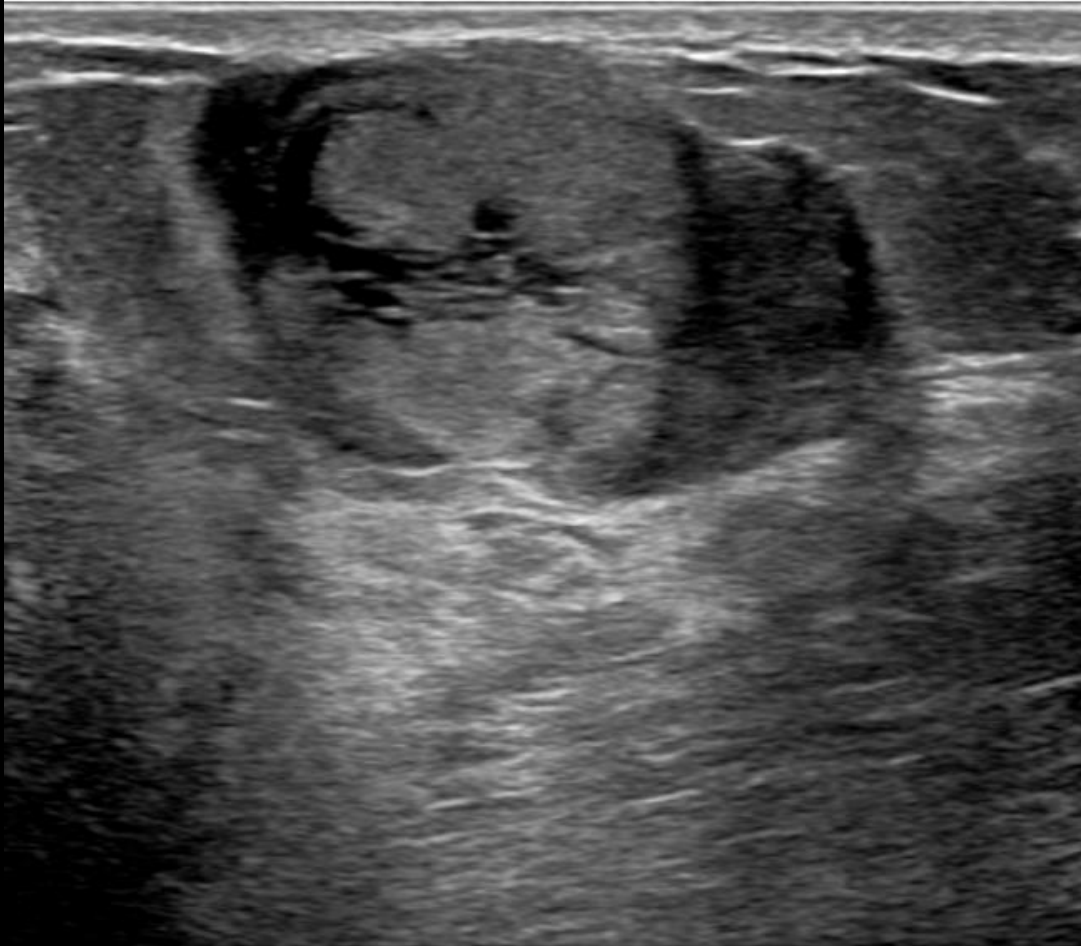
Treated with mastectomy

Patient has not returned for F/U

LT Breast 4:00 6 CMFN Trans PALP

72-year-old non-English speaking Vietnamese patient presents with Right SA lump x4 months
Last mammogram 5 years prior





RT BREAST 6:00 SA Long

Invasive Mucinous Carcinoma
Grade 1, 0/2 SLN negative Stage
IIA, ER/PR +

Treated with Mastectomy,
adjuvant endocrine therapy

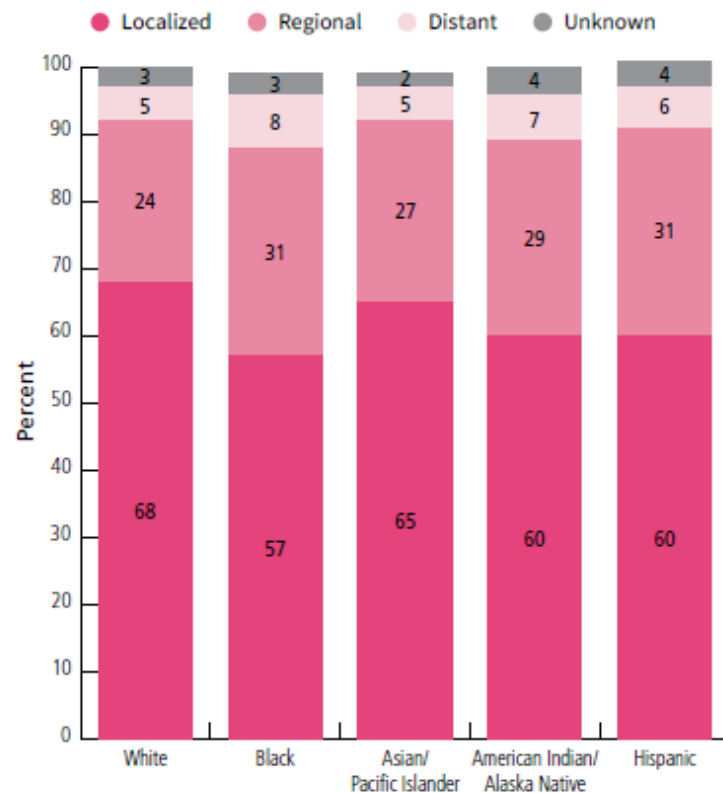
No further imaging f/u

Chen - Racial Disparities in Diagnosis and Treatment

- African American and Hispanic- 30-60% more likely to be diagnosed with stage II-IV BC compared to non-Hispanic white women
- African American - 40-70% higher risk of stage IV BC
- African American (8%) and American Indian/Alaska Native (15%) - highest risk of being diagnosed with stage IV triple negative BC
- African American and Hispanic women- consistently at higher risk of NOT receiving guideline-concordant treatment
 - Total mastectomy or breast conservation surgery with radiotherapy

American Cancer Society – Breast Cancer Subtypes and Stage

Figure 5. Female Breast Cancer Stage Distribution, by Race/Ethnicity, Ages 20 and Older, US, 2015-2019

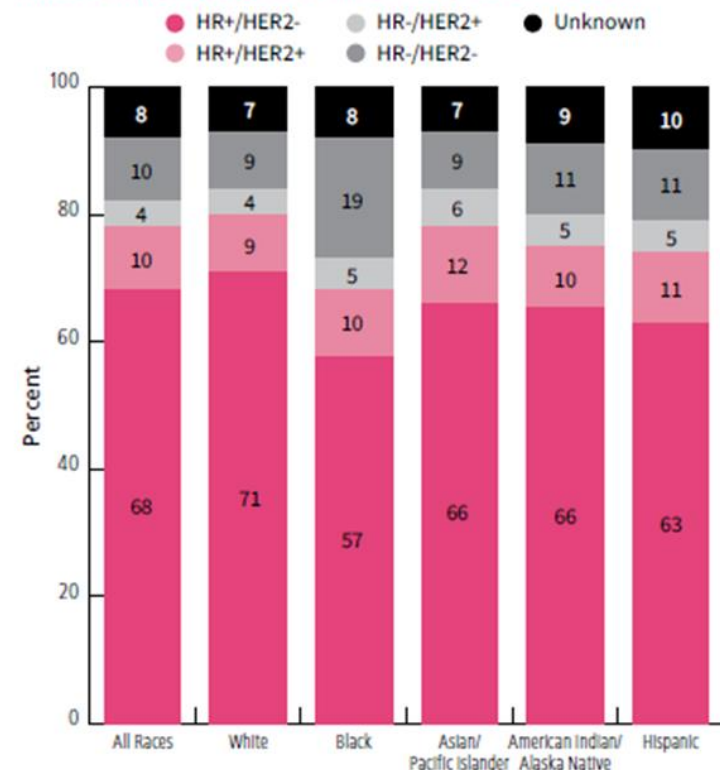


Note: Race is exclusive of Hispanic origin. Estimates may not sum to 100 due to rounding. Data for American Indians/Alaska Natives are based on Purchased/Referred Care Delivery Area (PRCDA) counties.

Source: NAACCR, 2022.

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Figure 4. Distribution of Breast Cancer Subtypes by Race/Ethnicity, Ages 20 and Older, US 2015-2019

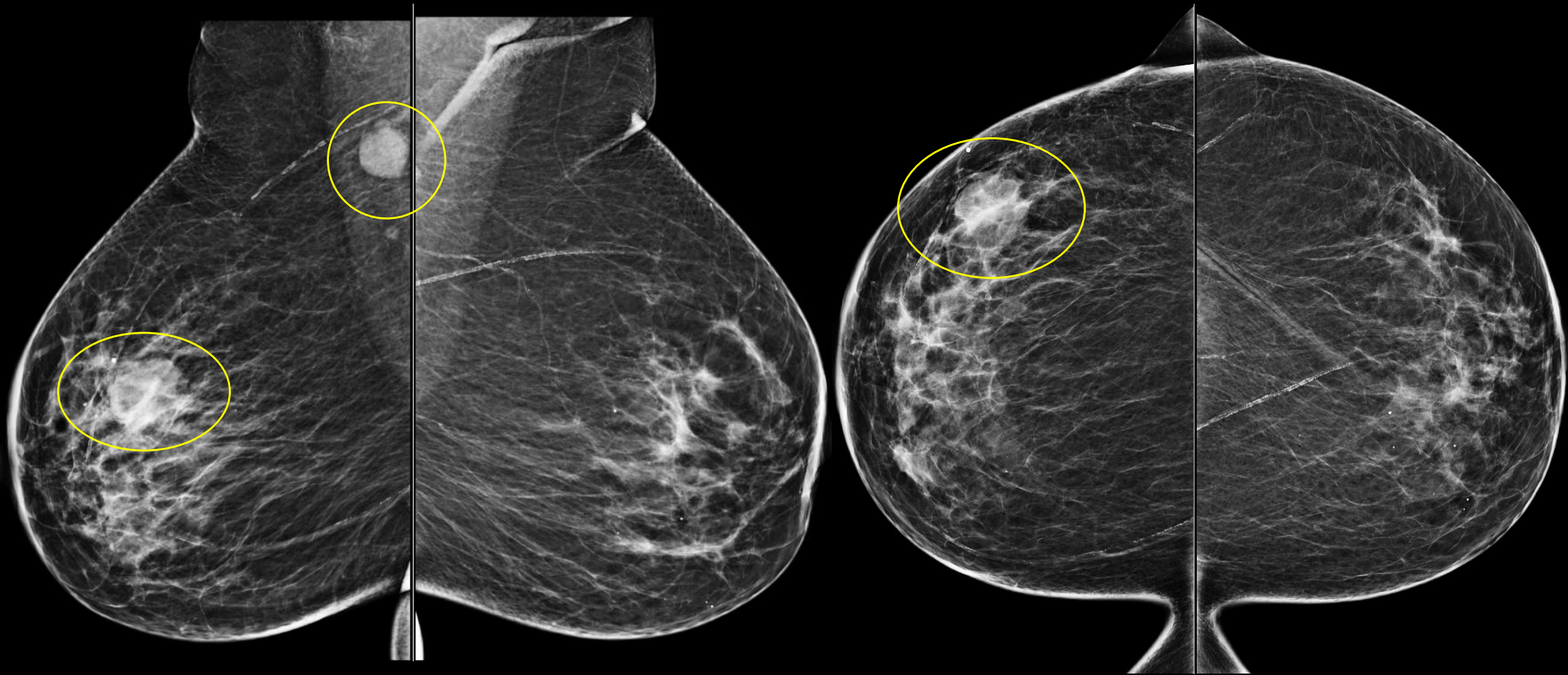


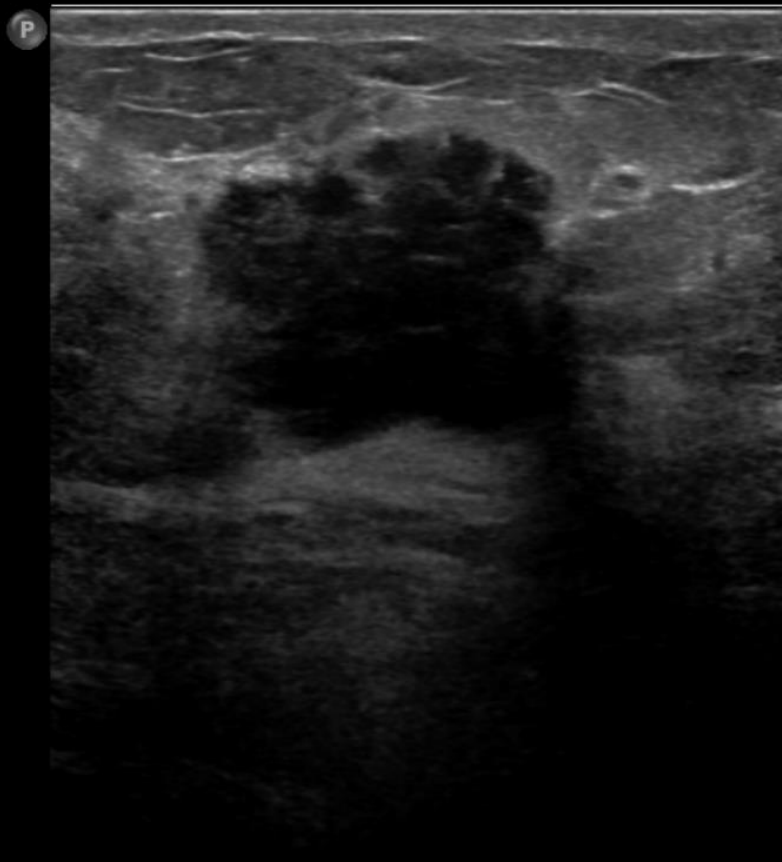
HR = hormone receptor; HER2 = human epidermal growth factor receptor 2. Note: Except for all races, race is exclusive of Hispanic origin. Data for American Indians/Alaska Natives are based on Purchased/Referred Care Delivery Area (PRCDA) counties.

