




Exploring Cancer
Examining the Role of Biology, Race, Class, and Socioeconomics 

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A collaboration between



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Fridays
11:00 - 11:50 AM EST/EDT

August 25 Welcome to Cancer(s) and Health Disparities 101 - The Introduction	October 13 Breast Cancer Health Disparities	November 10 Precision Medicine and Immunotherapy
September 1 Radiation Oncology - What Is It, and What Is It Good For?	October 20 Pancreatic Cancer	November 17 Expanding Cancer Care Quality and Delivery in Sub-Saharan Africa: a collaborative approach
September 8 New Strategies in Treating GI Cancers	October 27 Careers in Cancer	

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Exploring Cancer
Examining the Role of Biology, Race, Class, and Socioeconomics

September 8, 2023

Breast Cancer Health Disparities



Checo Rorie, PhD

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Checo Rorie, PhD

Checo J. Rorie, PhD, is originally from Marshallville, NC, was raised by his grandparents and is a first-generation college student. Dr. Rorie attended Clark Atlanta University in Atlanta, GA, where he majored in Biology and graduated in 1998 with a bachelor of science degree. As an undergraduate, Dr. Rorie was a MARC Scholar and conducted breast cancer research in a Cancer Cell Biology laboratory. Dr. Rorie then attended the University of North Carolina at Chapel Hill Curriculum in Toxicology graduate program earning a PhD in 2004. After graduating from UNC-CH, Dr. Rorie completed a postdoctoral fellowship at New York University, and then participated in a second postdoctoral fellowship back at UNC-CH in the Seeding Postdoctoral Innovators in Research & Education (SPIRE) program.

Dr. Rorie has been at North Carolina Agricultural and Technical State University since 2008 and is currently the Professor and Chair of the Department of Biology. Dr. Rorie has a Cancer Genetics and Cell Biology laboratory where his lab studies the mechanisms of breast cancer health disparities in African American Women.

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Professional Highlights

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5. Dr. Rorie attended Clark Atlanta University where he majored in Biology and graduated with a bachelors in science.

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Breast Cancer Health Disparities

Checo J. Rorie, PhD
Professor & Chair
Department of Biology

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My Journey

- Originally from Marshville, North Carolina; Forest Hills High School 1994
- Attended Clark Atlanta University, Atlanta, Georgia; B.S. Biology 1998 (John Browne)
- Attended UNC Chapel Hill; Ph.D. Toxicology 2004 (Bernard "Buddy" Weissman)
- Postdoc at New York University, New York, New York; Biochemistry 2005 (James "Jim" Borowicz)
- Postdoc in the SPIRE Program at UNC Chapel Hill; Radiation Oncology 2008 (YanPing Zhang)
- Currently: Professor and Chair of Biology, NC A&T State University

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Do you know anyone who has been diagnosed with breast cancer?

Yes 0%

No 0%


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Breast Cancer Health Disparities

 **Checo J. Rorie, PhD**
Professor & Chair
Department of Biology

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Breast Cancer Awareness Month

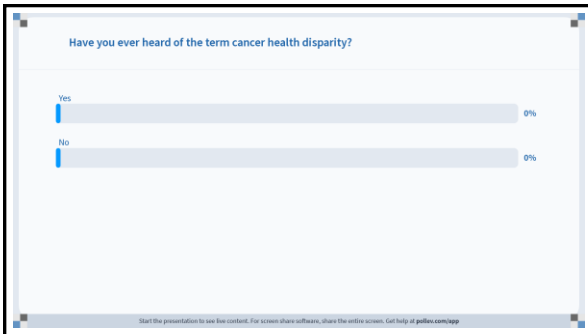
In honor of
Aunt Francis
and our friend
Amanda



