CAROLINA BREAST CANCER STUDY

CBCS NEWSLETTER

PHASE III: THE JEANNE HOPKINS LUCAS STUDY

For Study Participants **Follow-Up Issue #11**

An epidemiologic population-based breast cancer research study at the University of North Carolina-Chapel Hill Lineberger Comprehensive Cancer Center, funded through the University Cancer Research Fund, the National Cancer Institute, and Susan G. Komen.

"Beauty, grace, strength, and persistence…"

Inside this issue:

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Dear CBCS Participants—

This year has been about making adjustments and being flexible, something that we know our CBCS participants are uniquely equipped to do. Over the past twelve years since we began the study, we have come to know our study population as a dynamic, energetic, and generous group of women, all of whom are contributing beyond measure to improving knowledge about breast cancer. You gave us your time and energy, even when your time and energy were limited, and we are so grateful. Together, we have built such a rich, important data resource for understanding breast cancer survivorship.

COVID-19 has given us perspective on something we have acknowledged in breast cancer research for many years: people with the same disease often have very different outcomes. Your contributions are helping us understand why this happens in breast cancer.

In this issue, you will learn about discoveries that your data made possible. You showed us that women with different education, income, employment status, health care concerns, and race have different patterns of treatment, with different delays in both starting and finishing chemotherapy. You showed us that breast tumor biology also depends upon life history, helping us to learn that we could help prevent aggressive breast cancer in future generations by increasing breastfeeding in new mothers. And you are helping us to understand how long-term survivors are building relationships with health care providers, even when the pandemic has changed how we access care.

Dr. Melissa Troester
Principal Investigator of CBCS

CBCS3 is a living, dynamic study population, and each of you have contributed to helping us translate this vitality into real advances for the science of breast cancer. Here's to 2021 and to a future where health equity and optimized care is available to all breast cancer survivors.

With gratitude,

Melissa Troester

About This Year in CBCS

There is no telephone interview this time, but we will be calling again in about a year. We look forward to speaking with you again! If your contact information has changed since we last talked, please let us know how we can reach you. You can send us your updated information using the enclosed form, or call us at 1-866-927-6920 (toll-free). Until then, we hope you will enjoy this newsletter. On the back, we fill you in on our future plans for CBCS, and we invite you to contribute to Issue #12.

CBCS Researcher Wins Award for Paper on ER-Borderline Breast Cancer

Dr. Halei Benefield received the **2020 Michael S. O'Malley Alumni Award for Publication Excellence in Cancer Population Sciences**. Benefield used CBCS data to look at the roughly 10% of cases with **estrogen receptor (ER)-borderline tumors**. These tumors only have a small number of estrogen receptors, so they don't typically respond as well to endocrine therapy as ER-positive tumors do.

Among Benefield's insights into this hard-to-characterize form of breast cancer are, first, that white women with ER-borderline tumors responded to endocrine therapy **better** than Black women and, second, that Black women with ER-borderline tumor typically had **higher genomic risk scores**, a way of quantifying variants in people's genes that make them more susceptible to developing cancer at some point.

This research was published in the July 2020 issue of the prestigious *Journal of the National Cancer Institute*.

The O'Malley Award is named for UNC Lineberger's late associate director, a leader in cancer prevention research and an honored mentor to students.

Meet the New Generation in Breast Cancer Research

Alina Hamilton, MS

◊ PhD student in Pathobiology & Translational Science Program

◊ **Prior Experiences:** Masters of Biology, University of Texas Rio Grande Valley, where she studied how environmental exposures & precocious puberty affect mammary gland development & breast cancer risk

◊ **Research Goals:** "I want to learn how immune cells inside tumors, tumor cells, & adjacent tissue all interact with the hope that this research ultimately will lead to improved clinical guidelines & risk stratification for patients."

Markia Smith, BS

◊ PhD student in Pathobiology & Translational Science Program

◊ **Prior Experiences:** "I grew up in a disadvantaged background that largely influenced my upbringing & exposure to health disparities & illnesses, which has led to my interest here. Outside of science, I am a volunteer doula, mentor for historically marginalized populations, & avid lifter."

◊ **Research Goals:** To study the environmental & genetic interplay in health disparities, particularly cancer, in minority groups

Andrea Walens, PhD

◊ Postdoctoral Fellow in Cancer Control Education Program

◊ **Prior Experiences:** PhD in Molecular Cancer Biology from Duke, 2019 — Studied the role of tumor microenvironment in breast cancer dormancy and recurrence, as well as tumor evolution through breast cancer dormancy and recurrence

◊ **Research Goals:** "I want to use my expertise in tumor microenvironments to address cancer mortality disparities in CBCS."

Amber Wilcox, MPH

◊ PhD student in Epidemiology

◊ **Prior Experiences:** MPH, George Washington, & National Cancer Institute analyst, where she developed models that incorporated lifestyle, environmental, & genetic information to predict women's future risk of breast cancer

◊ **Research Goals:** "I want to learn what makes two people with the same type of breast cancer have different outcomes. I want to study this by combining various data types to better understand breast cancer risk & patient outcomes."

