UC San Diego Health

Breast Cancer Screening and Disparities: Bridging the Gap

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I have no financial interests or relationships to disclose.

Learning Objectives

- Define health disparities and explain their impact on breast cancer screening and survival.
- Analyze the role of race, ethnicity, and socioeconomic status in contributing to disparities in cancer care.
- Identify evidence-based strategies to improve equity in breast cancer screening and outcomes.

- Breast Cancer is the most common cancer in American women, except for skin cancers
- 1 in 8 chance
- Approx 13% chance in a lifetime
 - Women>Men
 - New cases:
 - 270,000 women (1 in 8)
 - 2600 men



Pic from Vectesy

Breast Cancer Survival Disparity

About 42,000 women and 500 men in the U.S. die each year from breast cancer.

- White women and African-American (AA) women have a similar incidence of breast cancer, although AA women are more likely to die from the disease
 - Approx 45% higher risk of death
- We still have work to do!

Health Disparities Definition

- The Department of Health and Human Services (HHS) defines health disparities as differences in health outcomes that are closely linked with social, economic, and environmental disadvantage
- CDC Definition: Health disparities are preventable differences in the burden of disease or opportunities to achieve optimal health that are experienced by socially disadvantaged populations.
- In summary, health disparities are, "Differences in health outcomes between people of advantage vs disadvantaged backgrounds that are unfair or avoidable"

Health Disparities

- Health disparities can affect groups of people based on various things including:
 - <u>Race</u>
 - Ethnicity
 - Disabilities
 - Sex/gender or sexual orientation
 - Geography
 - Income
 - Level of Education
 - Immigrant Status

Racial and Ethnic Categories/Definitions

- <u>Black/African-American</u>: A person having origins in any of the black racial groups of Africa (continent, and great amt of genetic and cultural diversity).
- <u>Hispanic (Ethnicity, not race, based on colonization)</u>: A person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race.
- <u>White</u>: A person having origins in any of the original peoples of **Europe, North Africa, or the Middle East.**
- <u>Asian or Pacific Islander (two very different groups)</u>: A person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes, for example, China, India, Japan, Korea, the Philippine Islands, and Samoa.
- <u>American Indian or Alaskan Native</u>: A person having origins in any of the **original peoples of North America, and who maintains cultural identification** through tribal affiliation or community recognition.
- Confusing and fluid categories

Source: Adapted from CDC

Race and Ethnicity

Race

- How someone self identifies
- Or how others identify that individual
- Ex: Black and White
- Ethnicity
 - Identity based on shared traditions, foods, language and cultural
 - Hispanic
 - Ex: Black Hispanic and White Hispanic

Health disparities refer to differences in health outcomes and access to healthcare services between distinct population groups, often influenced by social, economic, and environmental factors. These disparities can lead to variations in disease prevalence, mortality rates, and treatment effectiveness, particularly in breast cancer.

What Are The Causes of Health Disparities?



Determinants of Health Disparities

Why Do U.S. Cancer Health Disparities Exist?

Complex and interrelated factors contribute to cancer health disparities in the United States. The factors include, but are not limited to, differences or inequalities in:



Adapted from American Association for Cancer Research (AACR) Cancer Disparities Progress Report 2020

Socioeconomic Factors

- Socioeconomic status significantly impacts breast cancer screening rates, with lower-income individuals often experiencing barriers to accessing these services.
- Factors such as education, income level, and employment status can influence one's awareness of screening guidelines and their ability to obtain medical care.

Racial and Ethnic Disparities

- Data shows that racial and ethnic minorities, such as African American and Hispanic women, often face lower screening rates compared to white women.
- These disparities are influenced by cultural beliefs, historical mistrust in the healthcare system, and systemic racism.

Access to Healthcare

 Access to healthcare is a crucial determinant of cancer screening rates. Geographic location, availability of medical facilities, and transportation issues significantly influence whether individuals can receive timely screening, leading to disparities in outcomes.