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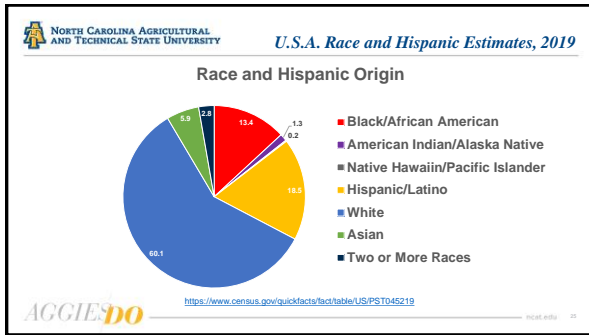
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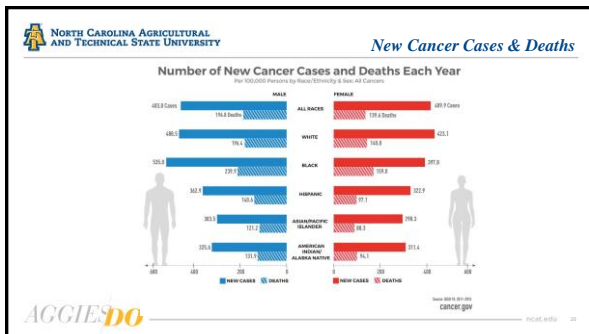
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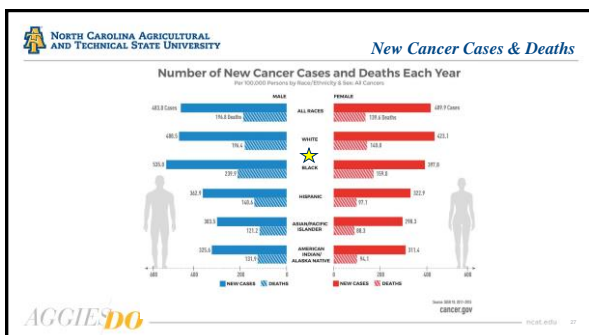
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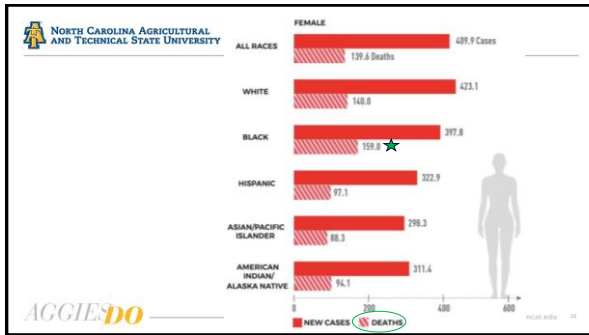
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What is Breast Cancer Health Disparity?

Breast cancer health disparities result when there are **differences** in the **expectations** of cancer measurements and outcomes

- Incidence or new cases diagnosed
- Prevalence or existing cases in a population
- Mortality or death related to cancer
- Survivorship or quality of life after cancer treatment
- Screening rates
- Stage at diagnosis

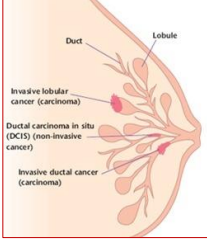
<https://www.cancer.gov/about-cancer/understanding/disparities>

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Breast Cancer

- Most breast cancers begin in the lobules (milk glands) or in the ducts that connect the lobules to the nipple.
- Typically has no symptoms when the tumor is small and most easily treated, which is why screening is important for early detection.
- Most common physical sign is a painless lump.
- Men get breast cancer too (less than 1%)



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Breast Cancer Statistics

Rate of New Cases per 100,000 Persons by Race/Ethnicity: Female Breast Cancer

Sex-specific cancer type	Rate
All Races	122.5
White	131.3
Black	124.8
Asian / Pacific Islander	102.9
American Indian / Alaska Native	79.5
Hispanic	99.1
Non-Hispanic	133.6

Death Rate per 100,000 Persons by Race/Ethnicity: Female Breast Cancer

Sex-specific cancer type	Rate
All Races	24.1
White	17.3
Black	27.7
Asian / Pacific Islander	17.1
American Indian / Alaska Native	14.6
Hispanic	14.9
Non-Hispanic	21.0

SEER 21 2013-2017, Age-Adjusted

<https://seer.cancer.gov/statfacts/html/breast.html>

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Rate of New Cases per 100,000 Persons by Race/Ethnicity: Female Breast Cancer

