

cancerlines



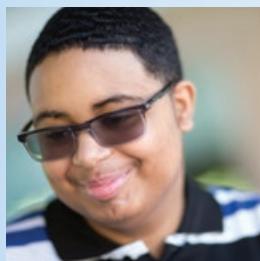
the inside line up



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LCCC celebrates 40 years as NCI-designated cancer center

In 1975, UNC Lineberger was named a "Designated Cancer Center" by the prestigious National Cancer Institute, a title that signifies we are an organization delivering high-level cancer care to patients throughout our community, state and nation. Most NCI-Designated Cancer Centers are affiliated with university medical centers, although several are freestanding centers that engage only in cancer research.

As we celebrate our 40-year NCI designation, we'd like to share some personal thoughts from our three cancer center directors — Joe Pagano, MD (1974–1997), Shelley Earp, MD (1997 – 2013), and Ned Sharpless, MD (2014 – present). Each has fond memories of — and great aspirations for — UNC Lineberger Comprehensive Cancer Center.

CL: How did you become the first director of the cancer center, Joe?

Joe: I came to Carolina in 1965 as head of infectious diseases and was studying a tumor virus that actually could transform human cells, which was extremely interesting. That was my



L-R: Dr. Shelley Earp, Dr. Ned Sharpless, Dr. Joe Pagano

segue into cancer research. Chris Fordham was the dean of UNC's medical school at the time, and he said, "Look, Joe, I want you to be the director of our new cancer center." But the cancer center didn't even exist! He told me to do whatever I needed to do to get it started. So I gave up my post, just like that. We built the cancer center from the ground up. I started recruiting, and that was really fun because there is one thing that I always loved to do, and that was to bring the best possible people to Chapel Hill.

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Gaps found in use of Herceptin to treat breast cancer



Elaine McCauley

A potentially life-saving breast cancer treatment was part of the care plan for one Orange County woman, but UNC Lineberger researchers have found gaps in how treatment is used nationwide.

When Elaine McCauley was first diagnosed with breast cancer two years ago, one of her initial thoughts was about the care of her youngest daughter.

"I really didn't have time to dwell on my situation," the 67-year-old Orange County resident says. "I was concerned for my daughter. Who would take care of her if something happened to me?"

McCauley, who comes from a large family of 16 children, grew up on a tobacco farm in North Carolina. She's always had a strong work ethic and a sense of dedication, working in cotton mills and other jobs in Alamance County after she got married. McCauley's role changed when she became the primary caretaker of her youngest daughter, who has disabilities and required at-home care after she was born. McCauley returned to work when her daughter began school.

"When I got the call about my cancer diagnosis, I put my trust in my doctor at the N.C. Cancer Hospital," McCauley says. "I was praying all along that his decisions about my treatment would be the best ones for me—and for my daughter."

McCauley was diagnosed with an advanced form of HER2-positive breast cancer, explains medical oncologist, **Trevor Jolly, MD**, an assistant professor in the UNC School of Medicine. That cancer type, which used to be considered the most aggressive, is now among the most curable.

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Ned Sharpless, MD

director's message

Winston Churchill once said, "What is the use of living, if it be not to strive for noble causes and to make this muddled world a better place for those who will live in it after we are gone?" I think that pretty much sums up why we do what we do here at UNC Lineberger Comprehensive Cancer Center. Our researchers spend endless hours in their labs, working to shed new light on cancer and potential cures. Our caregivers use the latest treatments

and clinical trials to help patients navigate and, hopefully, overcome this disease that directly or indirectly affects every citizen in North Carolina. And what is our ultimate goal? To eradicate cancers of all kinds, and as Churchill said, to make this world a better place for generations to come.

During the last 40 years as an NCI-designated cancer center, UNC Lineberger has made great strides toward reaching this goal. For the summer issue of *Cancer Lines*, I sat down with my friends and colleagues, former cancer center directors Dr. Shelley Earp and Dr. Joe Pagano, to talk about our journey as a cancer center—our roots, our accomplishments, and where we're headed in the future. I think you'll enjoy our trip down memory lane.

You'll also read about Beth Silverstein, a remarkable young woman who was told that, because of her genetic profile and family history, she had an 80 percent risk of developing breast cancer and a 50 percent risk of developing ovarian cancer. Beth took control of her health, faced her fears and made some very difficult personal choices. Her story is one of teamwork, strength and hope.

And speaking of teamwork, I couldn't have been more pleased when our own Lineberger researchers Deb Mayer, PhD, and Barbara Rimer, DrPH, were invited to join the 28-member Blue Ribbon Panel as part of President Obama's National Cancer Moonshot Initiative. Vice President Joe Biden will spearhead the \$1 billion dollar program, which aims to make more therapies available to more patients, while also improving our ability to prevent this disease and to detect it at an early stage. Deb and Barbara will serve alongside other leading national experts, providing guidance and vision in the national fight against cancer.