Source: NAACCR, 2022.

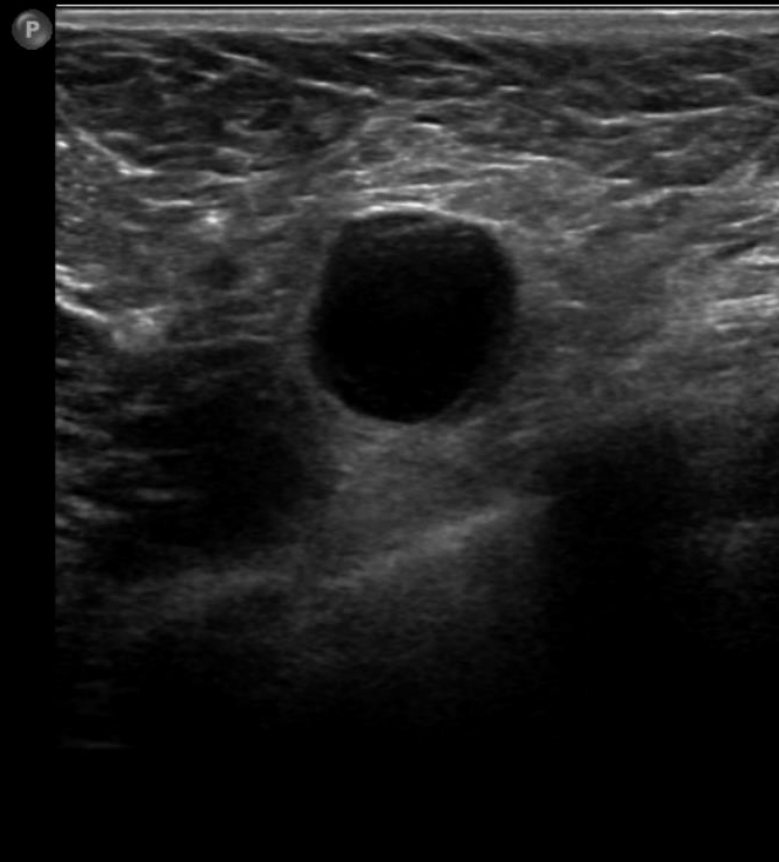
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72-year-old black woman presents with Right lateral lump- last mammogram 1 year prior





RT Breast 9:00 Long 4 CMFN PALP

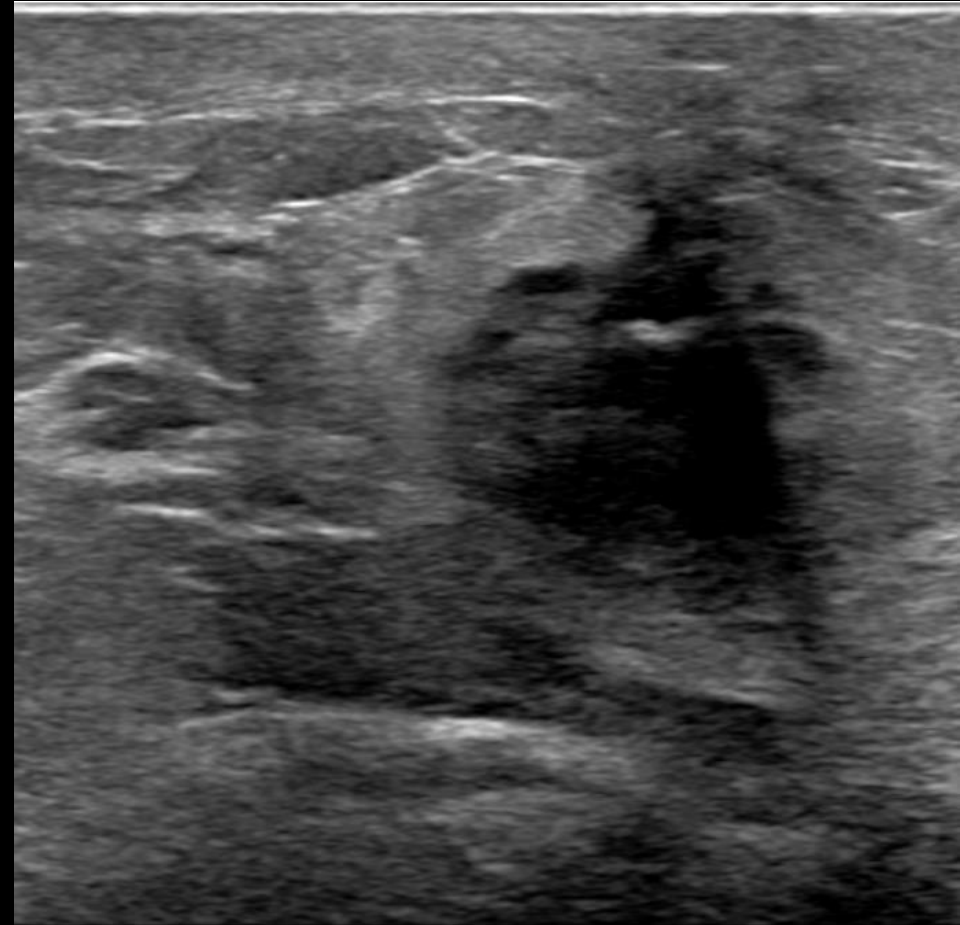
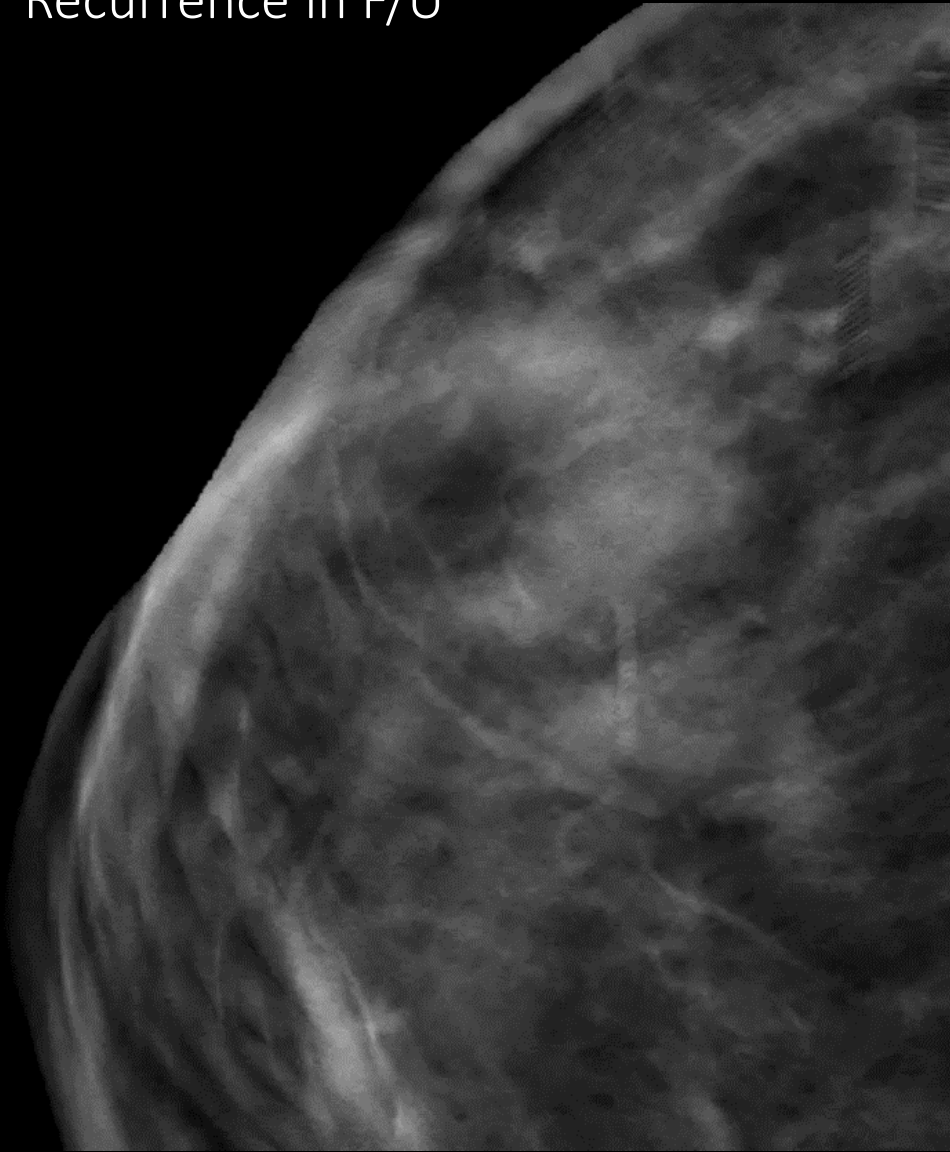


RT Breast Axilla PALP

IDC grade 3, 1/14 LN positive
Stage IIB

Treated with lumpectomy, radiation and chemo

Recurrence in F/U



RT BREAST 9:00 4 CMFN Trans |

Recurrent IDC grade 3 Triple Negative Stage IIIA
Treated with Mastectomy

Iqbal - Differences in Breast Cancer Stage and Cancer- Specific Survival

- Observational study of 452,215 of 8 racial/ethnic groups from 2004-2011
- Main outcome – breast cancer stage at diagnosis and 7-year breast cancer free survival
 - Looked at aggressiveness of small sized tumors of 2cm or less
 - Triple negative cancers
 - Lymph node metastases
 - Distant metastases
 - Determined odds ratio (OR) for stage I diagnosis compared to later stage and hazard ratio (HR) for death from stage I breast cancer by racial/ethnic group

	# diagnosed/# of total patients/%
Non-Hispanic White	136,558/268,675/50.8%
Hispanic White	13,992/34,928/40.1%
Black	14,302/38,751/ 37%
Chinese	2,473/4,937/50.1%
Japanese	2,105/3,751/56.1%
South Asian	885/2,191/40.4%
Other Asian	6,485/14,332/45.2%
Other ethnicity	2,614/5,998/43.6%

Study Results

- Stage I Cancer at Diagnosis

Black women are the least likely group to be diagnosed with Stage I

Study Results

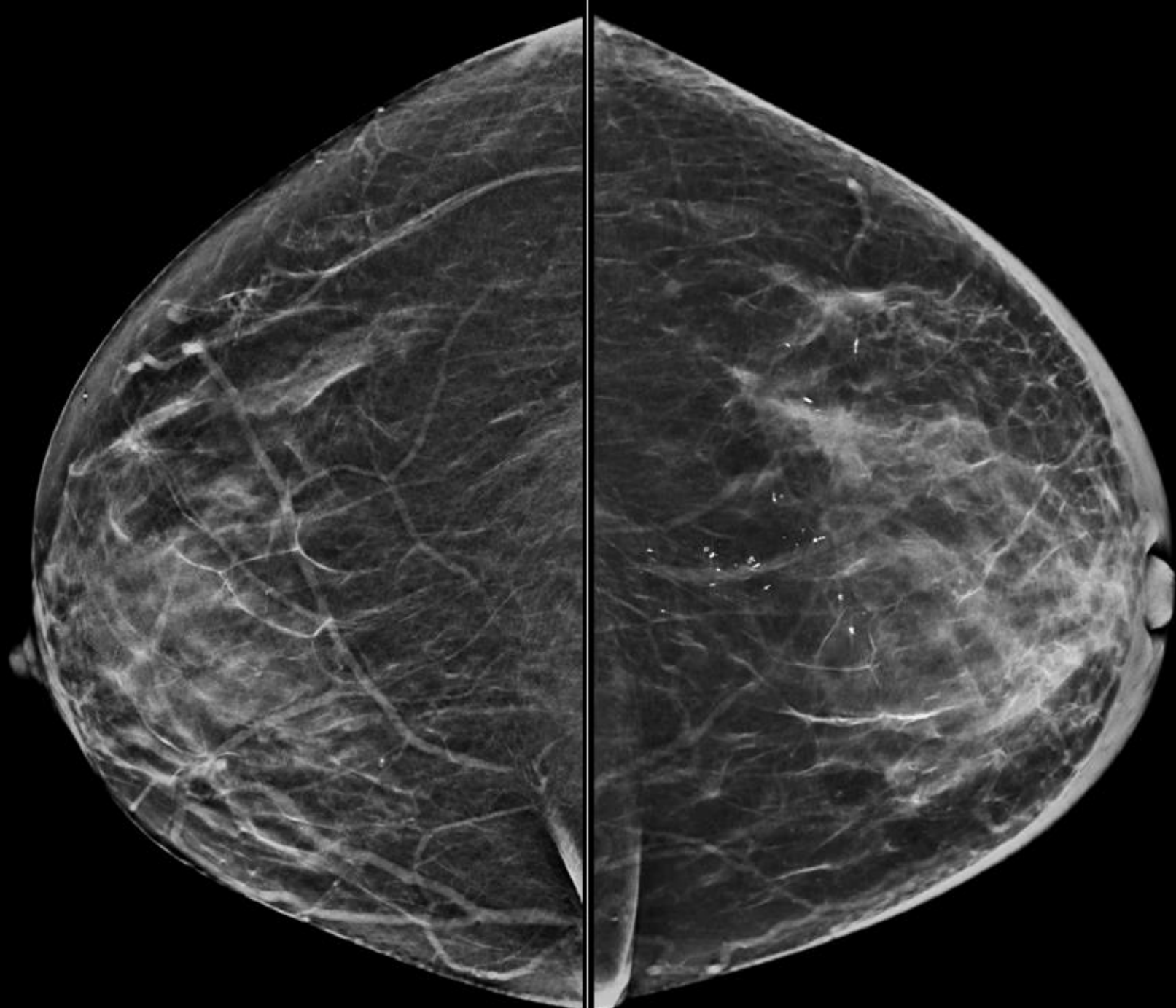
	% Stage IV	% Stage IV Triple Negative	Deaths due to BC	Median Household Income
Non-Hispanic White	4.6%	8.0%	6.8%	58,370
Hispanic White	5.3%	10.0%	7.4%	56,270
Black	7.8%	17.2%	12.5%	55,880
Chinese	3.5%	8.8%	4.6%	70,820
Japanese	3.0%	8.2%	3.5%	71,260
South Asian	5.6%	10.4%	5.3%	70,570
Other Asian	4.3%	6.2%	5.0%	64,580
Other ethnicity	5.7%	6.0%	6.1%	64,500

