




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

**Welcome to the UNC Lineberger Cancer Network's live webinar**

**Sound Check**  **Start Time** 

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For any technical difficulties: (919) 445-1000 [unclcn@unc.edu](mailto:unclcn@unc.edu)

While waiting, check out our upcoming webinars: [unclcn.org/liveevents](http://unclcn.org/liveevents)

**Contact UNCLCN**  
Phone: (919) 445-1000  
Email: [unclcn@unc.edu](mailto:unclcn@unc.edu)  
Website: [unclcn.org](http://unclcn.org)

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

A collaboration between



[www.exploringcancer.org](http://www.exploringcancer.org)

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**Exploring Cancer**  
 Examining the Role of Biology, Race, Class, and Socioeconomics **Fridays**  
 11:00 - 11:50 AM EST/EDT

<b>August 26</b> Welcome to Cancer(s) and Health Disparities 101- The Introduction	<b>September 30</b> Including the patient voice in cancer research	<b>November 11</b> Precision Medicine and Immunotherapy
<b>September 9</b> Genomics/Microbiome and Disparities for Endometrial Cancer	<b>October 14</b> Breast Cancer Health Disparities	<b>November 18</b> Cervical Cancer, Basics of Treatment and Disparities in Outcome
<b>September 16</b> Building the Oncology Careforce in Malawi to Meet the Needs of Individuals Living with Cancer and their Guardians	<b>October 21</b> Inflammatory Breast Cancer	

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**Exploring Cancer**  
 Examining the Role of Biology, Race, Class, and Socioeconomics **October 14, 2022**

**Breast Cancer Health Disparities**



**Checo J. Rorie, PhD**

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**Checo J. Rorie, PhD**

Checo J. Rorie, PhD, is originally from Marshville, 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's 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 Setting 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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## Breast Cancer Health Disparities

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

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 NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY *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 (James "Jim" Boroweic)
- Postdoc in the SPIRE Program at UNC Chapel Hill; Radiation Oncology (YanPing Zhang)
- Currently, Associate Professor and Chair of Biology, NC A&T State University



*AGGIES DO* — NCAT.edu

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 UNC Lineberger Cancer Network

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

Yes

No

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 UNC Lineberger Cancer Network

### Do you know anyone who has died from breast cancer?

Yes

No

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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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“Is reducing racial disparities in healthcare *truly* possible?”  
Anonymous, August 28, 2020

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UNC Lineberger Cancer Network

Have you ever heard of the term cancer health disparity?

Yes

No

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Define what cancer health disparity means: place short definitions using poll everywhere or zoom chat.

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### Defining Cancer Health Disparity

Cancer health disparities occur when certain groups bear a disproportionate (uneven, unequal) **burden** of cancer compared with other groups.

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<http://www.ncsu.gov/news/health/defining-health-disparity>

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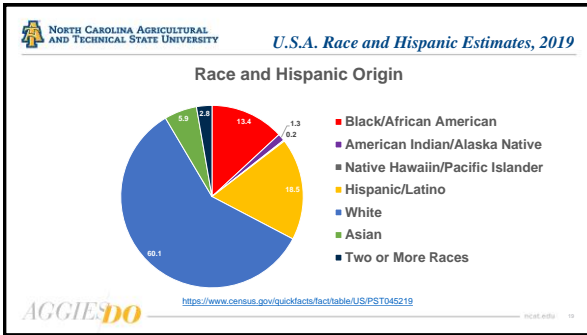
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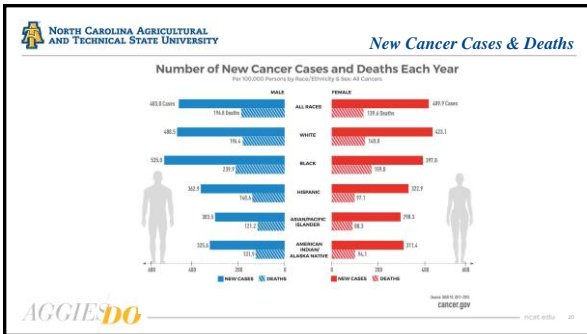
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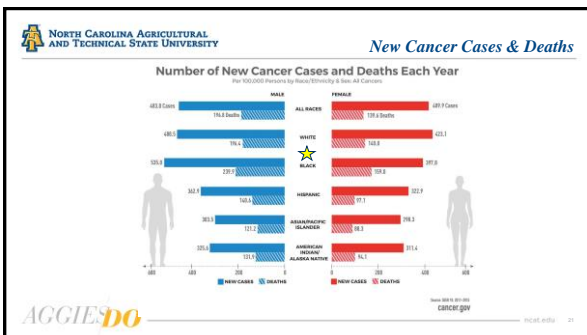
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When poll is active, respond at [polllev.com/uncncln](https://polllev.com/uncncln)  
 Text: UNCLCN to 22333 once to join