I've said it many times before, but we couldn't carry out the Lineberger mission without your time, energy and philanthropic support. Whether it's running in the Tar Heel 10-Miler or making a gift to our first-ever donor match program, your continual involvement in our cancer center truly speaks to the power of the collective good. And when we work together, nothing can beat us—not even cancer. 8

Herceptin gaps *continued from page 1*



Trevor Jolly, MD



Lisa A. Carey, MD



Katherine Reeder-Hayes, MD, MBA

A drug was approved by the U.S. Food and Drug Administration in 2006 that specifically targets HER2-overexpressing breast cancers. This drug, trastuzumab, which is commercially known as Herceptin, has dramatically increased survival rates for patients with HER2-positive breast cancer, a disease that afflicts about one-in-five breast cancer patients.

"From my perspective, there was no question that Elaine needed this particular therapy, which we think has accomplished our goal of getting rid of her cancer," Jolly says.

After receiving Herceptin in combination with chemotherapy, surgery and radiation, followed by a year of taking Herceptin alone, McCauley is more than two years out from her diagnosis. She is now cancer-free.

"It was worth it to me," McCauley says of her treatment. "My grandchildren, my sisters and my brothers—being around them—kept me motivated."

While McCauley has had an excellent response to Herceptin, a recent study led by UNC Lineberger researchers reveals that a significant percentage of women over age 65 years are not getting the drug. The question remains—why?

In a population of 1,362 women who were diagnosed with non-metastatic HER2-positive breast cancer in 2010 and 2011, researchers found that only 50

percent of white women and 40 percent of black women received the drug. The women in the study were 66 years or older and insured by Medicare, so theoretically, all had access to the medication and health insurance coverage.

Black women were 25 percent less likely to receive the drug within one year of diagnosis than whites, even after accounting for other factors that could influence access to the treatment, such as poverty and the presence of other health conditions.

"Fifty percent of white women and 60 percent of black women didn't get a drug that improves survival by nearly 40 percent. If confirmed, these are terrible numbers," says study co-author **Lisa A. Carey, MD**, a UNC Lineberger member, the physician-in-chief of the N.C. Cancer Hospital and the Richardson and Marilyn Jacobs Preyer

Distinguished Professor in Breast Cancer Research at the UNC School of Medicine. "There was broad underutilization of what is a very effective therapy; we must find out why."

The researchers noted that their study cannot account for several potential limitations that might affect a woman's ability to be treated with Herceptin. For example, the drug is costly, and although patients in the sample were all insured by Medicare, there could have been variation in the use of supplemental insurance plans among the women studied. In addition, the long period of time that the drug is recommended to be used in combination with chemotherapy may act as a barrier to patients with unreliable transportation or job insecurity.

"It may not be possible to determine which of these things is the driver of disparity in this particular treatment," says the study's first author **Katherine Reeder-Hayes, MD, MBA**, a UNC Lineberger member and assistant professor in the UNC School of Medicine. "Maybe what this means is that when all of those factors occur, it's a warning sign that vulnerable people may not get the care they need." 8



Shelley Earp, MD

CL: Carolina has a special sort of atmosphere; people seem to be drawn to it. Do you all think that's one of the reasons there are researchers and physicians here who could truly go anywhere in the world to practice, but they choose Carolina?

Shelley: You know, we're now in the top 10 of NIH funding. So how many places can you be in the top 10 scientifically, buy a house, live 10 to 15 minutes from where you work, and send your children to public schools? There just aren't many places like that. And this is a really great place to be a junior faculty member and to start your career. At

some institutions, there's a "sink or swim" environment, or you have leaders who tell you exactly what you've got to do; you're not given adequate scientific freedom. But UNC has always realized that junior scientists need a bit of freedom to do what they want to do, protected time so they can get their work done, and, at the same time, receive mentoring and support. It's really the right balance. So people come here to start their career, they're very successful, and they don't want to leave.

CL: Many national leaders involved in cancer research believe we're entering a golden age of opportunity to battle different types of cancer. How accurate is that claim?

Ned: There certainly has been incredible progress. I think a little-known fact is that the incidence of cancer mortality has gone down a couple of percent every year for the last 20 years in United States, and over time, that really adds up. But there are some obstacles, including a massive increase in cancer incidence as the country's population ages. This is despite impressive new therapies, some of which work quite well. There are still a lot of patients who don't benefit from these therapies, and we still have too many patients who we can't help. So I think it's a really exciting time to be in cancer research and to be a clinical oncologist. There are some great new treatments that have been approved and more in the pipeline, but I'm also sure that cancer is going to remain a significant problem for a while. So this golden age will have to be a long one to really make the progress we want to make.