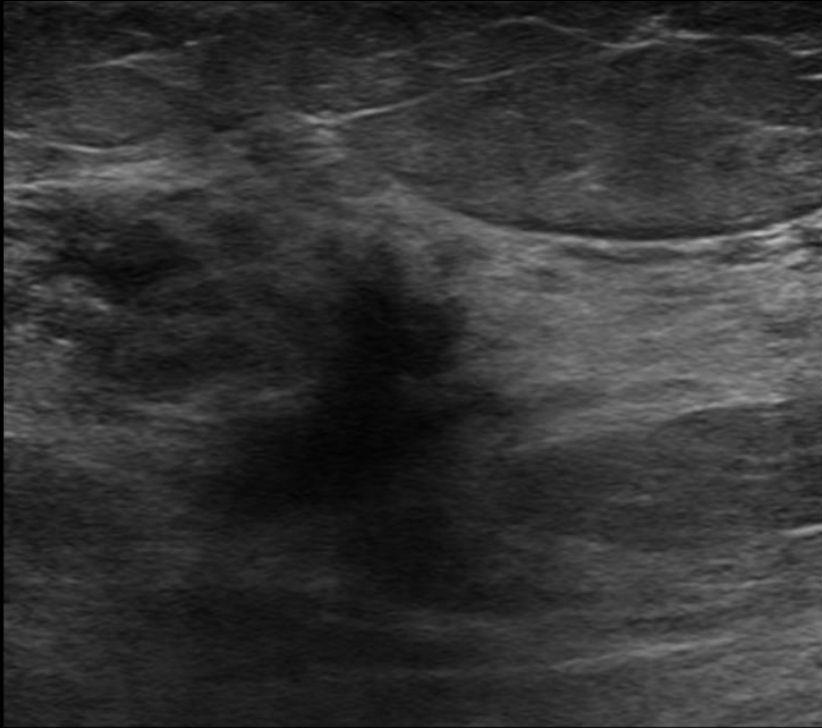
Study Summary

- Likelihood of diagnosis at an early stage, and survival after stage 1 diagnosis varied by race and ethnicity
 - Statistically accounted for by intrinsic biological differences such as lymph node metastasis, distant metastasis, triple negative tumors

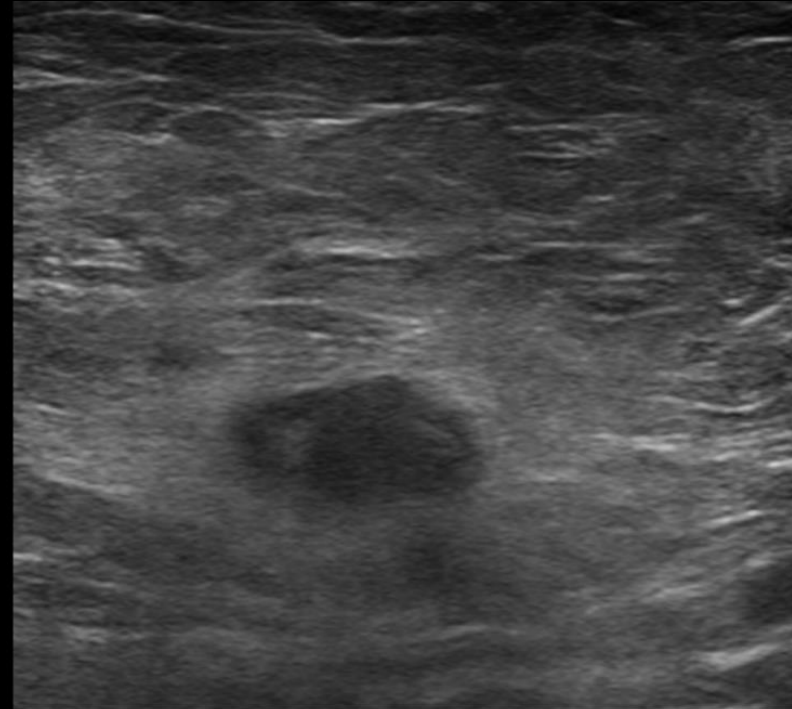
Uninsured 63-year-old Black woman presents with Left breast thickening







LT BREAST 12:00 2CMFN TRANS _



LT BREAST AXILLA_

L 12:00 needle biopsy– IDC, LN needle biopsy– Adenocarcinoma
Inflammatory carcinoma- treated with chemo-no surgery to date
Stage IV, metastatic to liver

Ansell - Community effort to reduce black/white mortality disparity

- Evaluation of community effort (The Metropolitan Chicago Breast Cancer Taskforce) to reduce Black/White Chicago mortality disparity rates (Cancer Causes Control)
- Task force included 102 people from 74 organizations
 - Explored 3 hypotheses
 - Black women receive fewer mammograms
 - Black women receive mammograms of inferior quality
 - Black women have inadequate access to quality treatment for breast cancer

Ansell 2009: Results

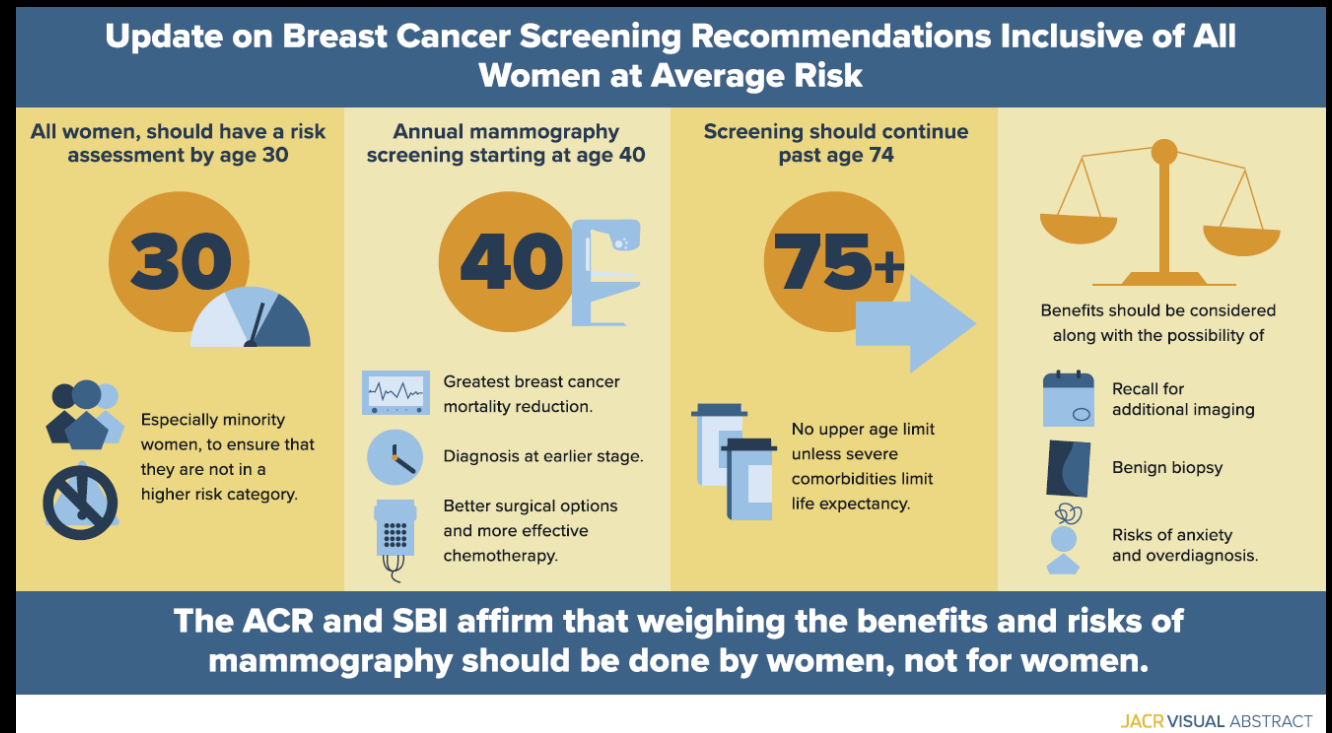
- In the 1980's Black and White mortality rates were the same
 - By 2005, the Black mortality rate was 116% higher than white mortality rates
 - This occurred because the black rate remained constant while white rate declined by 49%
- Facilities that predominately serviced minorities were
 - Less likely to be academic or private
 - Less likely to have digital mammography
 - Less likely to have breast imaging specialists read the films
 - Only two hospitals within predominantly African American community areas (with highest mortality) with approved cancer programs

Ansell 2009

- Reported barriers to diagnosis and treatment:
 - Fear
 - Lack of primary care
 - Burden of insurance co-pays, deductibles
 - Providers refusing to treat Medicaid patients
 - Noncompletion of treatment due to social/economic reasons

ACR/SBI 2021 Guidelines Update

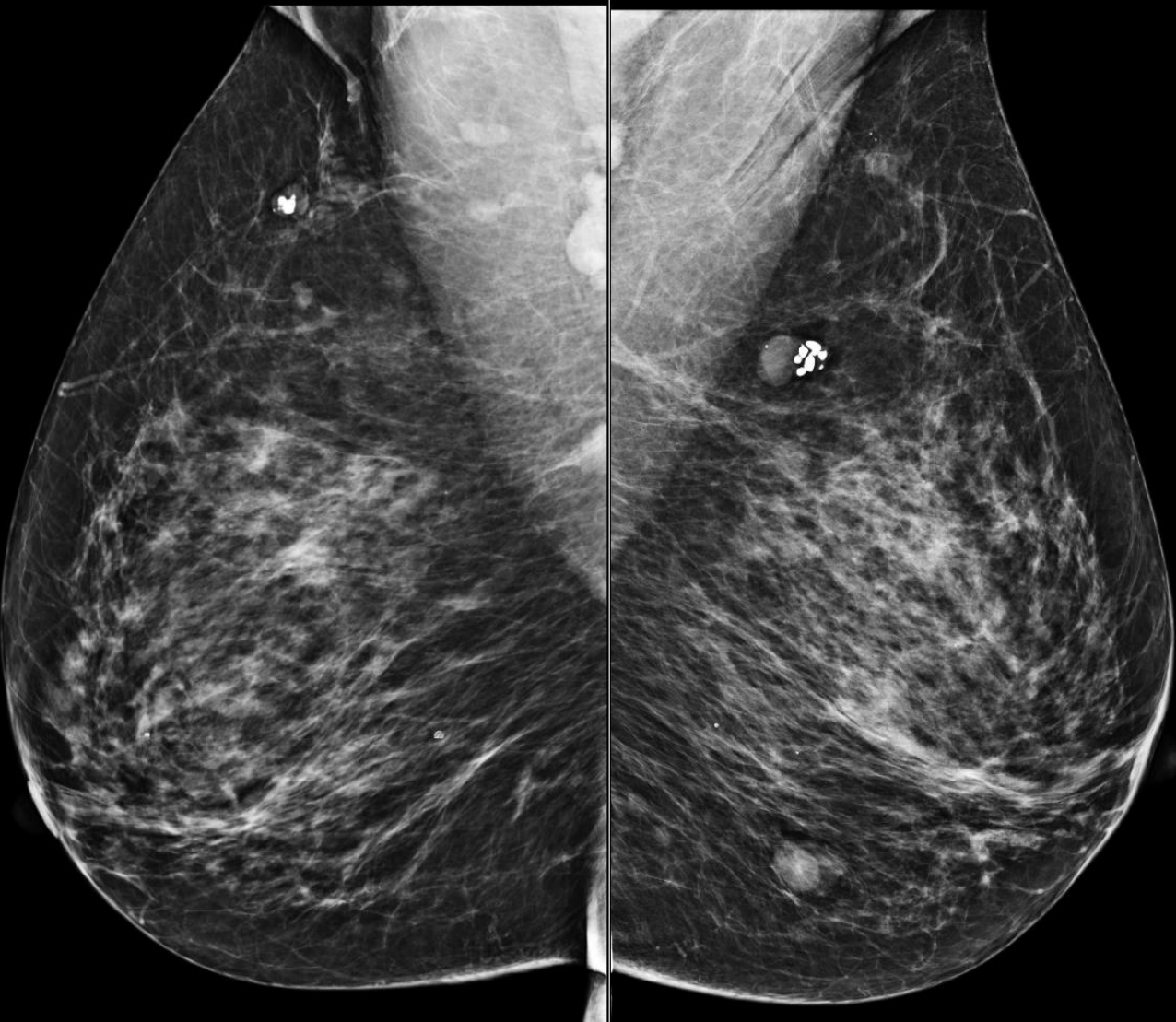
- Emphasizes importance of screening overlooked or underserved populations, including transgender individuals and Black women
 - Minority women are 72% more likely to be diagnosed with BC before age 50, 58% are more likely to be diagnosed with advanced-stage disease before 50, and 12% more likely to die from the disease, compared with white women
 - ***it is vital that minority women are counseled early, and those at high risk are identified, to reduce the unnecessary loss of life***

