

## Melissa Troester: Stitching it together, piece by piece

Melissa Troester, PhD, has a lot of experience piecing different elements together to make them work as a whole. Raised in Minnesota, where a love of diverse forms of literature, from poetry to fiction to science fiction, was instilled in her at a young age, she also spent quality time quilt-making with members of her family. She has found that the quilting process has relevance in her scientific research as well. To understand cancer health disparities, she and her collaborators work together to assemble a wide range of components. “Our job is to bring together different pieces to develop a more integrated, holistic understanding of breast cancer,” she said.

Co-director of cancer epidemiology at UNC Lineberger, Troester leads the Carolina Breast Cancer Study (CBCS), which began in 1993 and continues its mission to serve participants nearly three decades later. The study looks at how the causes, treatments and long-term outcomes of breast cancer differ between Black and white women, particularly as they relate to survivorship.

Troester’s educational background is wide-ranging, which comes in handy when dealing with a study as expansive as the CBCS. She began her career in the lab and then transitioned to a focus on data science and working with interdisciplinary teams that are integral to many of the successful research projects in which she has played a vital role.

Her breadth of expertise is particularly helpful in leading the CBCS because of the extent of different types of data and information collected, including tumor biology and health care access statistics. To optimize the use of this treasure trove of information, Troester and her colleagues work closely with data scientists to stitch together elements that have historically not interacted much. From computer scientists to biostatisticians, to data scientists to clinical collaborators, the team is delving into answering important questions about how patient-level factors, like distance to care or referral patterns, might interact with tumor biology.

“It’s a great privilege to work with patient advocates and experts in community outreach and engagement as they bring important perspectives to our efforts,” Troester said. “The advocates have helped point out aspects of outreach that we may have missed. Additionally, our study participants have worked hard over many years to supply us with background and information we can use to change breast cancer outcomes.”

An especially positive aspect of her research efforts, she notes, revolves around the fact that North Carolina can be used as a model for the nation because it is a truly heterogenous state. Another providential attribute




UNC Lineberger’s Melissa Troester, PhD.

comes from the University Cancer Research Fund, a commitment of research money by the state legislature. This allows North Carolina to be one of the few places where many aspects of biology and access to care have been brought together in a single setting.

One of the more confounding factors that Troester is investigating is how cancer treatment outcomes can vary so widely across North Carolina. While clinical trials can be informative about whether a new treatment works better than an established treatment, trials’ outcomes doesn’t always inform how the treatment will work in diverse populations or whether everyone will have access to newer drugs. That’s where Troester’s research efforts step in. “We’re just unpacking information on treatment and disparities, including how different doctors in different settings interpret treatment guidelines,” she said. “We’re trying to develop new statistical methods for grouping patients by outcomes to determine where treatment disparities exist and why.”

The onset of the COVID-19 pandemic has presented some unique challenges, but Troester said it also has created some opportunities. The most obvious challenge is being able to reach out directly to people in the community. On the flip side, being in an office with mounds of digital information to parse, Troester and her team have had more time to delve deep

into the data and perform some complex analyses, which she hopes will better inform their community efforts once they can get back out into the field. “We need to look more closely at why African American women are 40% more likely to die from breast cancer in North Carolina. A larger participation by women of color in our studies would make a big difference, and we plan on renewed efforts to reach out to these women once the pandemic has abated.”

Just as the breast cancer study has evolved and grown during Troester’s tenure, her knowledge of diverse cultures in and around North Carolina has contributed to her own personal growth. This is exemplified in her ongoing interest in how American quilting has been influenced by many voices. “The women of Gee’s Bend, a small, remote, Black community in Alabama, have created hundreds of bold, colorful quilts out of common household items,” she said. “The Gee’s Bend women have profoundly influenced modern quilting, illustrating how impactful a small group of women with a unique perspective can be. In a similar vein, incorporating the wealth of culture, experience, and knowledge from the diverse women that comprise our study population is leading to insights that will improve health outcomes for all women in North Carolina,” she said. 

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