CL: Wow, 40 years as an NCI-designated cancer center — that's a milestone! Could you tell us how cancer care used to be provided versus how it's provided now?

Ned: I think one of the under-appreciated aspects of cancer therapy is how much better we're doing it with regards to the patient and their quality of life. Within the last 15 years, we've seen chemotherapy go from being a very difficult thing for patients with horrible side effects, to being much better tolerated because of the clinical research that's taken place. Also, rather than cancer care just being about the medicines and therapy, there's now a whole mind/body/soul approach. UNC Lineberger,



Ned Sharpless, MD

together with the North Carolina Cancer Hospital, really approaches it from a whole-person perspective. So now when patients come to the hospital for treatment, they see the entire caregiving team, all in the same visit.

CL: How has the University Cancer Research Fund (UCRF) impacted cancer care at UNC?

Shelley: We've had remarkable support from the state, starting with Mark Basnight and Tony Rand and continuing with the current legislature. They knew that UNC has always taken excellent care of people, regardless of their ability to pay. But in 2007, we were bursting at the seams! Our legislature came to the rescue and built this wonderful North Carolina Cancer Hospital. Before that, a bond issue allowed us to expand the Lineberger Building and other facilities. As we've grown, the state has invested in us, both on the clinical side and on the scientific side. It's been a clear win in terms of return on investment, raising over \$7 for every dollar the state has invested through UCRF. But while UCRF has made our research more prominent nationally, it has not taken away the need for private philanthropy.



Joe Pagano, MD

CL: We receive generous philanthropic support for our cancer center, and we're very grateful for that. What do these gifts mean to UNC Lineberger?

Ned: Many donors are patients themselves or are family members of patients, and they've realized that Lineberger is good for the State of North Carolina. It's something they want to invest in, and the better we are clinically, the more people want to support us. That's led to a rapid increase in our ability to raise philanthropic dollars, which are absolutely critical. Grant funding from the state government is very important to our state mission, but often those dollars are used for very discrete, earmarked purposes. They're not the kind of funds one can use to do those crazy, pie-in-the-sky, innovative ideas that are game-changers, that are really going to make the most impact on how we treat patients with cancer. Philanthropic dollars also provide the capital to buy a new key piece of equipment or even space in some instances, and it's just absolutely vital to allow us to recruit and retain the best faculty. As the cancer center director, I've had the opportunity to speak with donors about the great things that are going on at Lineberger and to ask them for their support.

CL: Joe, what are three words or thoughts that come to mind when you think of Lineberger?

Ned (laughing): I'm going to tell you right now, you're not keeping Joe to three words!

Joe (laughing): I'd have to say interdisciplinary collaboration, our knowledge of cancer genetics, and the quality of our faculty and their breadth of vision. These are the great hallmarks of UNC Lineberger.

This interview has been condensed and edited. To read the extended transcript, please go to www.unclineberger.org/40years.

Mayer, Rimer named to Cancer 'Moonshot' Blue Ribbon Panel

Two UNC Lineberger Comprehensive Cancer Center members—Deborah K. Mayer, PhD, and Barbara K. Rimer, DrPH,—were recently honored with appointments to the National Cancer Moonshot Initiative's Blue Ribbon Panel. The two join a working group of 28 leading national experts from a broad range of scientific areas, including biology, immunology, genomics, diagnostics, bioinformatics, and cancer prevention and treatment. Members also include investigators with expertise in clinical trials and cancer health disparities, as well as representatives of cancer advocacy groups and pharmaceutical and biotechnology companies. The panel will provide advice and vision in the implementation of the national program called the Moonshot Initiative.

President Barack Obama announced the creation of the National Cancer Moonshot Initiative during the State of the Union address this past January. He appointed Vice President Joe Biden to lead the \$1 billion program to accelerate progress in our understanding, prevention, and treatment of cancer and to make more therapies available to more patients.

"This Blue Ribbon Panel will ensure that, as NIH allocates new resources through the Moonshot, decisions will be grounded in the best science," said Vice President Biden. "I look forward to working with this panel and many others involved with the Moonshot to make unprecedented improvements in prevention, diagnosis, and treatment of cancer."



Deb Mayer, PhD

Deborah K. Mayer, PhD, RN, AOCN, FAAN, is a researcher with UNC Lineberger Comprehensive Cancer Center and a professor in the UNC School of Nursing Adult and Geriatric Health Division. In 2014, she was named the director of Cancer Survivorship. Her research at Lineberger focuses on the many issues facing cancer survivors, as well as how to improve all aspects of cancer care. Mayer also has a clinical practice working with breast cancer survivors. She is the chair of the ASCO Survivorship Committee.