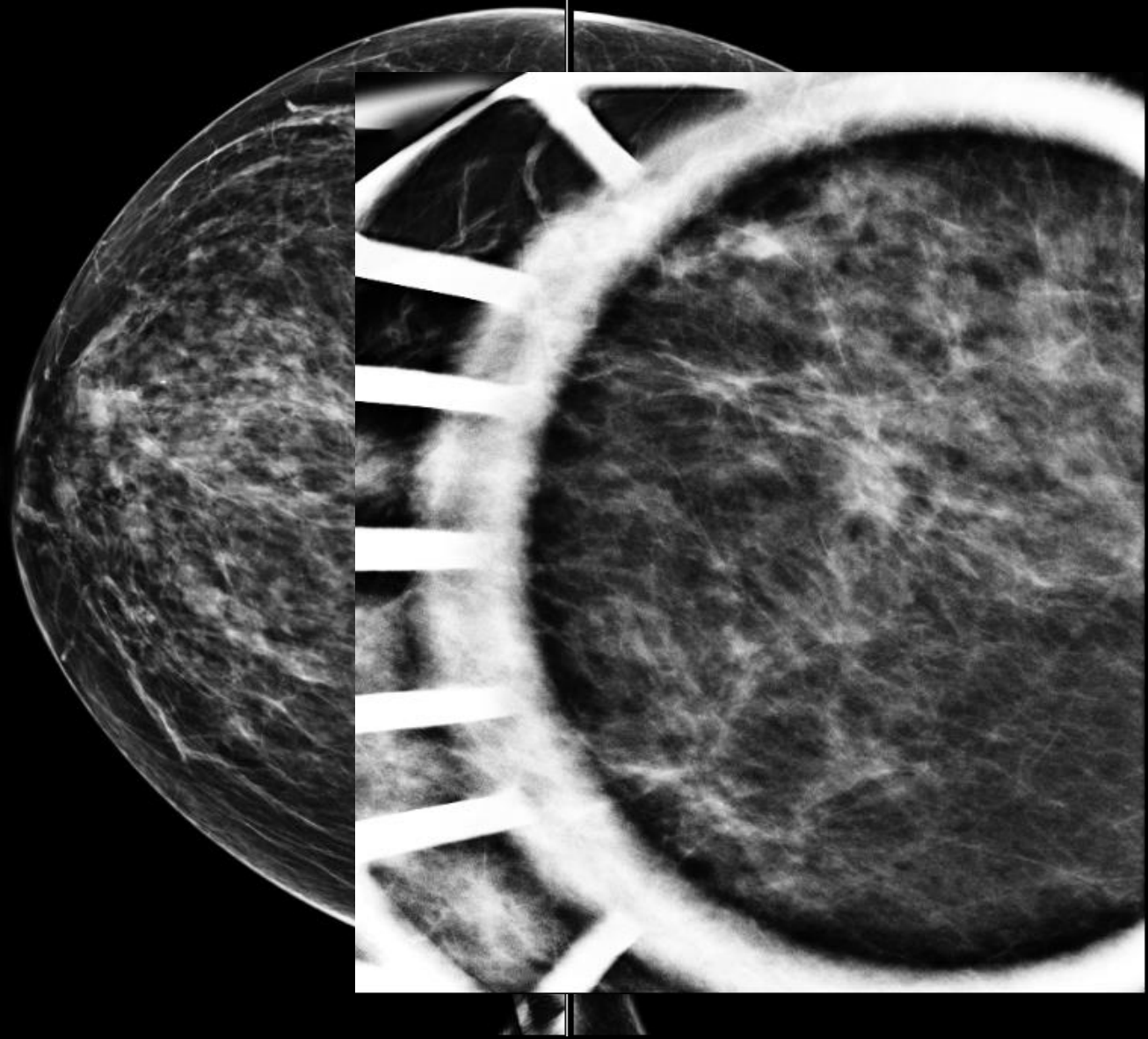


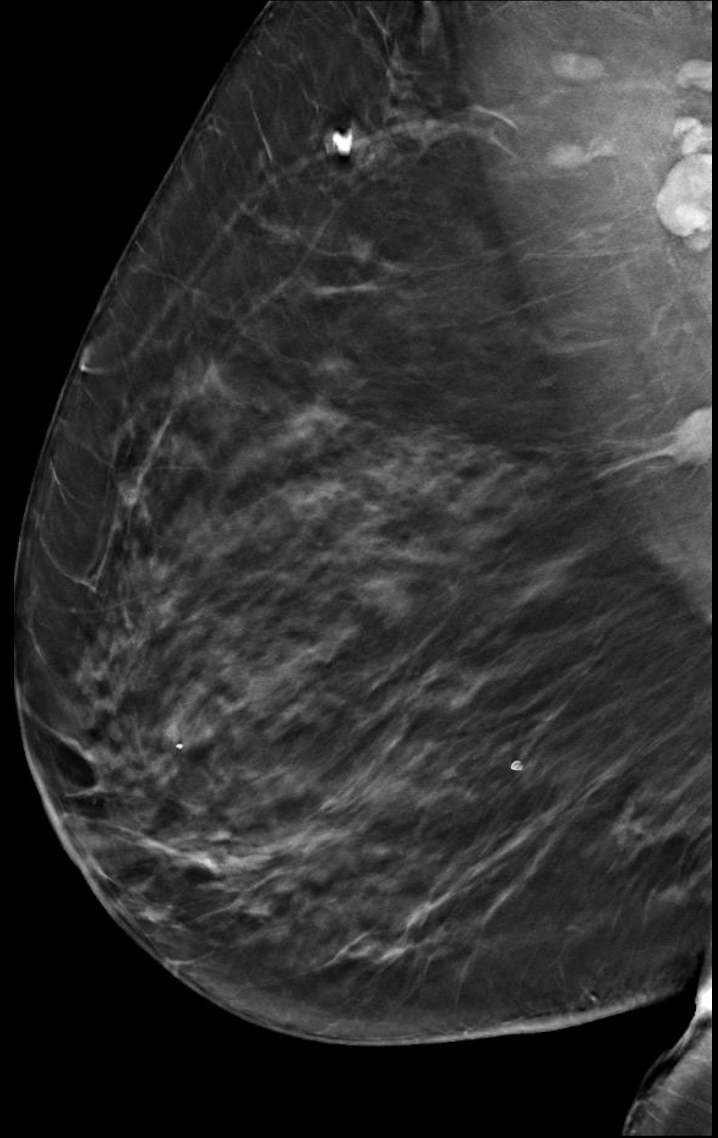
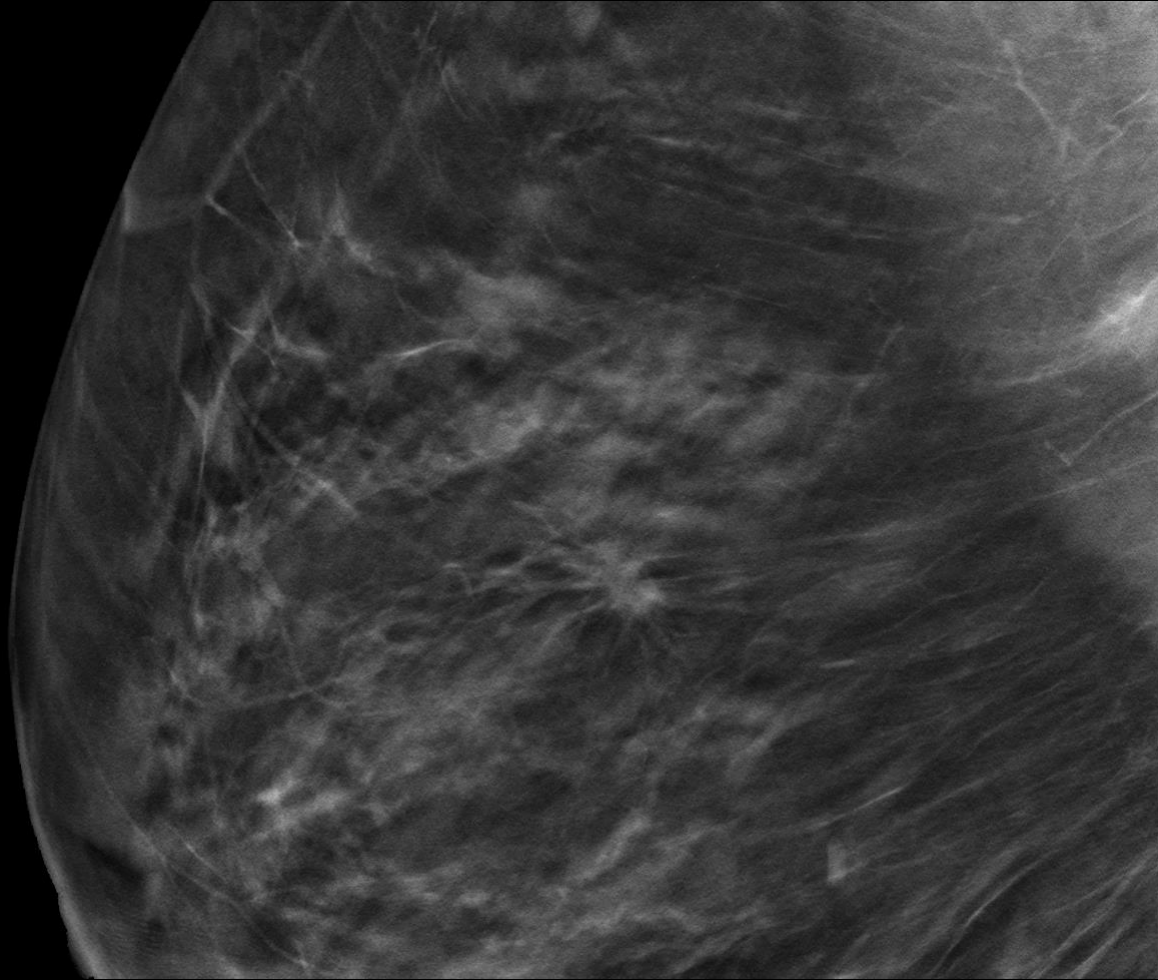
Breast Cancer Rates Over Time

- 1989-2012- Breast cancer death rates decreased by 36%:
 - Decrease evident in all groups except American Indian/Alaska Natives
 - Death disparity between black and white women continued to widen
 - By 2012, death rates were 42% higher in black women than in white women
 - Racial disparities are likely to continue (at least short term) even though incidence rates have been increasing in black women

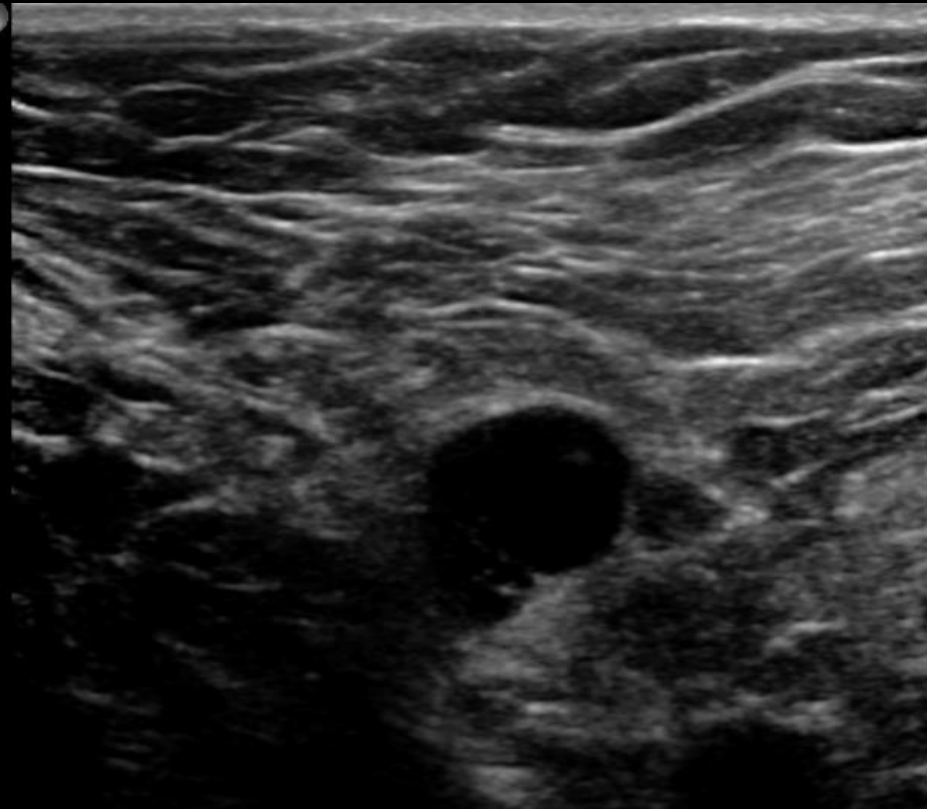
64-year-old black woman presents for screening mmg - Prior screening 3 years and 8 months ago