VA Study Shows No Disparities in Prostate Cancer with Equal Access to Care

- In US, Black men are more likely to be diagnosed with prostate cancer
- And twice as likely to die from the disease
- Present with more advance disease
- Perception in medical community is the Black men inherently have more aggressive disease.
- Dr. Brent Rose, Rad Onc at UCSD and colleagues study published in *Cancer*.
- Found that among pts treated in US VA health care system where all patients have equal access to care Black men did not appear to have a higher death rate when compared to whites

- Observational study
- More than 60,000 men with prostate cancer from a large nationwide database treated in VA system
- Diagnosed between 2000 and 2015
- 30.3% Black and 69.7% White
- Median follow up time approx. 6 yrs.
- Black men did not experience delays in diagnosis or care for cancer

• Results:

- Black men were no more likely to be diagnosed with more advanced or more aggressive cancer
- And Black men were no more likely to die of their disease
- In fact, Black men were slightly less likely than white men to die from prostate cancer within 10 yrs of diagnosis
 - 4.4% Blacks, 5.1% Whites

Impact of Insurance

- Insurance coverage plays a vital role in determining access to breast cancer screenings.
- Uninsured individuals are less likely to receive regular screenings, while those with comprehensive insurance are more likely to adhere to guidelines, demonstrating the connection between coverage and healthcare utilization.

Gene-Environment Interaction in Cancer Development

- Intrinsic factors (Genetics)
- Extrinsic factors (Environmental)
- There are geneenvironment interactions



The Role of Intrinsic or Genetic Factors in Cancer Disparities

- Intrinsic factors (Genetics)
- Extrinsic factors (Environmental)
- There are geneenvironment interactions



Germline mutations le: Brca mutations, PALB2, ATM Occupation Geographic location Inability to exercise Prenatal (infection, smoking, stress, substance abuse) Perinatal (pre-term, birth complications) Postnatal (parental loss, trauma/abuse)

Race and Genetics

- It is the segregation of populations of people based on race, ethnicity, economics or other factors that can lead to increase of prevalence of specific gene or collection of genes in the segregated population.
- Ex. BRCA1 and BRCA2 found in women of all races, but more common in some (i.e. Ashkenazi Jews and Blacks)

Black Women Have Higher Rates of BRCA Mutations

- BRCA 1 and BRCA 2 genetic mutations:
 - Have a 69% to 72% risk of developing breast cancer
 - Higher risk of ovarian cancer (17-44%)
- Approx 3-5% of women dx with breast cancer in the US have a BRCA1 and BRCA 2 mutation
- This estimate is based on research done primarily in non-Hispanic white women

Breast Cancer Disparities in BRCA mutations

- Sub-Saharan Africa studies show a strikingly high occurrence of germline mutations in BRCA1 and BRCA2 among these breast cancer patients
 - 5.6% BRCA 1
 - 5.6% BRCA 2
- In the **Bahamas Blacks** have the highest incidence of inherited breast cancer in the world due to BRCA mutation (23%)
 - Comparison: 3-5% in US with BRCA mutations
 - Askenazi Jewish: 11% BRCA
- Study done looking at Black women dx with breast cancer at age <50 yrs old from 2009-2012
 - Florida Cancer Registry
 - 12.4% had a mutation in BRCA 1 and BRCA 2

Breast Cancer Disparities in Black Women

- Black women are more likely to be diagnosed at a younger age (<45 y/o)
- Black women present with more advanced disease



Breast Cancer Statistics					
106	New cases per 100,000 women	123			
31	Deaths per 100,000 women	19			
76%	Five-year relative survival rate for all women	91%			
77%	Five-year relative survival rate for white women	92%			
65%	Five-year relative survival rate for Black women	83%			

Incidence and mortality rates are from 1975 and 2020. Five-year relative survival rates for all women are from 1975 and 2015. Five-year relative survival rates by race are from 1975-1977 and 2012-2018.

Sources: American Cancer Society, the National Cancer Institute's Surveillance, Epidemiology, and End Results Program (From Cancer Today article)





Figure 11. Five-year Relative Survival Rates (%) by Stage at Diagnosis and Race/Ethnicity, US, 2012-2018

Note: Race is exclusive of Hispanic origin. Survival rates are based on patients diagnosed during 2012-2018 and followed through 2019. Survival for AIAN individuals is based on patients diagnosed in PRCDA counties.

Source: SEER Program, 17 SEER registries, National Cancer Institute, 2022.