"My role has evolved, in part, because of advances in the prevention, early detection and treatment of cancer," says Mayer. "These factors have significantly contributed to the number of cancer survivors now living in the United States—more than 14.5 million, which is expected to grow to 19 million by 2024. Because of these skyrocketing statistics, there has been an increased effort to help plan for the needs of these survivors after they've completed active cancer treatment. That's my wheelhouse."

In particular, Mayer is an advocate for ensuring that cancer patients receive survivorship care plans, which are tools that help educate the survivor about follow-up care, facilitate communication between a survivor's oncology team and his/

her primary care provider after active cancer treatment, and provide a treatment summary. Mayer has published extensively on the topic.

Mayer has also garnered national recognition for her contributions as an oncology nurse-researcher, educator and mentor, receiving the 2015 Oncology Nursing Society Lifetime Achievement Award. She is a founding member (1975) of the Oncology Nursing Society, a professional association of more than 39,000 members committed to promoting excellence in oncology nursing and quality cancer care.

Mayer earned her bachelor's degree in nursing from Excelsior College in Albany, N.Y., her master's degree in nursing from Yale University, her nurse practitioner certificate from the University of Maryland School of Nursing, and her PhD from the University of Utah.



Barbara Rimer, DrPH

Barbara K. Rimer, DrPH, is the Alumni Distinguished Professor, dean of the UNC Gillings School of Global Public Health, and a UNC Lineberger member. She also chairs the President's Cancer Panel. Her work on cancer has guided national research, practice and policy, both nationally and internationally, for more than 20 years.

"Throughout my career, I've been passionate about helping people make informed choices to prevent cancer and find it earlier," says Rimer. "We were among the first groups of investigators to develop and test interventions that gave people the information and motivation they, as individuals, needed to change behavior in lifesaving ways. I'm also committed to getting effective, evidence-based interventions into practice. The public deserves our best efforts, and they should benefit from them."

For five years, Rimer led the Division of Cancer Control and Population Sciences at the National Cancer Institute. She was the first woman and behavioral scientist to chair the National Cancer Institute's National Cancer Advisory Board. After being elected to the Institute of Medicine in 2008, Rimer was appointed by President Obama to chair the President's Cancer Panel in 2011. Accolades have been abundant, as she received the 2004 Healthtrac Foundation Award for Health Education and the 2013 American Cancer Society's Medal of Honor for her cancer control research. Rimer has authored more than 265 peer-reviewed articles.

Rimer received a bachelor's degree and a master's degree in public health from the University of Michigan, as well as a doctoral degree in public health from the Johns Hopkins School of Hygiene and Public Health. She is committed to fitness and embraces a culture of health in her daily life. She also has a blog: <http://mondaymorning.web.unc.edu>.

\$250K gift for Mammography suite



Padrick Barrett and her brother Phong Nguyen made a \$250,000 naming gift in Minhthu's memory.

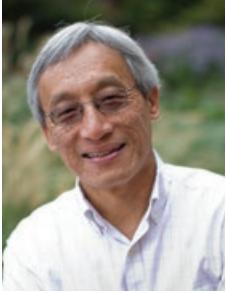
On Friday, April 22, friends and family gathered in the reception area of the N.C. Cancer Hospital Mammography Unit to remember the life of Minhthu Nguyen, DDS, a local dentist and former oncology patient at UNC. Following her valiant fight against breast cancer and her passing on September 8, 2015, Minhthu's husband

UNC Friends Fighting Cancer Together



in Raleigh, featured research presentations by Matt Ewend, MD, and Shawn Hingtgen, PhD. Hosts included Jack and Nancy Andrews, Amelia and Cecil Harrison, Debbie and Bill Pappas, Leslie and John Silverstein, Becky Thompson, and Nancy and Monty White.

On Sunday, May 22, several couples on UNC Lineberger's Board of Visitors hosted a gathering of friends to hear about the thrilling discoveries and revolutionary treatment advances in brain cancer. The event, held at the North Carolina State Bar



Channing Der, PhD

Researchers attend UNC Lineberger symposium

On April 11-12, UNC Lineberger's 40th Annual Scientific Symposium drew researchers from around the country to share the latest research advances in molecularly targeted treatments for cancer.

"This year's symposium was focused on what is perhaps the most significant signaling pathway in cancer—the RAF-MEK-ERK pathway," says the symposium's co-organizer Channing Der, PhD, a UNC Lineberger member and the Kenan Distinguished Professor in the Department of Pharmacology at the UNC School of Medicine. "Because of its significance in cancer, there has been a lot of drug discovery that has focused on components of this pathway, and a number of these drugs are approved for patients. The question now is, how do we improve these drugs so that there are benefits to the patient in the long-term?"