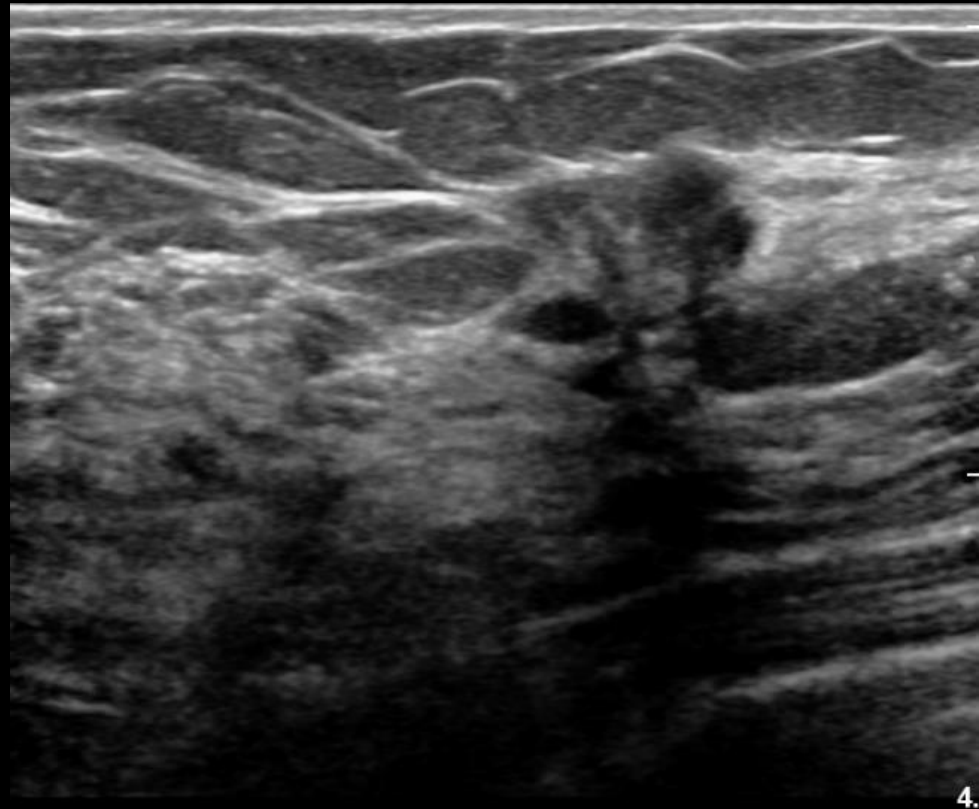




DBT work-up



RT Breast Axilla



RT Breast 9:00 8 CM from Nipple Long

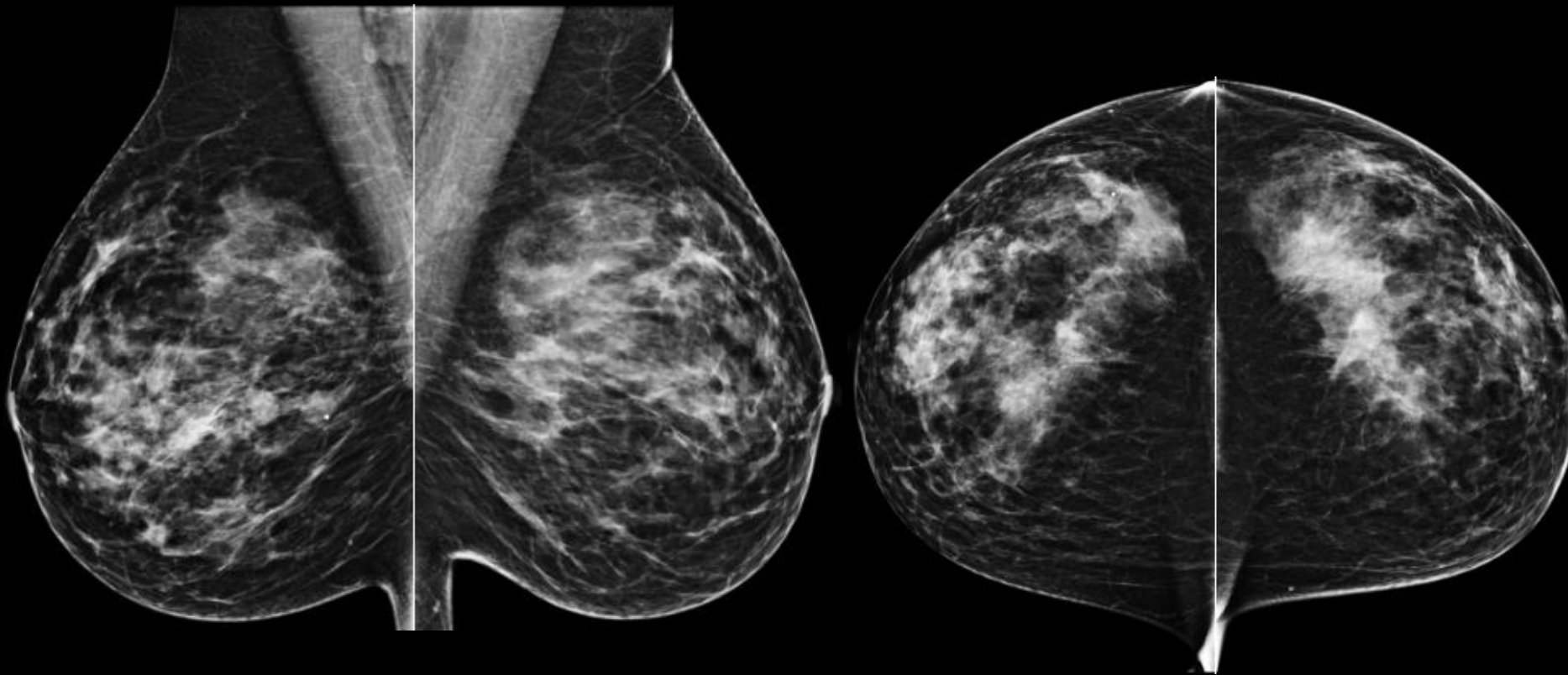
ILC grade 2, 21/21 LN positive Stage IIIC
Treated with lumpectomy, chemo and radiation
Annual f/u post-surgical- stable

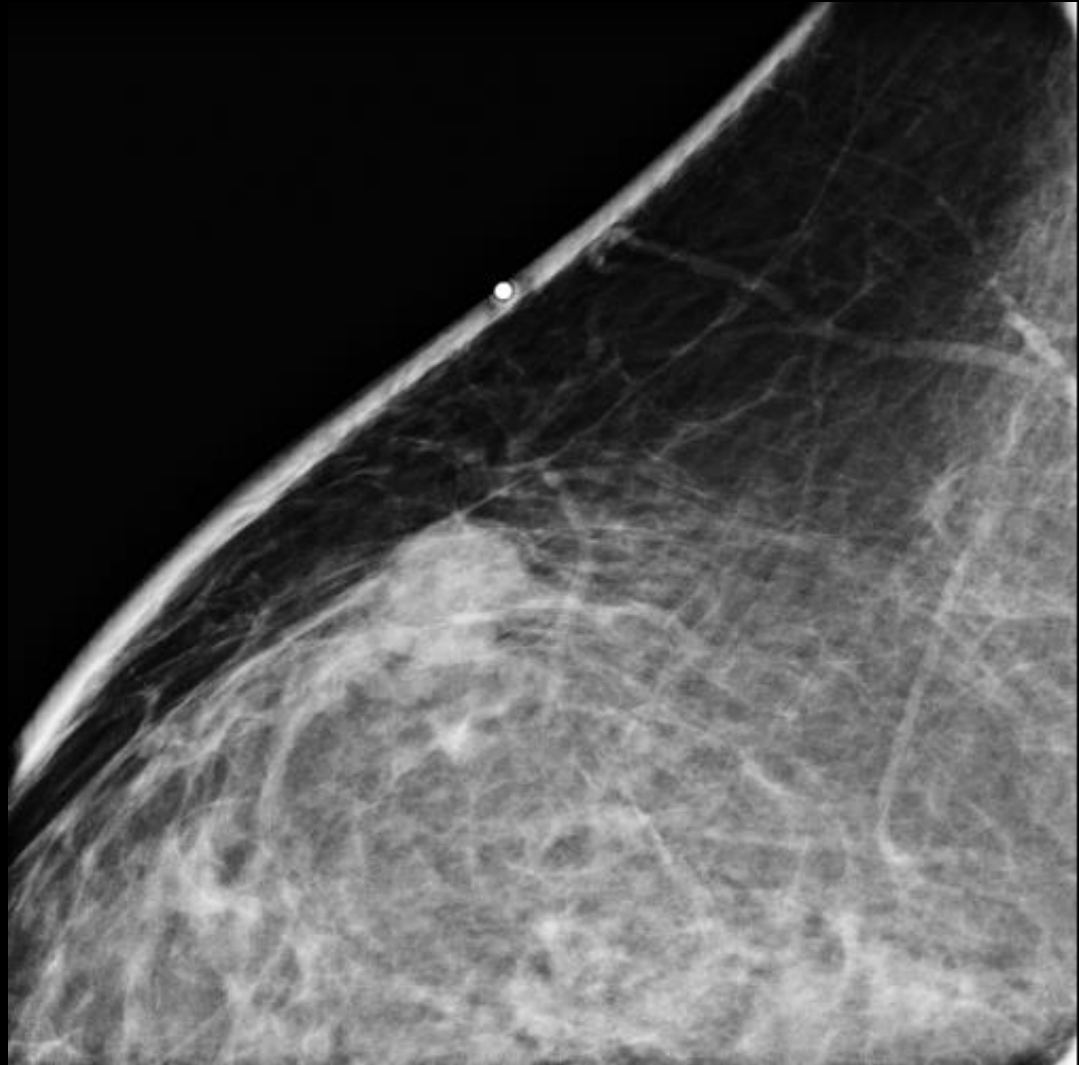
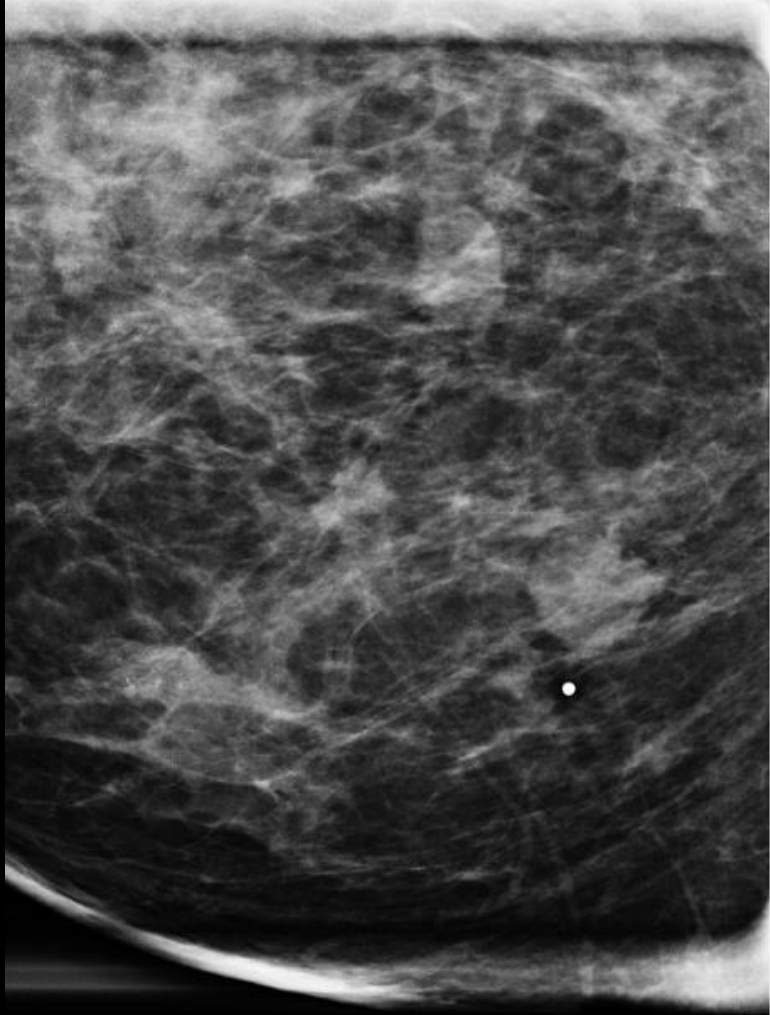
Triple Negative Research

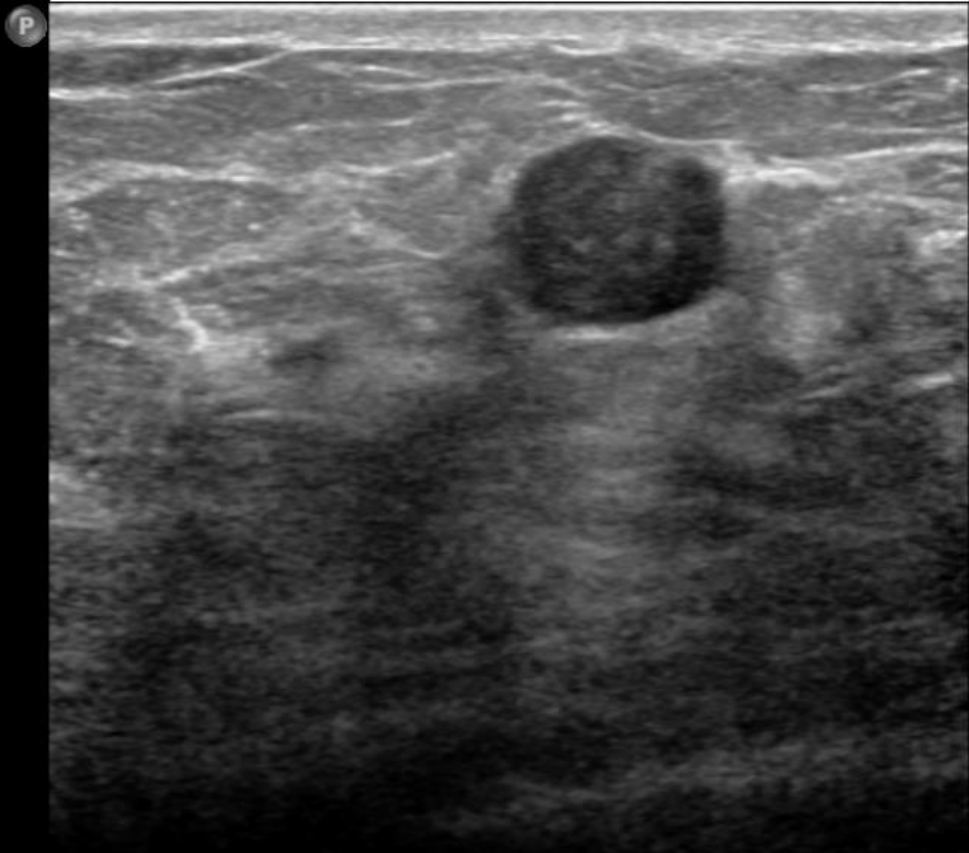
- Recent data show a 2-fold higher population-based incidence rate of triple-negative breast cancer in African American women compared with white American women in all age categories [Amirikia Cancer 2011, Kohler JNCI 2015, Newman JAMA 2017]
- Destounis et al: evaluated the unique characteristics of triple negative breast cancers (TNBC) by comparing with all other cancers diagnosed in a 14-year period
- 8356 cancers diagnosed 2000-2014
 - 393 (5%) were TNBC in 374 patients, 7963 other breast cancer subtypes

Characteristics	TNBC Group	Non TNBC Group
Patient age	58	61
African American	5.8%	2.9%
Dense tissue	50%	38%
Screen detected cancer	41%	44%
Lesion type: mass	91%	59%
Tumor size	2.0cm	1.4cm
Invasive pathology	96%	75%
Positive lymph nodes	24%	18%