### Both men and women can get breast cancer.

True  
 False  
 I am not sure

Powered by [Poll Everywhere](https://polllev.com)  
 Start the presentation to see live content. For screen share software, share the entire screen. Get help at [polllev.com/help](https://polllev.com/help)

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**NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY**

### 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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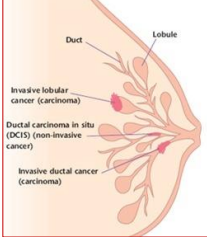
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**NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY**

### 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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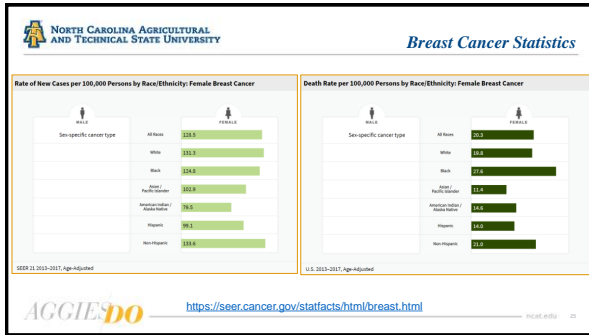
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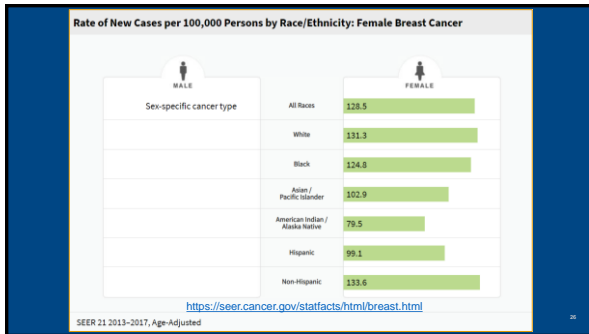
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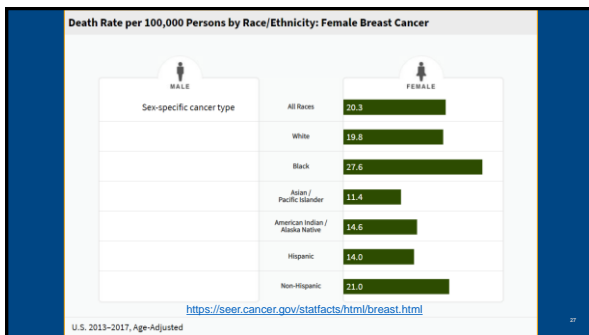
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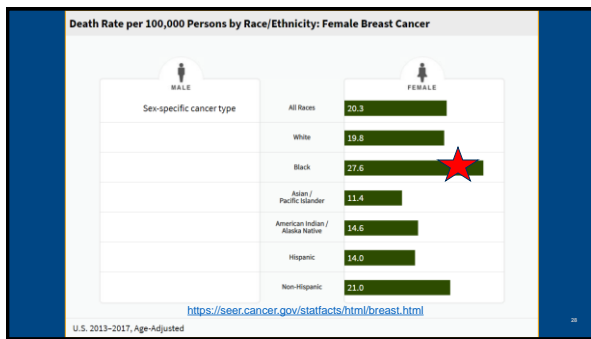
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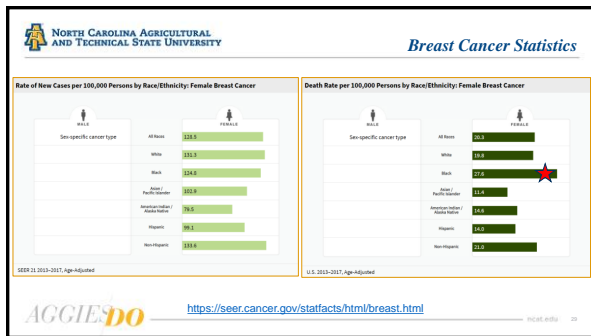
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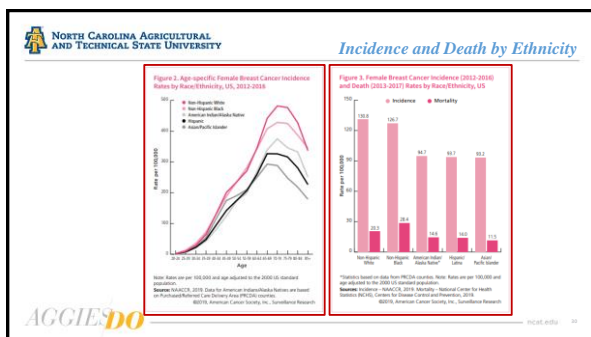
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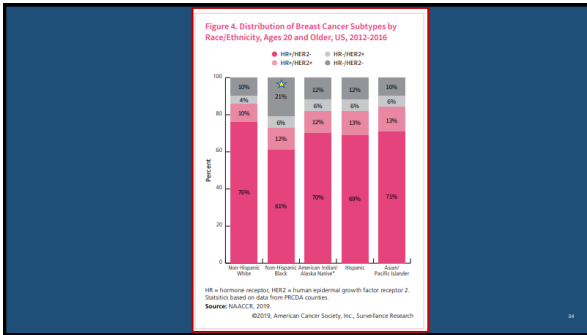
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Histological subtypes	Ductal	Lobular	Molecular subtypes
<b>Preinvasive cancer</b> 20% Cells limited to basement membrane	<b>Ductal carcinoma in situ (DCIS)</b> 80% May spread through ducts and distal duct architecture 1% progress to invasive cancer per year Usually unilateral	<b>Lobular carcinoma in situ (LCIS)</b> 20% Does not distort duct architecture Same genetic abnormality as DCIS - E-cadherin loss 1% progress per year Can be bilateral	<b>Triple negative</b> (ER-, PR-, HER2-) 15-20%