Symposium presenters included scientists and clinicians who were involved in the development and assessment of now-approved targeted treatments. The researchers shared their knowledge of the RAF-MEK-ERK signaling pathway and others, and discussed how cancer develops resistance to drugs designed to inhibit those pathways.

"We have certainly achieved filling in many of the blanks in that pathway, but I think we are continuing to extract the deadly secrets of the cancer cell," Der says. "At the same time, it's clear that we have significant challenges ahead of us."



David Darr, MS

UNC cancer research showcased at AACR conference

UNC Lineberger researchers traveled to New Orleans April 16-20 for the American Association for Cancer Research Annual Meeting. The conference reinforced the link between research and advances in patient care with the theme of "Delivering Cures Through Cancer Science."

"This year's conference highlighted the breadth of cancer research that's underway at UNC Lineberger, including speakers and abstracts that demonstrate personalized medicine. We also focused on genomics and studies that drive our understanding of cancer biology and promote cancer detection and prevention," says David Darr, MS, UNC Lineberger's assistant director. "The center displayed its commitment to all facets of improving patient outcomes."

Scientists presented research ranging from a study that found a link between increased dietary saturated fat and aggressive prostate cancer, to one that identified a potential new strategy to treat triple negative breast cancer once it's spread to the brain.

On the last day of the the conference, Vice President Joe Biden addressed the researchers, telling them they are giving hope to people around the country with cancer. Biden is leading the National Cancer Moonshot Initiative, which aims to spur breakthroughs in cancer research. He urged collaboration between researchers and the sharing of data between scientists and the public.



Keith Burridge, PhD

Burridge elected to the American Academy of Arts and Sciences

Keith Burridge, PhD, member of the UNC Lineberger Comprehensive Cancer Center and Kenan Distinguished Professor of Cell Biology and Physiology in the UNC School of Medicine, has been elected to the American Academy of Arts and Sciences, one of the country's oldest learned societies and independent policy research centers. Burridge has led seminal research on cells—the building blocks of life—for four decades.

"I'm deeply honored by this recognition," Burridge says. "But it was a body of work that was more than just mine. It included many talented students, postdoctoral fellows, and others who I have had the good fortune to work with over the years at UNC."

Burridge, who came to UNC in 1981, joined 176 other academics named as fellows of the AAAS in 2016. His work on the basic mechanisms of cell biology and cellular movement has been at the forefront of the field and has led to a much deeper knowledge of how cells, especially cancer cells, do what they do, a feat that has led to the identification of new drug targets. 8

Dianne Kaleel to retire from RCA



After 31 years of service, Rapid Case Ascertainment (RCA) Lead Coordinator Dianne Kaleel is retiring.

Kaleel joined RCA in 1993, working with researchers at UNC, Duke, Wake Forest, and Shaw Universities, as well as researchers in other parts of the country. She was tasked with identifying potential study participants for epidemiological cancer studies. Formed in conjunction with the North Carolina Central Cancer Registry

in 1992, RCA has identified over 200,000 cases for almost 30 cancer research studies during the past 23 years. More than 16,000 cancer patients from all 100 NC counties have been enrolled in research studies utilizing RCA, and Dianne has been at the helm of this very successful endeavor almost since its inception. 8

DID YOU KNOW?



UNC Lineberger offers *Cancer Transitions*, a free program designed for cancer patients who have completed treatment, as well as their loved ones. The four-week program includes information on nutrition, exercise and coping with stress and medical care. For more information, call 919-966-9519, or visit www.unclineberger.org/patientcare/program/ccsp. 8

Donors' matching gift challenge raises more than \$250,000

As the only public comprehensive cancer center in North Carolina, we are committed to meeting the cancer challenge that faces our state and nation. But we can't do it without you.

One-in-two men and one-in-three women will face cancer in their lifetimes. At UNC Lineberger, we are diligently working to change these statistics—not just for the patients who are currently battling cancer, but for all those who will be diagnosed with cancer in the future. However, we can't do it alone. Your financial support is critical to our next-generation cancer research and exceptional patient-centered care. So it's with heartfelt thanks that we share the success of our first-ever matching gift opportunity, a campaign that truly shows the power of the collective good.

In March 2016, an anonymous couple made a gift to UNC Lineberger, but there was a catch—the amount would be based on the generosity of others. “This cancer center is making a significant, positive impact on the lives of North Carolinians, and it's time for people to step forward and show their support,” the donors said. “Therefore, we will match every gift, dollar for dollar, up to \$50,000. We hope our friends and neighbors will rise to the challenge.”