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Importance of Early Detection

- Breast cancer is most treatable when detected early.
- Regular screenings can identify cancers before symptoms develop.
- Regular screening can lead to early diagnosis, less aggressive treatment, and improved survival rates.
- Common screening methods include mammography, clinical breast exams, and self-exams. Each method serves a unique purpose, with mammograms being the most effective for early detection.

Breast Health Disparities: Cancer Prevention

- Early detection with mammograms saves lives!
- Early screening has shown to reduce mortality rates by 20-30%.





Screening Mammogram Recommendations

- UC San Diego Health recommends:
 - All women 40 and older
 - Yearly screening mammogram
 - And high risk breast cancer patients
 - Recommendations are made considering genetics and/or family history





Screening Recommendations for Dense Breasts

- Younger women tend to have denser breasts
- Screening Guidelines 2024: United States Preventative Services Task Force (USPSTF) recommends breast cancer screening start at age 40, instead of previously recommended age of 50, and continue to age 74.
- Dense breast can make it more difficult to find a cancer
- And dense breast can be more likely to develop cancer
- Sept 2024 FDA new guidelines required: Density of breast must be on mammogram reports.
- Women are notified if dense breasts and encouraged to follow up with providers about next steps. (ie: MRI, Ultrasound, 3D mammogram)

Screening and Diagnosis Disparities

- High quality mammography and assessment and treatment lowers mortality rates by 20% to 30%
- Differences in utilization of mammography
 - White v. Black v. Hispanic (71% v. 68% v. 53%)
 - Poor v. Non-poor (55% v. 77%)
 - In San Diego utilization has remained stagnant at 47%
 - We need to encourage women to get regular mammograms.

Improve Access and Adherence to Cancer Screening: Breast Cancer Screening Study

- Title: The Effect of The Affordable Care Act on the Initial Stage of Presentation of Breast Cancer in a Safety-Net Hospital
 - Ana Sandoval, Swapna Ghanta, Angelique Richardson, Susan Kesmodel, Judith Hurley
- University of Miami, under mentorship of Dr. Marc Lippman and Dr. Judith Hurley
- Background:
 - It is known that there are disparities in breast cancer (BC) screening.
 - Black and Hispanic women have a lower rate of screening mammography than white women and are routinely diagnosed at a later stage.
 - Women without insurance are less likely to seek medical care







- The affordable care act (ACA) was signed into law on March 3, 2010. The goal was to increase the number of insured people.
- In Jan 2011, it was mandated that health insurance providers cover the cost of screening mammograms.
- Prior to ACA it was estimated that 25-35% of Miami-Dade county residents were uninsured or underinsured.
- By Jan 2017, more than 1.3 million people in Florida had signed up for health insurance through the ACA.
- South Florida was home to the highest concentration of ACA enrollees in the US.
- In this study, we compared the stage of breast cancer diagnosis and insurance at presentation in patients before and after the installment of the Affordable Care Act.

- A retrospective review of patients diagnosed with invasive and in situ breast cancer at the Breast Diagnostic Center at Jackson Memorial Hospital between 01/01/2007-12/31/2017.
- Collected data: Age, stage at diagnosis and type of insurance.
- We postulated that evaluating the number of patients diagnosed, the stage at which they are diagnosed and the type of insurance used for the period of time 6 years before (2007-2012) and 4 years after the implementation of the ACA (2014-2017) should give a picture of the effect of the ACA on breast cancer diagnosis in an underserved population. In keeping with other similar studies, the year2013 was excluded since it was a transition period.
- The trends were compared using ANOVA and chi-squared tests.

- Results:
- A total of 2155 patients were analyzed.
- The absolute number of patients with stage 0 seen every year remained stable (30 per year) throughout the time period. The percentage of patients with Stage 0 increased from 12.5% to 16.02% (p=0.049). Both the absolute number and percentage of patients with stage IV decreased, from 15 to 8 patients per year (6.42% to 4.12% (p=0.016)).
- The total number of patients diagnosed yearly with breast cancer decreased from 233 to 186 (p= 0.005). The absolute number and percentage of insured patients increased from 75 to 126 patients per year (23.5% to 38.3% (p=0.02)).
- There was no significant change in the stage at presentation after insurance
- Fewer patients were diagnosed with breast cancer at the safety net hospital



• Conclusions:

- We found that in Miami-Dade County after the initiation of the ACA. More patients had insurance and there was a stage shift towards lower stage at presentation. Availability of insurance to residents of Miami-Dade County decreased the burden on the safety net hospital and resulted in the diagnosis of lower stage BC.
- This has a major implication particularly in a time when we are addressing issues such as affordable healthcare, health disparities and health inequities.