<b>Invasive cancer</b> 75% Extension beyond the basement membrane	<b>Invasive ductal carcinoma (IDC)</b> 75% Usually from DCIS precursor Cases: Herceptin response, producing a palpable mass on examination Metastasis through lymphatics and blood	<b>Invasive lobular carcinoma (ILC)</b> 10% Usually from LCIS precursor Minimal Herceptin response, presents less often with palpable mass Metastasis through abdominal viscera to GI, ovaries, uterus Almost always ER+	<b>HER2+</b> 10-15% <b>Luminal B</b> 20% <b>Luminal A</b> 40%
			<b>Receptor expression</b> HER2 (High grade IBC) vs ER+PR+ (Low grade IBC)
			<b>Histologic grade</b> High (grade III) vs Low (grade II)
			<b>Prognosis</b> Poor vs Good
			<b>Response to medical therapy</b> Chemotherapy: Taxane/anthracycline vs Endocrine

AGGIES DO logo and footer text.

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- 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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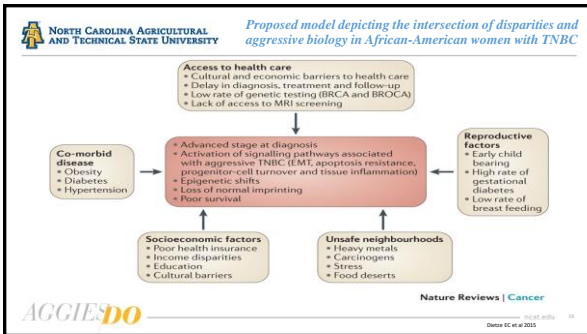
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**NORTH CAROLINA AGRICULTURAL AND TECHNICAL STATE UNIVERSITY**

*"Is reducing racial disparities in healthcare truly possible?"*  
Anonymous, August 28, 2020

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## Exploring Cancer

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

### Thank you for participating!

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Email: [unclcn@unc.edu](mailto:unclcn@unc.edu)  
Call: (919) 445-1000

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## Exploring Cancer

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

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.

We hope to see you next time!

### UNC Lineberger Cancer Network



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