And did they ever! Within two weeks of the initial gift challenge, the cancer center received \$50,000 in matching gifts. But it didn't stop there. After hearing about the campaign's success, UNC Lineberger Board of Visitors members Bill and Nancy Graham were inspired to issue an additional \$50,000 challenge, effectively quadrupling the gift! As of this newsletter print date:

- UNC Lineberger had received 795 gifts, totaling \$253,828.
- 86 donors made their first-ever gift to the cancer center.
- Many contributors increased their fiscal year giving by making a special gift to the match.
- This matching challenge resulted in the largest number of donations to UNC Lineberger for any online fundraising effort of its kind.

“This campaign accomplished two major goals,” explains **Betsy Gentry-Bumm**, director of annual giving. “It increased awareness about UNC Lineberger, North Carolina's only public comprehensive cancer center. It also raised an extraordinary amount of money for cancer research, something we will feel the effects of for years. For these reasons, we are truly humbled by everyone who supported this matching challenge.”

Every gift is meaningful and helps move us closer to fulfilling our mission of finding cures for all types of cancer. If you are interested in supporting UNC Lineberger, please call our development department at 919-966-5905.



As part of the matching gift challenge, we featured fraternal twins Trent and Tyuss Handley in our online campaign video. To learn more, go www.unclineberger.org/twins.

In March of 2015, Trent Handley was diagnosed with a rare form of cancer called “natural killer cell leukemia.” Worldwide, there are only about 60 known cases of this disease. Trent was admitted to the N.C. Cancer Hospital; his brother Tyuss was devastated.

Pediatric oncologist **Brent Weston, MD**, and a team of caregivers worked feverishly to get Trent on the right protocol and treatment while the family spent months in the cancer hospital. And then the good news came: Trent was in remission.

“As a mom, when you watch your child going through something that's life-threatening, and then to see that miracle...there are no words to express our gratitude,” says the twins' mother, Tanisha Handley.



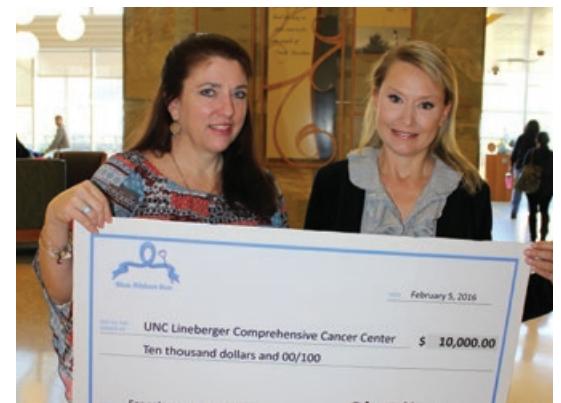
Northwestern Mutual hosts family at Durham Bulls game

On May 10, UNC Lineberger supporter Northwestern Mutual rolled out the red carpet for pediatric oncology patient Ethan Johnson and his family during a fun evening at the Durham Bulls Athletic Park. The company treated the family to game tickets, dinner, souvenirs, and a visit from team mascot Wool E. Bull. Ethan and his family also received the game ball on the field between the 3rd and 4th inning, along with Northwestern Mutual managing partner Mike Condrey.



Sports Endeavors treats pediatric patient to day of soccer

Many thanks to UNC Lineberger supporter Mike Moylan and his team at Sports Endeavors, who created a special experience for pediatric oncology patient and soccer fanatic Alex Ferm and his family. Their behind-the-scenes tour of the company's Hillsborough headquarters included a scavenger hunt and a sneak peak at soon-to-be-released soccer athletic gear! Now in remission, Alex played soccer throughout his cancer treatments and looks forward to scoring goals for years to come.



New fund supports colon cancer research

UNC Lineberger is proud to announce the creation of *The Julie M. Brown and Christina M. Gianoplus Fund for Colon Cancer Research*. The fund, which was established by friends Amy Croom and Ana Boudreau, memorializes Ana's sister Julie and a mutual friend Christina, who both died of colon cancer in their early 40's. The fund is supported by The Blue Ribbon Run, an annual 5k/fun run led by Croom and Boudreau in Wilmington, NC.

Silverstein finds health, hope and freedom at UNC Lineberger

When Beth Silverstein looks into the mirror, it's easy to see her resemblance to her mother, Leslie Silverstein. The two share the same dark hair and eyes and the same olive skin. At five feet three inches tall, they're virtually the same height. "I'm her 'mini-me,'" laughs Beth. "We've always been very close."

However, while the similarities in their outward appearances are obvious, Beth didn't know—and, as a carefree young woman in her late twenties, didn't really want to know—if she had inherited her mother's genetic history that predisposed her to cancer.