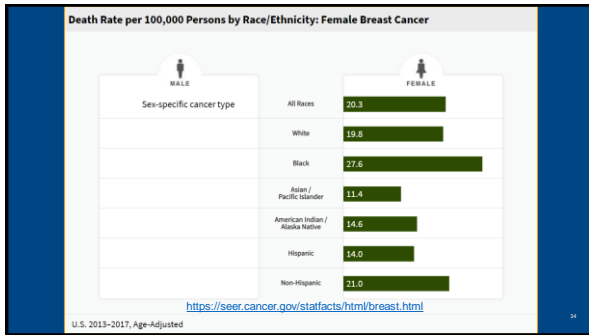
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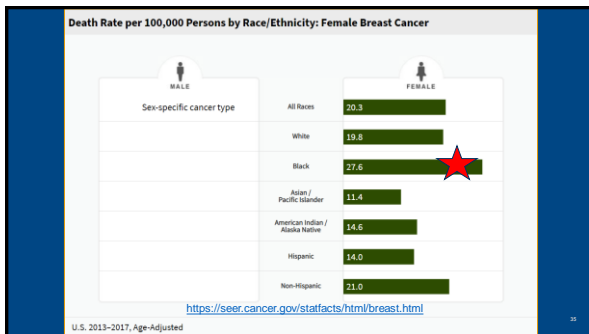
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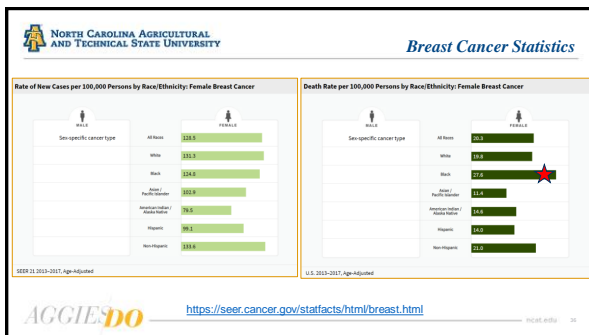
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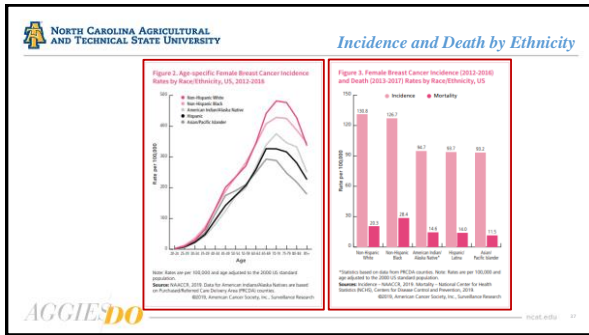
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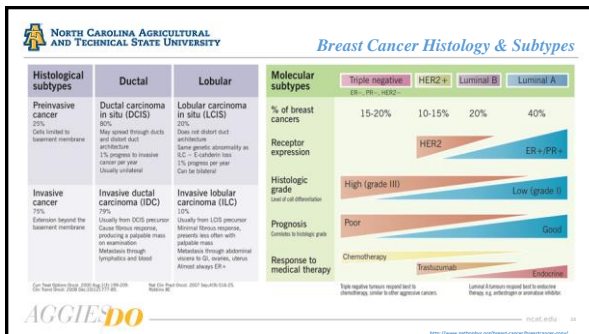
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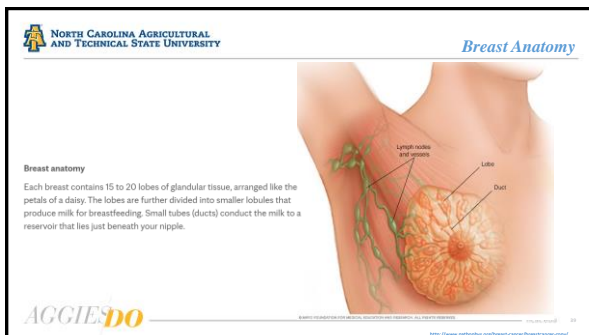
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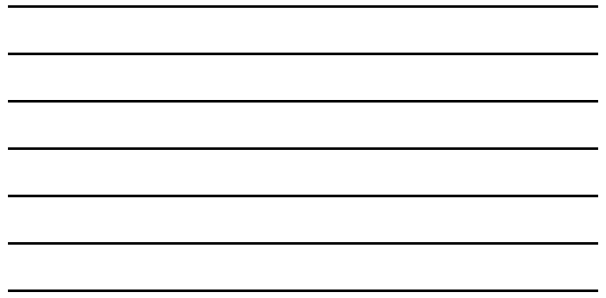
Breast Cancer Histology & Subtypes

Histological subtypes	Ductal	Lobular	Molecular subtypes
Preinvasive cancer 20% Cells limited to basement membrane	Ductal carcinoma in situ (DCIS) 80% May spread through ducts and distal duct architecture 1% progress to invasive cancer per year Usually unilateral	Lobular carcinoma in situ (LCIS) 20% Does not distort duct architecture Same genetic abnormality as DCIS - Confined area 1% progress per year Can be bilateral	Molecular subtypes ER-, PR-, HER2- ER+, PR+, HER2- ER+, PR+, HER2+ ER+, PR+, HER2-
Invasive cancer 75% Extension beyond the basement membrane	Invasive ductal carcinoma (IDC) 75% Usually from DCIS precursor Classic fibrous response, producing a palpable mass on examination Metastases through lymphatics and blood	Invasive lobular carcinoma (ILC) 10% Usually from LCIS precursor Minimal fibrous response, presents less often with palpable mass Metastases through abdominal viscera to GI, ovaries, uterus Almost always ER+	% of breast cancers 15-20% 10-15% 20% 40%
			Receptor expression HER2 ER+PR+
			Histologic grade Level of cell differentiation High (grade III) Low (grade I)
			Prognosis Correlates to histologic grade Poor Good
			Response to medical therapy Chemotherapy Endocrine Targeted therapy (Trastuzumab)