37-year-old black woman presents for diagnostic evaluation







Invasive ductal carcinoma
grade 3
1 SLN positive

RT Breast 8:00 8 CM from Nipple AOC TRANS

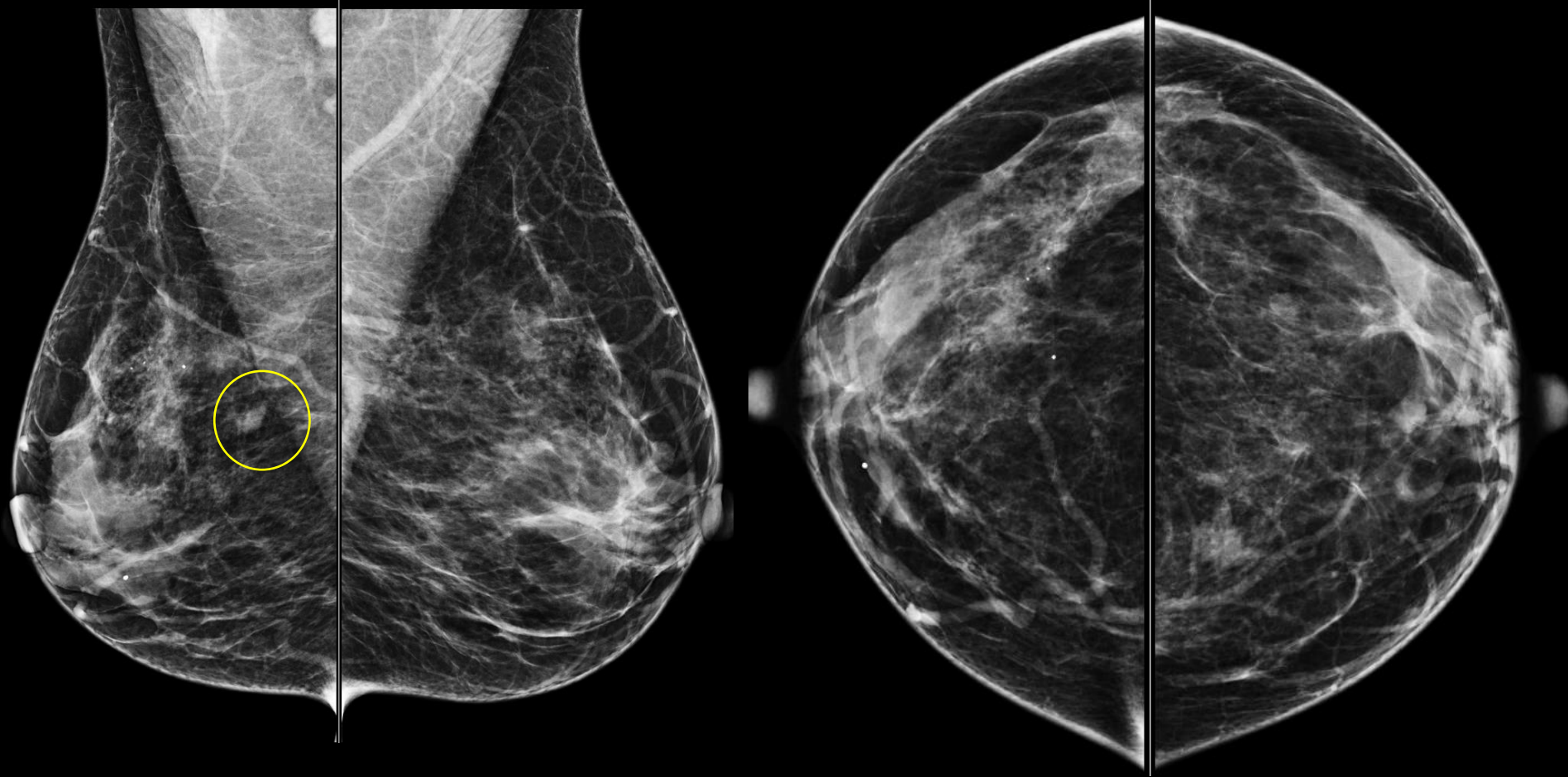
Destounis Conclusions

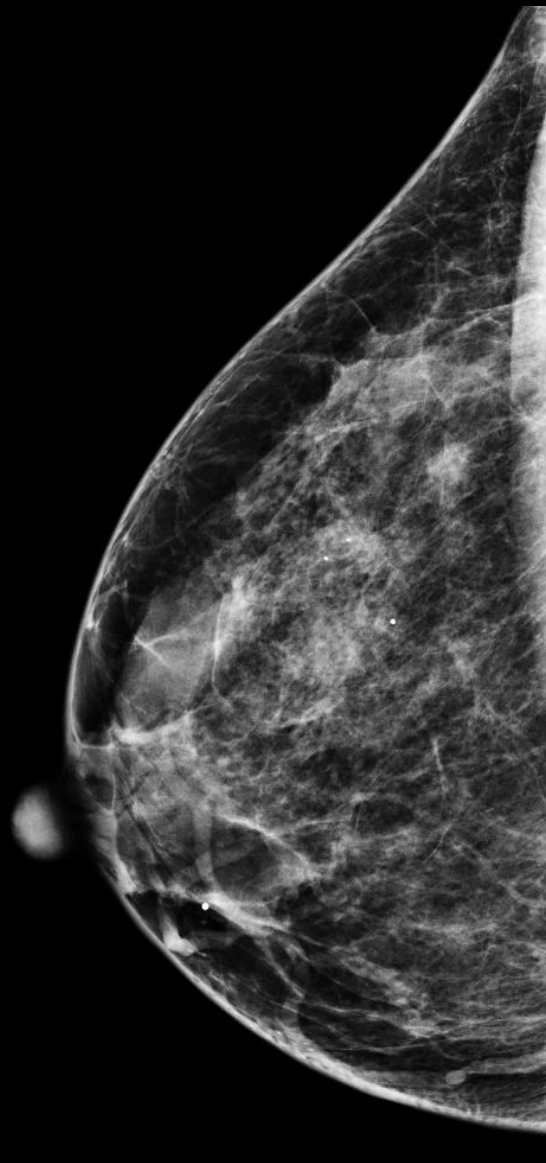
- Triple negative breast cancer is more likely to present as large mass lesion with invasive pathology in comparison to other breast cancer subtypes
 - As well as in younger women, more likely of African American descent
- These tumors were associated with a higher percentage of lymph node metastases
- Our study had similar findings to other studies published to date

Lin 2012: Clinicopathological Features, Patterns of Recurrence, and Survival

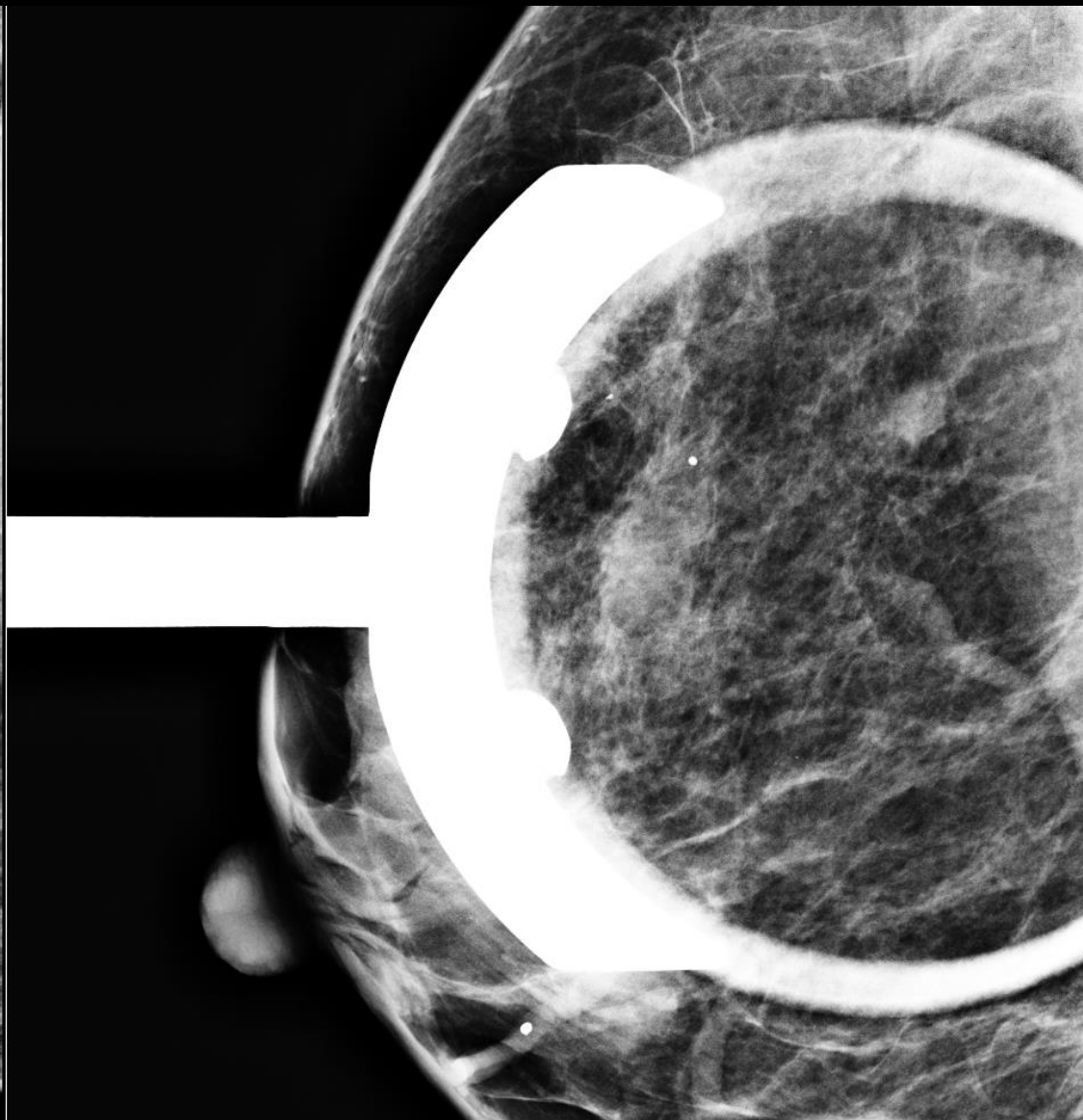
- Looked at features, patterns of recurrence, and survival according to breast cancer subtypes with focus on triple negative
- More frequent in African Americans
 - Premenopausal women with high body mass index had an increased likelihood of triple negative
 - Triple negative cancers were associated with a higher risk of brain or lung mets
- Triple negative cancers are associated with unique risk factors and worse outcomes

52-year-old black woman presents for screening

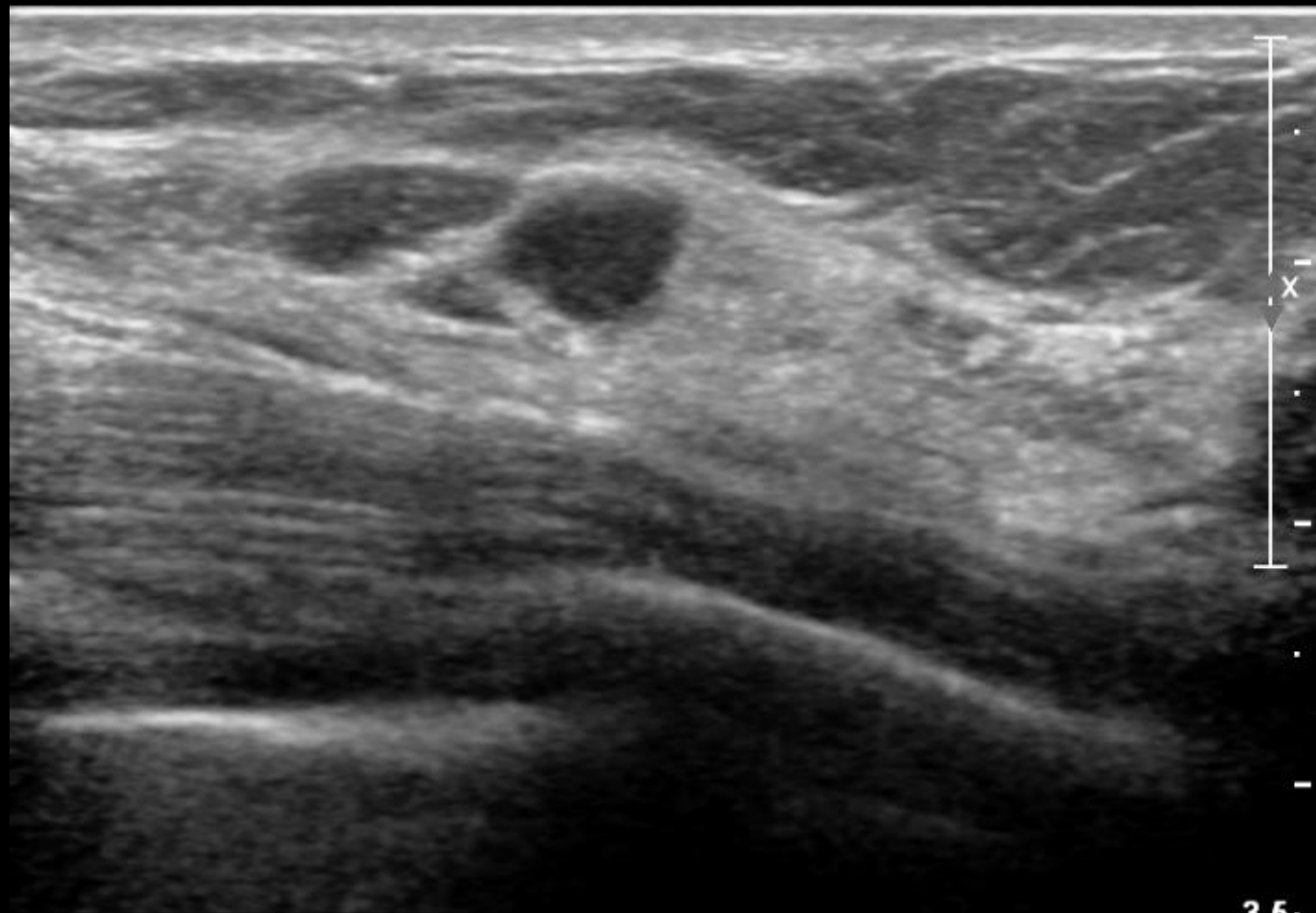




Exaggerated CC



Spot compression



3.5

RT Breast 9:00 8 CM from Nipple Trans

Invasive ductal carcinoma

Triple negative

1 SLN Positive

Treated with mastectomy and chemo

Time to Treatment

- Disparities are well documented, with African American women facing longer time to treatment for surgery, chemo, radiation, and endocrine therapy, compared with white women[Bachand, Polverini, Jackson, Khorana]
 - These delays correlate with worse outcomes and reduced overall survival