"We are of Ashkenazi Jewish descent, an ethnicity with a much higher risk of certain gene mutations that frequently lead to breast and ovarian cancer," explains Beth. "My grandmother died at age 36 of breast cancer, and my mother was diagnosed with the same disease at age 39. My mom went through genetic testing because so many of our family members had battled various kinds of cancers, and she encouraged me and my sister Amy to be tested as well. But I didn't want to. I guess you could say I was in denial, like an ostrich with its head in the sand."

Beth completed her undergraduate studies at UNC-Chapel Hill in 1999 and later pursued her master's degree at UNC's Kenan-Flagler Business School, where she had the opportunity to study abroad in New Zealand. But before leaving, she went for her routine mammogram. That visit was a turning point in Beth's life.

"While I was in New Zealand, I received a voicemail from my doctor, encouraging me to schedule an appointment upon my return to the U.S. because they needed to do additional breast imaging," Beth says. "Fortunately, those additional mammography and ultrasound results were all good, but I realized that knowledge is power, and I wanted to be proactive with my health. So I pursued genetic testing."

Beth's genetic results came back in just a couple weeks. She tested positive for the *BRCA1* gene mutation, the same mutation her mother and grandmother had. She was heartbroken.

Next steps and choices

"In April 2008, Beth came to UNC to meet with me and my colleague **Catherine Fine, MS**, who is a genetic counselor. We reviewed Beth's genetic results and mapped out her family history, and we determined that her risk for developing breast cancer was in the upper 80th percentile," explains **James P. Evans, MD, PhD**, a UNC Lineberger member and the Bryson Distinguished Professor of Genetics and Medicine at UNC-Chapel Hill. "Catherine and I discussed her options with her, which included having a bilateral mastectomy, or she could choose enhanced surveillance consisting of regular visits to our high-risk breast cancer clinic for periodic breast exams, mammograms and MRIs."

But that wasn't the only difficult decision Beth would have to make. Due to her genetic history, Beth had a 50 percent chance of developing ovarian cancer. During their counseling session, Evans explained to Beth that as she aged, her risk would substantially increase. "As a geneticist, I become very nervous when patients like Beth reach their mid-40s and have not taken preventive measures," says Evans. "Unfortunately,

there are no good modalities for detecting early-stage ovarian cancer; the symptoms are vague at best and often mimic other health issues. Once a woman has the disease, it can be extremely difficult to treat."

Beth was overwhelmed by the news but decided to approach the situation with a positive attitude. During the next five years, she went for regular six-month checkups with surgical oncologist **Keith Amos, MD**. But on multiple occasions, Beth experienced anxiety after finding benign lumps in her breasts. In 2013, Amos told Beth it was time to take the next step; she needed to consider having her ovaries removed because that would reduce her risk for developing both breast cancer and ovarian cancer. But first, she'd need to explore her fertility preservation options. Then, just months after their discussion, Amos died of a sudden aortic dissection. Beth was devastated. "Dr. Amos had been my calming force, my encourager during this entire process," Beth says. "I felt lost without him."

Fertility and the future

Beth was 36 at the time, and she knew her biological clock was ticking. So in July 2013, she met with **Jennifer Mersereau, MD**, and **Marc Fritz, MD**, at UNC Reproductive Endocrinology & Infertility to discuss harvesting her eggs. Fritz explains that even with the removal of her ovaries, as long as she has a uterus, Beth could still carry a child. "Her preference would be to have a biological child, so her options were to go through egg retrieval and then to have the eggs frozen for later fertilization and implantation," he says. "If that didn't work, any future pregnancy would require donor eggs."

In March 2014, Beth underwent the first of two egg retrieval cycles, which yielded three mature eggs. She decided to go through the procedure again, and three months later, nine more mature eggs were retrieved. Both times, the eggs were frozen through cryopreservation. Beth had done what she could to protect her fertility.

Choosing her new team

After her egg preservation, Beth put her health concerns on the back burner for nearly a year before choosing to work with oncologist **Carey Anders, MD**. "Dr. Anders is fabulous and made me feel in control yet cared for," says Beth. "Soon after we met, she introduced me to another surgical oncologist, **David Ollila, MD**, who recommended that we perform a bilateral mastectomy as soon as I could free up time in my professional schedule. That was tough to hear, but given my family genetic history and my personal genetic risk for cancer, it was the right step to take."

While the recommendation to have a bilateral mastectomy may seem aggressive to some, Ollila says the opposite is true in *BRAC* gene mutation carriers. "Surveillance is not the same as prevention. Obtaining annual breast imaging only serves to try to detect the cancer early. It doesn't prevent the cancer from forming. If Beth had chosen to forgo surgery and decided instead to take a 'wait and see' attitude, it's very likely that at some point in the near future, we



from left: Leslie and Beth Silverstein

would be discussing a cancer diagnosis, followed by surgery, radiation and chemotherapy. And that's IF we caught it early enough. Beth didn't make this decision lightly; it was a thoughtful, rational choice, and a wise one, in my professional opinion, supported by concrete genetic evidence."