Black Women More Often Face Treatment Delays — Dr. Marc Emerson

How do social & economic factors (like education and income) and factors that affect access to healthcare (like insurance, transportation, and job loss) in combination with each other affect delays in breast cancer treatment?

We looked at this using an interesting method: **LATENT CLASS ANALYSIS** (LCA). LCA's advantage is that it gives us a person-centered, holistic look at all the data. It works by organizing people into meaningful groups based solely on the characteristics of the data, which differs from traditional analyses where researchers identify the groups to be compared first and then see how the analysis comes out.

Dr. Emerson earned his PhD in 2019 from UNC, where he remains as a postdoctoral fellow.

We also measured our outcome—**treatment delay**—in two ways. One, how long was the time between diagnosis and first treatment? If this was more than 60 days, we said it was *delayed*. Two, how long was "treatment duration," or the time between first and last treatments? We looked at treatments separately by type (surgery, chemo, & radiation) and all together. We said treatment was *prolonged* if that length of time was among the longest 25% in the study for that type of treatment.

We had two key conclusions. First, **1 in 7 Black women** experience delays at some point during their breast cancer care. Second, treatment duration appears to be a point of care that is **sensitive** to social & economic factors and factors affecting people's ability to access healthcare.

New Technology Used to Study Breast Cancer — Dr. Andrea Walens

When large population-based studies like CBCS ask participants for their consent to get tumor samples, we don't take much, leaving the bulk of the samples available for everyone's medical teams. This presents a challenge when, for example, we hypothesize that **tumor biology itself** is one part of the story maybe explaining why Black women *still* have a 40% higher risk of death from breast cancer than their white counterparts. With limited resources, researchers have to get *creative*.

We used a new method called **DIGITAL SPATIAL PROFILING** (DSP) to probe the tumor immune microenvironment, which is the immune system cells residing in and around the tumor. DSP allows us to measure a large number of markers that provide information about what immune cells are in and around the tumor and what they are doing in that space with very small samples.

We found that **tumor enriched regions** provided the most information on differences in the types of immune cells in each tumor. For example, we found **T regulatory immune cells** are *enriched* in **basal-like** breast cancers**.** This lines up earlier studies that required much larger samples. CBCS's creativity may just have solved this tricky problem.

"With limited resources, researchers have to get creative."

CBCS Partners with the AMBER Consortium — Amber Wilcox, MPH

Triple-negative (or basal-like) **breast cancer** (TNBC) is the last major subtype of breast cancer *without* a targeted, biological therapy. That means it doesn't respond to estrogen or HER2-targeted therapies. Thus, understanding the specific risk factors for TNBC is all the more important because this can lead to new cancer prevention strategies for a cancer known for being aggressive. CBCS previously showed that TNBC is more common in younger, Black, and *especially* premenopausal Black women, but why is this true?

To answer this, CBCS collaborated with the **AMBER** (**A**frican **A**merican **B**reast Cancer **E**pidemiology and **R**isk) consortium. With data from over 5,000 Black women, we could investigate the risk factors for TNBC in Black communities.

We found two things: First, giving birth but *never breastfeeding* and having a *high waist-to-hip circumference* both **increased** risk of TNBC. Second, *breastfeeding* ever before and *being 25 or older at first birth* both **reduced** risk of TNBC.

These results line up with previous research in mostly white populations, and they suggest that **increased breastfeeding and obesity prevention may be important for reducing risk of TNBC**.

CAROLINA BREAST CANCER STUDY: PHASE III

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We wish to remember—with gratitude and solemnity—the women of CBCS who are no longer with us. CBCS is a little dimmer with each loss. We are forever grateful to them for sharing themselves with us and to their family and friends for sharing their loved one.

THANK YOU FROM ALL OF US AT THE CAROLINA BREAST CANCER STUDY!

What's in Store for CBCS

With your consent and participation, we want to continue our partnership through *15 years* of follow-ups after your initial diagnosis. This sounds like a long time, and it is. That's the point! We are asking a question no one else has asked as we have:

What impacts might have breast cancer and its treatments had on your long-term health and quality of life that may have not yet been identified because no one has looked so long out?

In about a year, you'll receive another newsletter in preparation for a telephone survey. We do hope you'll participate. In the meanwhile, if you could **confirm that your contact information is up-to-date** by using the **postage-paid envelope** or calling us toll-free at **1-866-927-6920**, we'd be greatly appreciative. If you want, you can also tell us the name and number of someone else you authorize to let us know how to get in touch in case you move or change phone numbers. You can also use either method to exercise your right to withdraw from the study at any time for any reason.

Lineberger Comprehensive Cancer Center

Call for Submissions

In Issue #12, we would like to feature **YOU**—your stories and artwork, your triumphs and challenges, your poetry and prose, your life and dreams… anything you wish to share! It doesn't have to be related to breast cancer, but of course it can be. You contain multitudes, and we want to showcase that. We will protect your privacy with anything you choose to submit. You can remain anonymous. Otherwise, we will mark your contributions by your initials and county of residence.

Send submissions electronically to **cbcs@unc.edu** or by mail to the **address on the front page** of this newsletter.

Thank you!

CAROLINA BREAST CANCER STUDY