Why Is It Important That We Address Health Disparities?



Cost of Health Disparities

- Health disparities have an economic cost
- National Vital Statistics Reports estimated that eliminating health disparities would reduce direct medical care costs by about \$230 billion and indirect costs associated with illness and premature death by more than \$1 trillion.
- Addressing health disparities is cost effective, but also about equity and fairness and consistent with the values of our society.



Direct Medical care costs \$230 Billion

And Indirect cost by > **\$1Trillion!!!**

U.S. Cancer Health Disparities

U.S. Cancer Health Disparities at a Glance

Adverse differences in numerous measures of cancer burden exist among certain population groups in the United States. Examples of such disparities include:

111% and 39% HIGHER RISK	African American men and women have a 111 percent and 39 percent higher risk of dying from prostate cancer and breast cancer, respectively, compared with their white counterparts.
20% and 38% MORE LIKELY	Hispanic children and adolescents are 20 percent and 38 percent more likely to develop leukemia than non-Hispanic white children and adolescents, respectively.
TWICE AS LIKELY	Asian/Pacific Islander adults are twice as likely to die from stomach cancer as white adults.
AS LIKELY	American Indian/Alaska Native adults are twice as likely to develop liver and bile duct cancer as white adults.
3.5X HIGHER	Men living in Kentucky have lung cancer incidence and death rates that are about 3.5 times higher than those for men living in Utah.
<half AS LONG</half 	Patients with localized hepatocellular carcinoma, the most common type of liver cancer, who have no health insurance have overall survival that is less than half as long as those who have private health insurance (8 months versus 18 months).
35% HIGHER	Men living in the poorest counties in the United States have a colorectal cancer death rate that is 35 percent higher than that for men living in the most affluent counties.
70% MORE LIKELY	Bisexual women are 70 percent more likely to be diagnosed with cancer than heterosexual women.

American Association for Cancer Research (AACR) Cancer Disparities Progress Report 2020

San Diego County Disparities

- Important to know the local trends
- <u>Native American and</u> <u>Alaska Native</u> individuals have the *highest incidence* rates and the *highest mortality* rates from breast cancer
- The second highest rate of breast cancer mortality is in the Black community, although this group only experiences the third highest incidence rate of breast cancer

100,000)						
Native Amer./Alaska Native	Asian/Pacific Islander	Non- Hispanic(NH) Black	Hispanic	NH White		
147.6	107.5	115.7	106.5	141.7		

Breast Cancer Incidence in San Diego County 2011-2020 (Rate ner

Breast Cancer 100,000)	Breast Cancer Mortality in San Diego County, 2011-2020 (Rate per 100,000)					
Native Amer./Alask a Native	Asian/Pacific Islander	Non- Hispanic Black	Hispanic	NH White		
40.5	14.7	25.9	16.0	21.8		

Cancer Disparities In Imperial County

- Imperial County- Created in August 1907
- Original native people, Kumeyaay and ancestors, until colonization
- Initially part of the Gulf of California but was cut off by damlike deposits of the Colorado River and became barren and uninhabited wasteland
- Until Imperial Land Co decided to develop the land (County's namesake)
- In 1901, they built canal diverting the Colorado river through Mexico for agriculture irrigation
- In 1905, river flood water breached the canal and a devasting flood created Salton sea and severe damage
 - Present day, "farm runoff" including fertilizer, heavy metals and toxins like arsenic.
 - Drought causing "toxic dust"



History of Imperial County

- Persistent poverty
 - Poverty: Household income less than \$30k/family of 4.
 - Imperial county has Poverty rate 22% (US poverty 11%) for 30+ years
- Agricultural has been coming back
- Now also has renewable energy farms
- Important to know the history of Imperial county and persistent poverty.