Smith- Delay in Surgical Treatment and Survival After Diagnosis

- 8860 cancers in young women (age 15-39) from 1997-2006 California Cancer registry

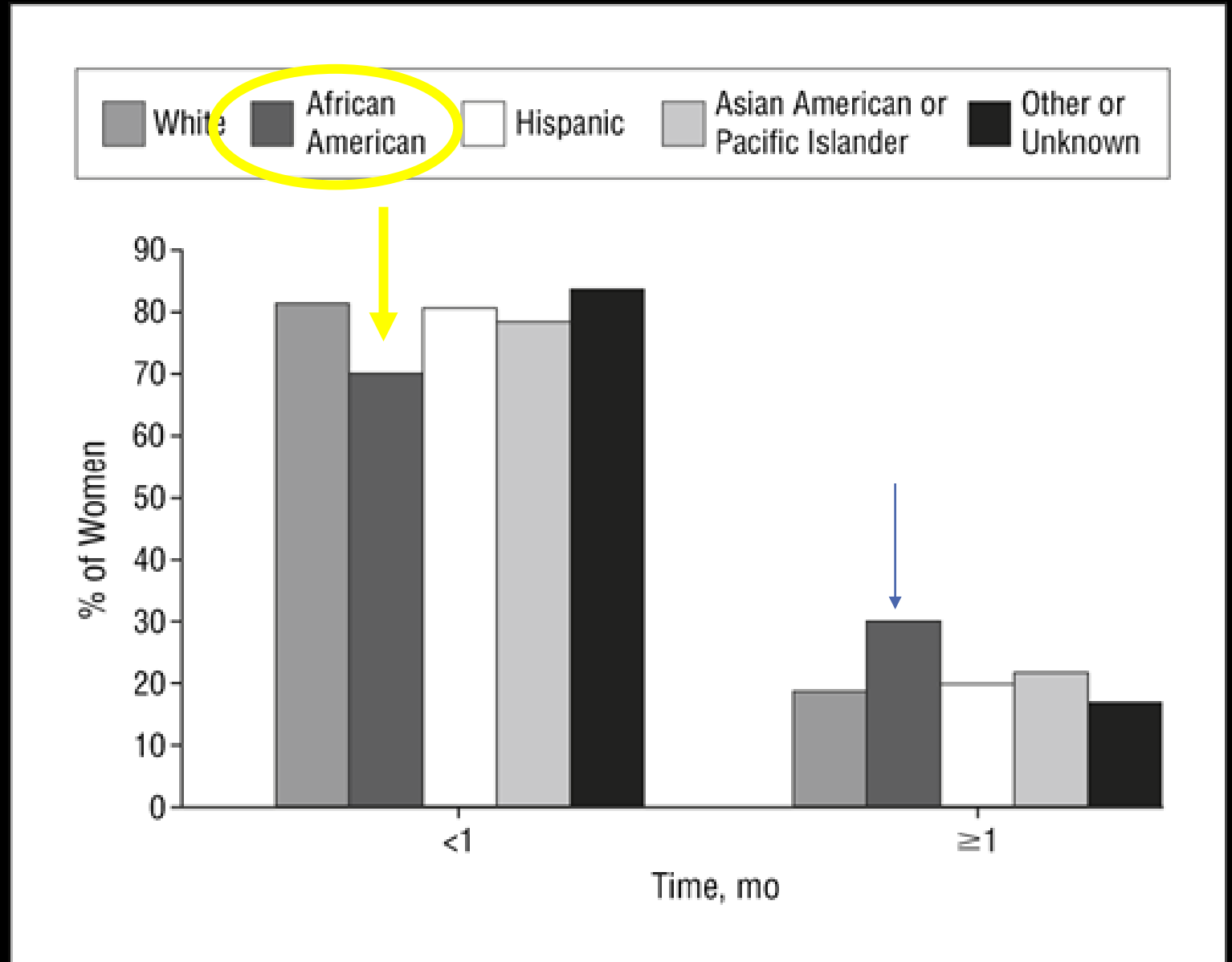
Treatment delay time of >6 weeks

Hispanic	15.3%
African American	15.3%
White	8.1%
Public/No insurance	17.8%
Private insurance	9.5%
Low socio-economic status	17.5%
High socio-economic status	7.7%

Smith- Delay in Surgical Treatment and Survival After Diagnosis

- 5-year survival for those with surgery, treatment delay time of >6 weeks 80% vs. 90% for those treated within 2 weeks
- Young women with delayed treatment had decreased survival time vs. those with shorter treatment times
 - More pronounced in black women, those with public or no insurance, those with low socioeconomic status

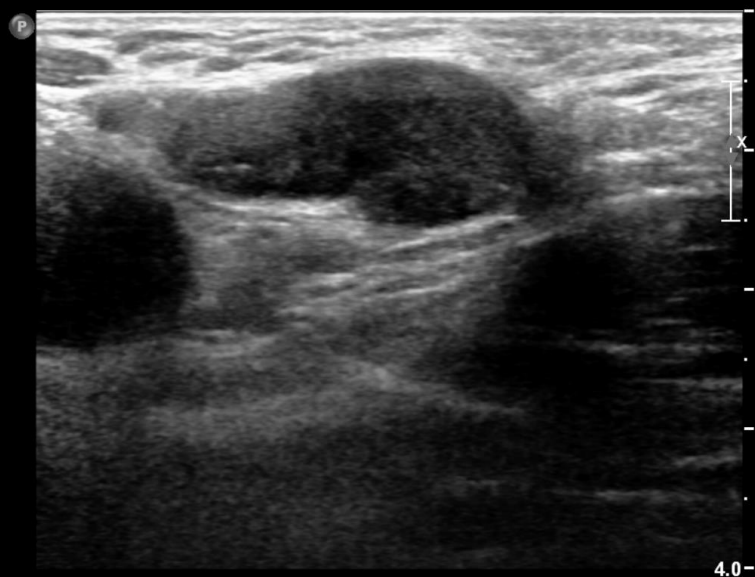
Women Experiencing Treatment Delay by Race/Ethnicity