On February 3, 2015, Ollila began the first part of Beth's bilateral mastectomy—taking out the breast tissue—and then plastic surgeon **Lynn Damitz, MD**, came in behind him to begin the reconstruction process. The second phase of Beth's surgery would be completed in the summer of that same year.

In June 2015, Beth met with Evans and Fine again, this time to review her lab work and to further discuss the surgical removal of her ovaries. "They were concerned about my age—I'll turn 40 in 2017—and we talked about how my risk for ovarian cancer was increasing with each passing year," says Beth. "I felt this cloud of stress hanging over me; I knew it was time to talk with a surgeon."

In November 2015, Beth had an ultrasound prior to her consult with gynecological oncologist **Vicki Bae-Jump, MD**, and to her surprise, she had a cyst on one of her ovaries. While test results showed the growth was benign, she decided to move forward with her surgery—sooner, rather than later. "I didn't want to play with fire," she says, "And I refused to live with this ongoing worry, wondering if they'd find cancer at my next checkup. After meeting with Dr. Bae-Jump, I scheduled my surgery."

In February 2016, Beth had a salpingo-oophorectomy, which is the removal of the fallopian tubes (salpingectomy) and ovaries (oophorectomy). The two-and-a-half hour surgery went well, but it immediately sent Beth into menopause. She's now dealing with the after-effects that include hot flashes, insomnia and "foggy brain." But for Beth, this is the new normal. While the surgeries have changed her, both physically and emotionally, she feels empowered as she enters the next decade of her life.

"Some people ask me why I decided to take, what they perceive to be, such radical steps. I won't lie, it was hard," she says. "But the moral of this story is that you need to know your family history, and recognize that genetics affect every generation. I'm not a victim; I took control of my health, making the choices that were right for me. Now I get to live my life without fear of what's going to happen. That's liberating." 8

calendar of events

September

30th Board of Visitors Fall Meeting, Friday Center, Chapel Hill

October

3rd Fast Break, Dean E. Smith Center, Chapel Hill

8th Pedal for Peds, UNC Wellness Center, Cary

For more information about these events and other UNC Lineberger news, visit www.unclineberger.org, or follow us on [f](#) [t](#)



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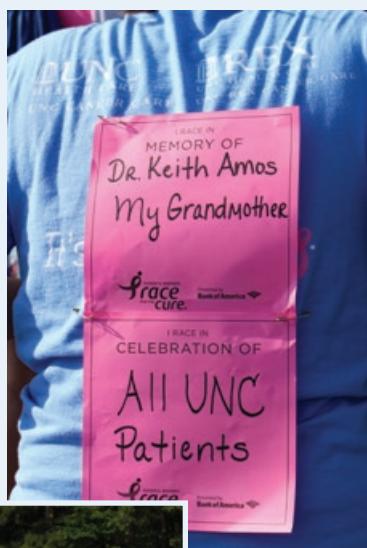
Tar Heel 10-Miler



On April 23, more than 7,000 runners gathered for the 6th Annual Tar Heel 10-Miler. The event, sponsored by Endurance Magazine, The Chapel Hill Downtown Partnership and Fleet Street Sports, raised more than \$15,000 for UNC Lineberger cancer research. Pictured here are Dr. Woody Burns, Dr. Paola Gehrig and Dr. Vicki Bae-Jump, along with their Below the Belt race team.

Race for the Cure

Over 8,000 runners and walkers participated in the 20th Annual Susan G. Komen Triangle Race for the Cure® on June 11 at The Frontier in Research Triangle Park. Lisa A. Carey, MD, medical director of the UNC Breast Center, served as event co-chair and was joined at the run by members of the UNC Office of Clinical & Translational Research, which Carey founded. Komen generously supports UNC Lineberger breast cancer research, as well as multiple Triangle community projects. From left: Julie Benbow, Amy Wheless, Amy Garrett, Lisa Carey, and Lisa's daughter Abby Carey-Ewend.



Spring '16 Board of Visitors meeting

On April 8, UNC Lineberger hosted its bi-annual Board of Visitors meeting at the Friday Center in Chapel Hill. Jean Kitchin, president-elect of the board, welcomed more than 130 members to the event. UNC Lineberger's founding director Joe Pagano, MD, was recognized for his ongoing work as principal investigator of the longest-running National Cancer Institute postdoctoral fellowship training programs in the U.S. Artist Richard Nelson was commissioned by BOV members Bob and Mary Ann Eubanks to paint Pagano's portrait, which will hang in the Pagano Conference Room at Lineberger. (pictured: Joe and wife Jody Pagano)