Figure 4. County Socioeconomic Status (SES), 2008-2013 Percentage High SES^a 50% - 87% (12 counties) 49% (11 counties) - 26% (13 counties) 2% - 10% (15 counties) No high SES block groups (7 counties) Tulare San Bernardin Riverside



Burden of Cancer in Persistent Poverty Areas

- The Burden of Cancer in Persistent Poverty Areas of California
 - UCDavis report from California Cancer Registry
- Higher incidence rates of specific cancers including lung, liver, stomach and cervical cancers in populations living in persistent poverty areas



Burden of Cancer in Persistent Poverty Areas (Cont)

- People living in persistent poverty areas have <u>lower incidence rates</u> of cancers diagnosed at <u>localized stage</u> (ie Breast and prostate)
- Lung, colorectal and cervical cancers all had <u>higher incidence</u> rates of <u>regional/remote stage</u> (more advanced) at diagnosis in persistent poverty areas.
- Screen detectable cancers
- Suggesting a potential benefit from cancer screenings



How Do We Address These Health Disparities: Bridging The Gap



Addressing Health Disparities

- How do we address health disparities?
- Answer: There are many ways to address it. But we need to take a multifaceted approach
- But we must account for social systems that allow for discrimination and racism to exist and be practiced in an organized fashion.
- This is where health disparities arise
- And this is where health disparities must be addressed
- This is an issue that can be fixed!



Future Directions: Engaging Stakeholders



Adapted from AACR Cancer Progress Report

American Association for Cancer Research (AACR) Cancer Disparities Progress Report 2020

Community Engagement Programs

 Community engagement programs aim to partner with the community on issues such as the importance of regular breast cancer screenings. These initiatives can decrease stigma and misinformation, empowering individuals to seek timely healthcare services.

Engage Community Partners

- Focus on building better relationships with the community.
- Allows for a better exchange of information, ideas and trust.
- Ultimately, strengthening UCSD community outreach and engagement to this underserved population.
- Currently, opening a study to identify barriers to enrollment into clinical trials at UCSD.

Community Partners: Local and National

Community-based interventions and engagement Identify community assets and utilize community strengths and wisdom



Founder of Many Shades of Pink Wendy Shurelds





Founder/CEO of Tigerlily Foundation Maimah Karmo

Advocate Now to Grow, Empower and Lead



UCSD Addressing Cancer Disparities

- Partner with our Community Outreach and Engagement
- Participate at Jackie Robinson YMCA Health Fair
- Partner with Center for Health Equity and Education (CHEER)
- San Diego County Promotores Coalition (SDCPC)
- Goal: To promote the voices of the community and engage in bidirectional conversations to create a community-academic partnership.

Policy Changes for Improved Access

- Advocating for policy changes can ensure equitable access to breast cancer screening for marginalized groups. Policies targeting funding for health clinics and subsidizing screenings for uninsured women are essential steps toward reducing disparities.
- Community groups such as Susan Komen, Sororities (Delta) and Jack and Jill of America engage with policy makers to impact change

Innovative Screening Solutions

- Innovative screening solutions, such as mobile mammography units, can bring services directly to underserved communities.
- Utilizing technology, like AI in mammography interpretation, enhances diagnostic accuracy and accessibility.
- Partnering with community primary care physicians and clinics can be helpful to promote mobile screening services and follow up with patients.

Collaborative Effects

• Engaging healthcare providers in collaborative efforts can foster a network of support for patients. Establishing partnerships with community organizations can enhance outreach and education on available screening services.

Academic-Community Partnership For Health Equity Strengthen:

Provide leadership in advancing health equity



Serve:

Serve as a network hub for health equity leaders in UCSD and community partners

Support:

Promote the work of the community and assist them with finding their own solutions.

Future Directions In Research and Practice

- We need more information on health disparities and social determinants impact <u>at the individual level</u>. Person to person and neighborhood to neighborhood.
- Need better collection of race data. Black/African/African American or Asian are too big! Not specific enough.
- Importantly, we should study health disparities and SES factors to determine why we are seeing the differences. Don't assume it's based on race! Environmental Health Disparities

Future Research Directions (Cont)

 Future research must focus on identifying barriers to breast cancer screening among diverse populations. Enhancing advocacy for equitable practices and developing tailored interventions will be crucial in closing the screening gap.

Questions

Thank you for your attention

"The physical and emotional health of an entire generation and the economic health and security of our nation is at stake. This isn't the kind of problem that can be solved overnight, but with everyone working together, it can be solved. So, let's move."

-Let's Move launch announcement, 2/9/2010

First Lady Michelle Obama