23-year-old black woman presents with painful Left breast lump

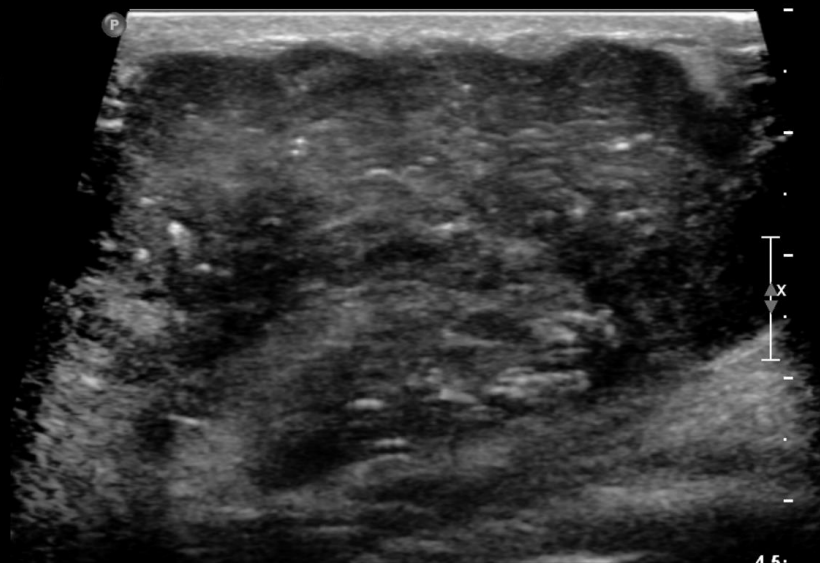


Left Axilla



Left Axilla AOC

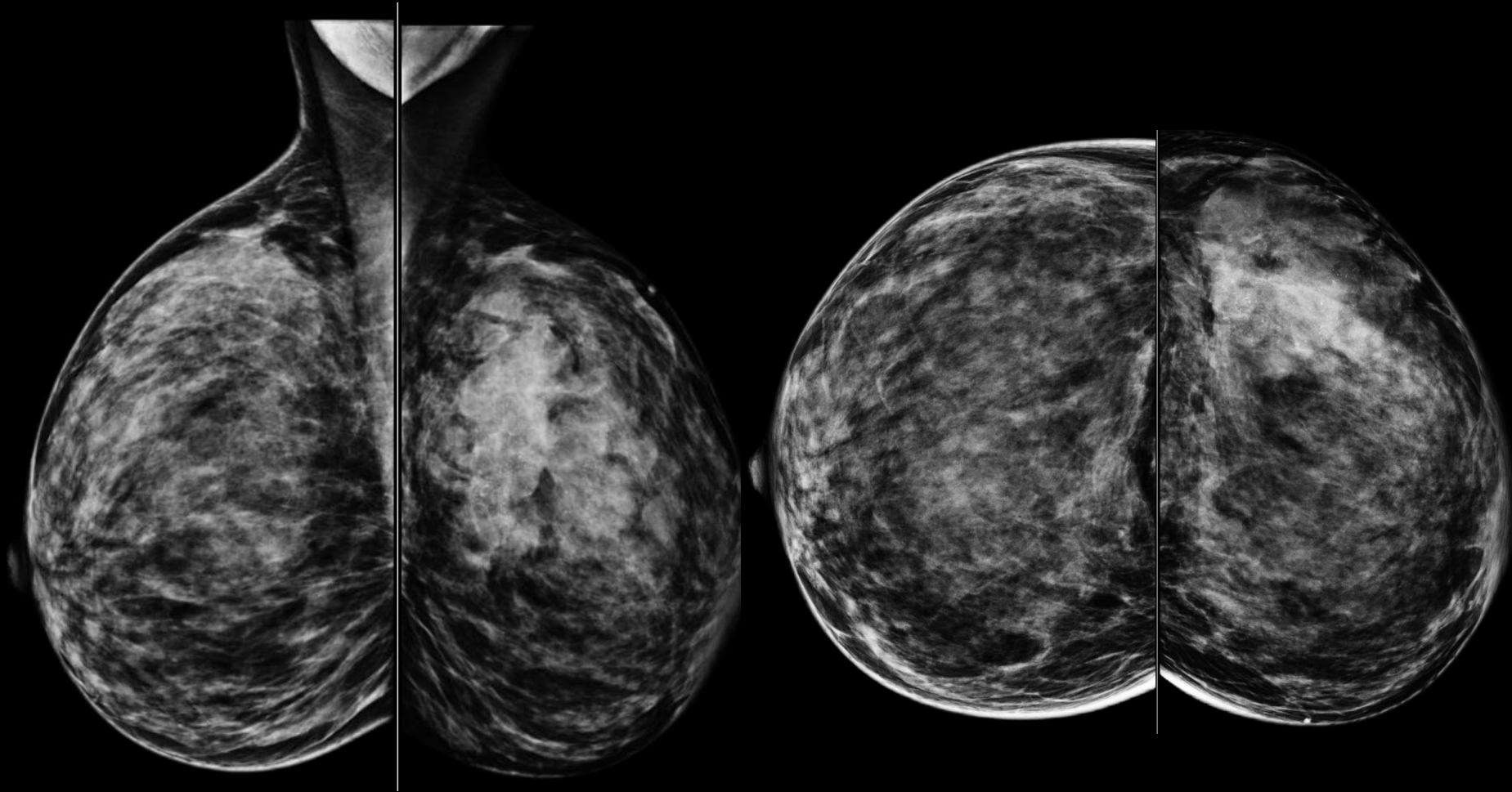
2D
64%
C 58
P Med
Res
TAC1



Left 3:00 4 cm from nipple Trans AOC

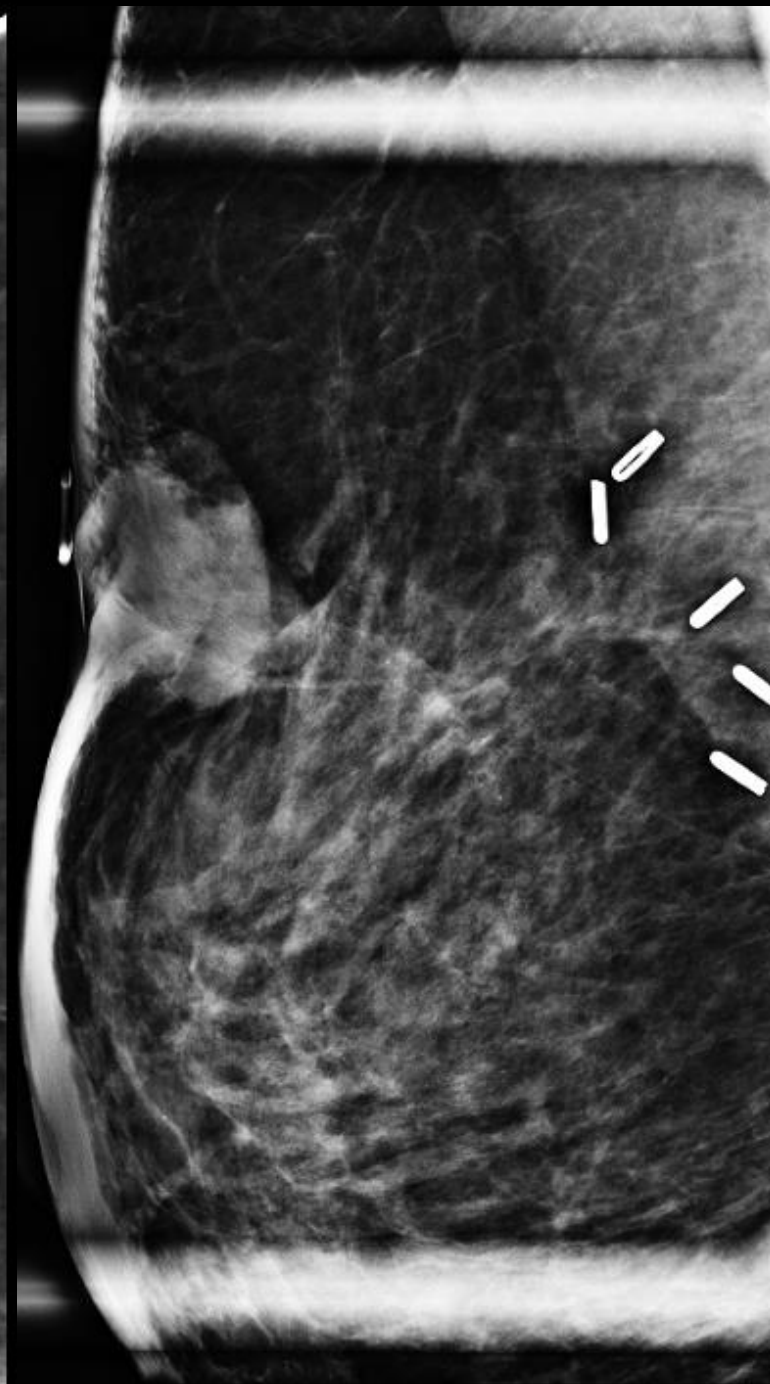
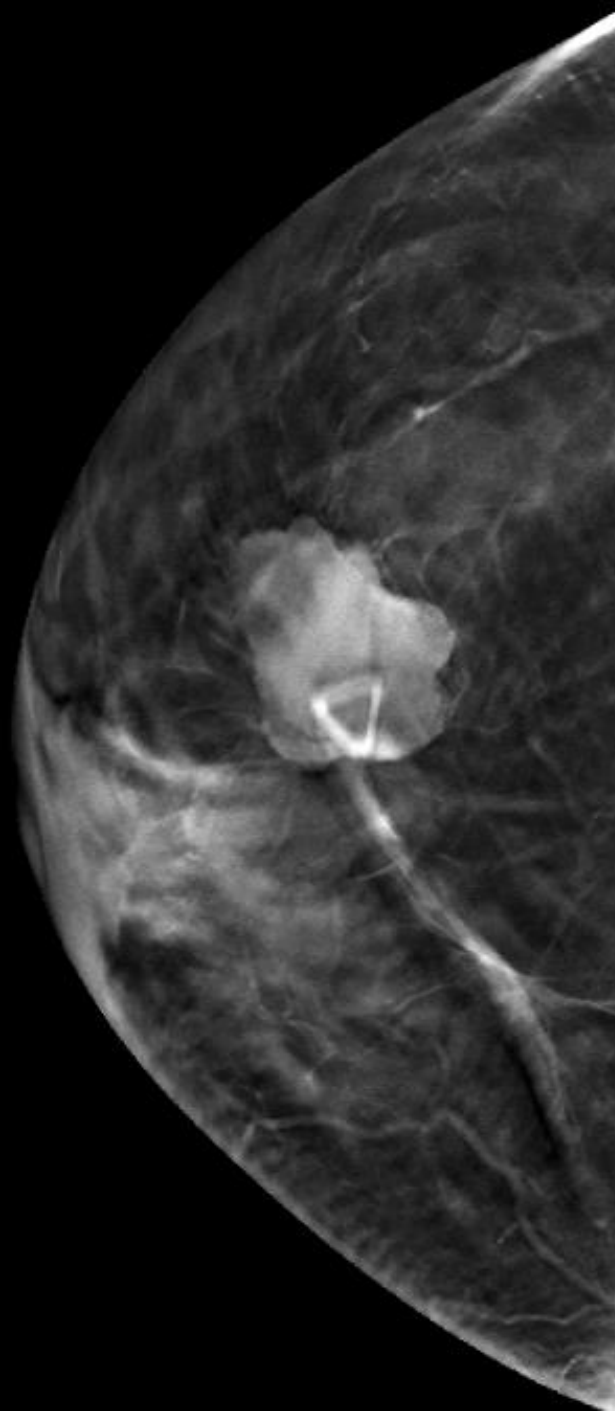


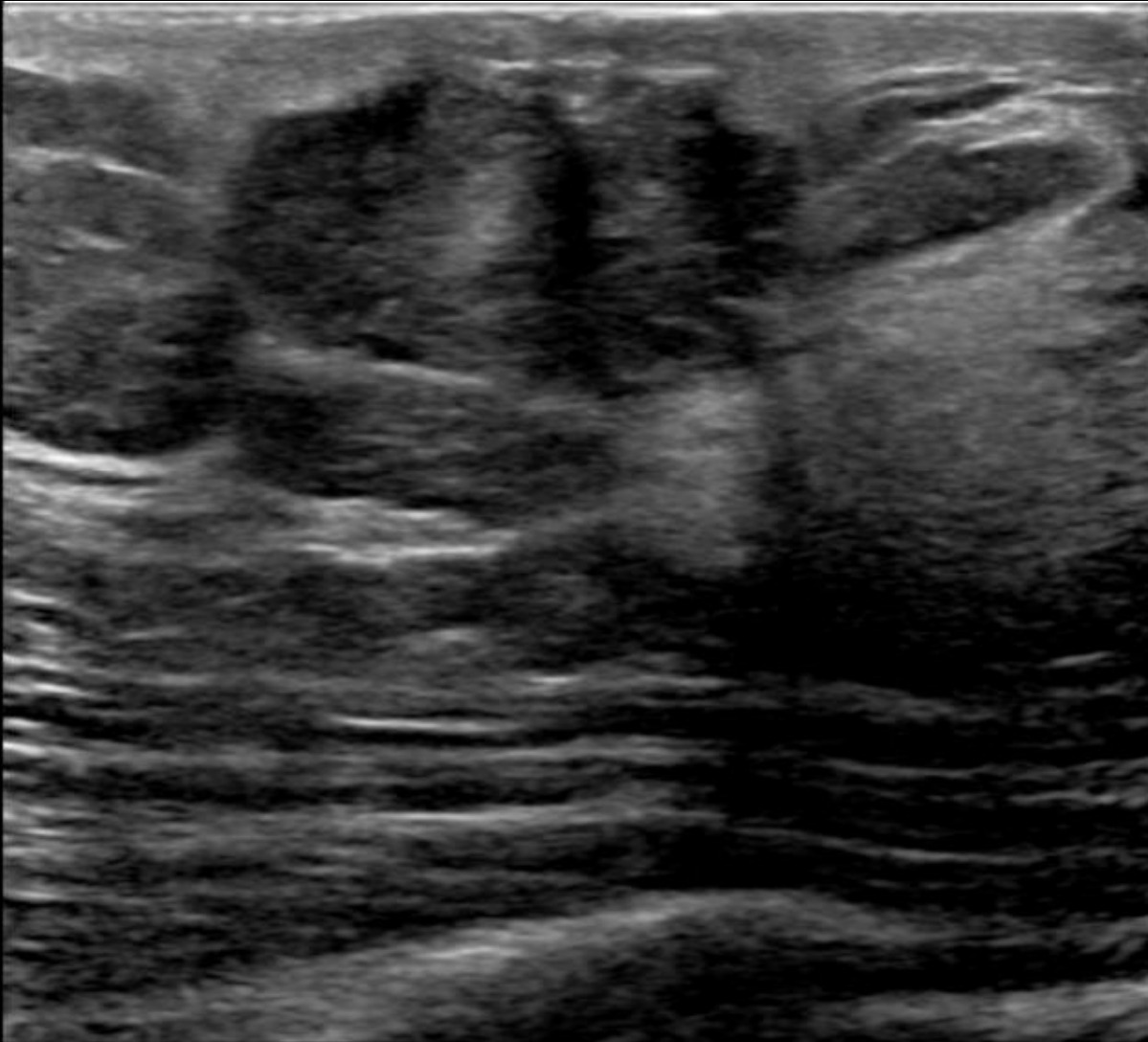
Left 4:00 2 cm from nipple Trans



- Chemo prior to surgery
- Treated with Mastectomy
 - IDC, DCIS
 - 7/25 positive nodes
- Prophylactic Right Mastectomy
 - FCC
- Genetic Testing: BRCA Positive
- Ongoing chemo
 - Bone mets

64-year-old black woman presents for evaluation of right lump - prior right breast cancer at age 54 and 60, both treated with lumpectomy only

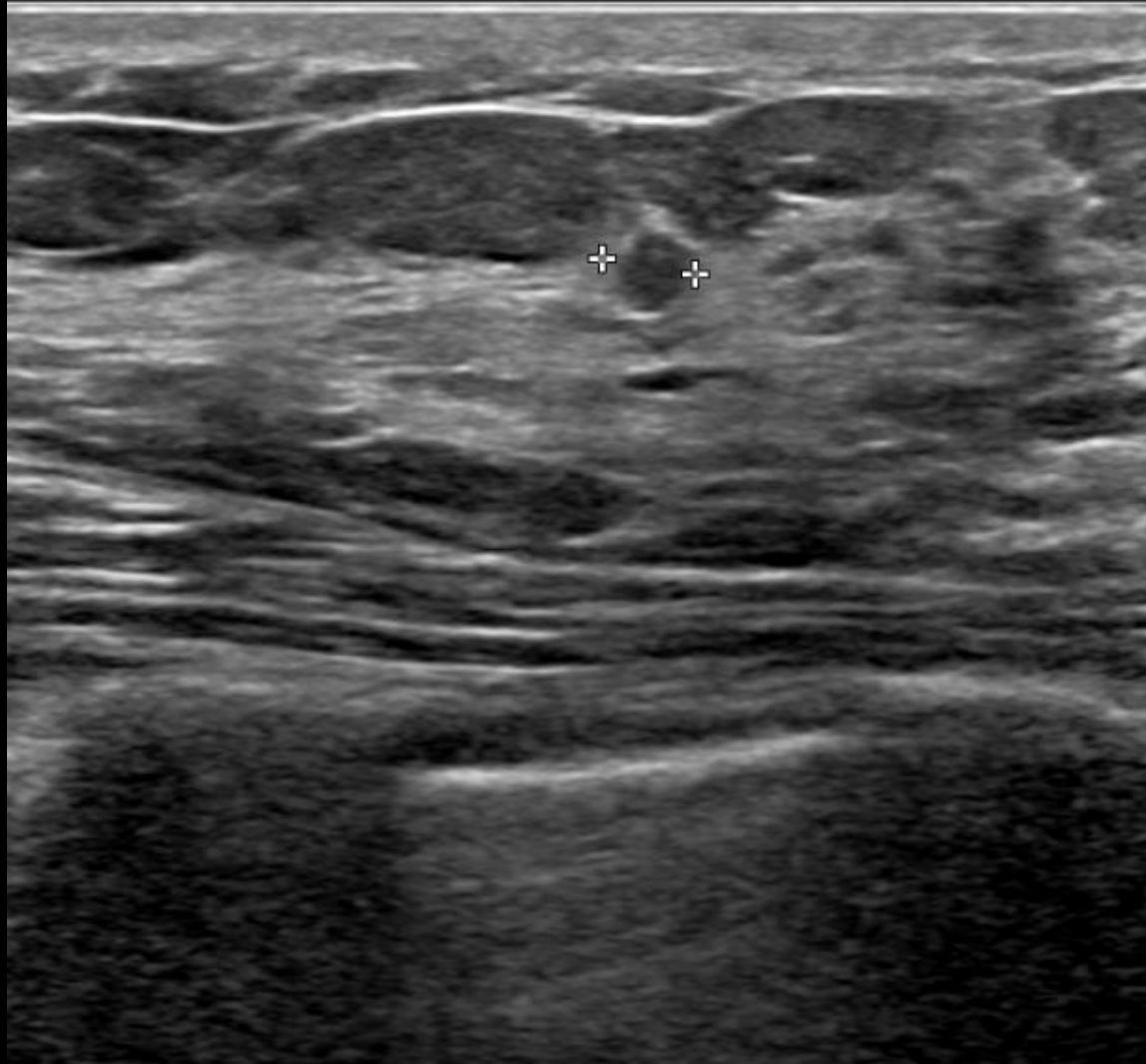




Mucinous carcinoma,
grade 2
ER +, PR +, Her2 -

RT BREAST 1130 2 CMFN Long AOC |

Extent of disease MRI identified additional area in Right breast



Invasive mucinous carcinoma, grade 2
ER +, PR +, Her2 -

RT BREAST 3:00 1 CMFN Long

- Pt has declined all treatment
 - Suspected metastatic lung cancer in addition to BC

Can Breast Centers Minimize Racial Disparities?

- Community education and outreach
 - Breast cancer screening education
 - Breast health
 - Mobile screening services
- Location
 - Urban
 - Bus route
- Cancer Services Screening Days – screening for uninsured
 - Mammogram
 - Clinical breast Exam

How Can We Reach This Population for Screening?



Is it lack of trust in the medical providers?

We know that this does exist due to past experiences in minority communities



Investigate the models that have worked

Emulate what has been successful

Impact of COVID-19

- Reports from May, June, and July of 2020 indicated that the use of radiologic imaging, including mammography, decreased after emergence of the COVID-19 pandemic
- COVID-19 has not affected all demographic subgroups equally, with higher incidence and death rates among Black and Hispanic populations and older individuals
 - If these groups perceive themselves as being at higher risk of harm from COVID-19, they may also be more likely to avoid preventive care and disproportionately more likely to experience delayed cancer diagnoses

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Thank you!
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