ER = Estrogen Receptor, PR = Progesterone Receptor, HER2 = Human Epidermal Growth Factor Receptor 2
 DCIS = Ductal Carcinoma In Situ, LCIS = Lobular Carcinoma In Situ, IDC = Invasive Ductal Carcinoma, ILC = Invasive Lobular Carcinoma

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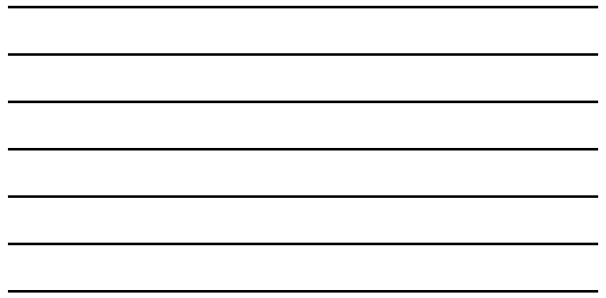
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Breast Cancer Histology & Subtypes

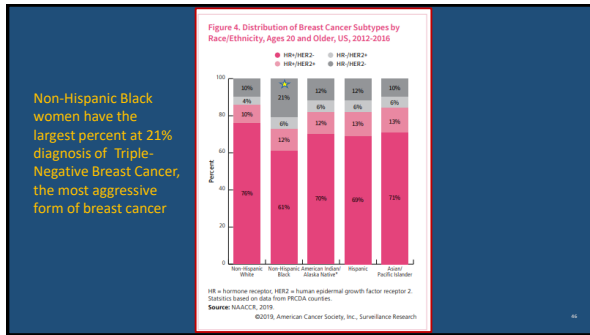
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Breast Cancer Histology & Subtypes

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Background: Triple negative breast cancer

- Lack of estrogen receptors (ER), progesterone receptors (PR) and human epidermal growth factor receptor-2 (HER2) expression resulting in **lack of targeted therapies**
- Typically stains positive for **mutant-p53** (80% of cases)
- Account for 10-17% of all breast cancer
- More prevalent in **African-American women** with a higher death rate in those **age <35**
- Significantly more aggressive (high growth rates, highly invasive/metastatic) than other subgroups with a peak **risk of recurrence (survival rate 40%)** in visceral and soft tissue between the first- and third-years following therapy

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NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY *Difference in Survival Rates*

- **African American (AA) women-lower 5-year survival rate**
 - › 81% compared to 92% among non-Hispanic/White women
 - › Premenopausal AA women appear to have a higher risk of triple negative and basal-like breast cancers
 - › Have higher rate of occurrence of TNBC (39% versus 15%)

Why the differences in survival rates?

- Biologic and genetic differences in tumors
- Prevalence of risk factors
- Barriers to health care access
- Later stage of breast cancer at diagnosis

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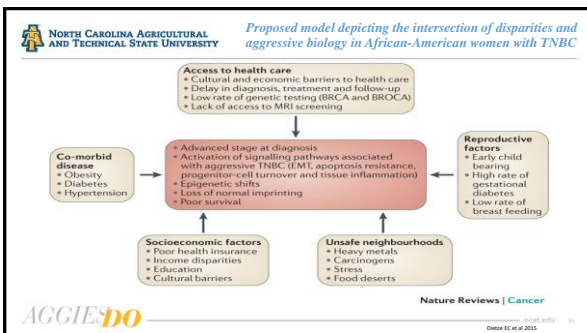
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What are some ideas you have to address or help reduce the disparity of breast cancer health outcomes?

Nobody has responded yet.
Hang tight! Responses are coming in.

Start the presentation to see live content. For screen share software, share the entire screen. Get help at poller.com/app

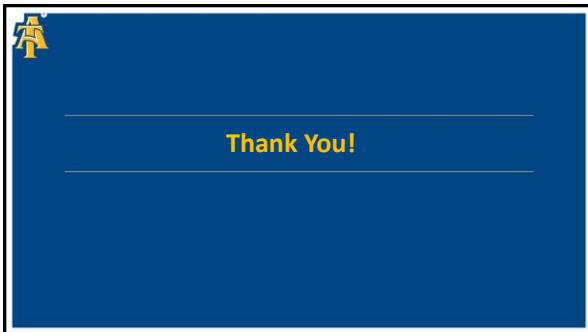
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Exploring Cancer is a webinar series taught by cancer biologists, physicians, public health experts, and other cancer specialists from NCCU, UNC-Chapel Hill, and NC A&T.

UNC Lineberger Cancer Network

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Exploring Cancer
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Upcoming Live Webinar

Pancreatic Cancer:
 Overview, Health Disparities, and Survivor Interview

Live On Demand
October 20
11:00 AM

Yolanda VanReil, PhD, RN, MEDSURG-BC, OCN, CNE, ACJIE, ANEF
Karyn Green
Sydney Taylor

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