

cancerlines

It takes a community

Cancer care a team effort for UNC Lineberger outreach office



UNC Lineberger's Office of Community Outreach and Engagement with the Community Advisory Board. The groups work together to offer direction and support for cancer care across North Carolina.

UNC LINEBERGER COMPREHENSIVE CANCER CENTER



3 Donors' gift aims to make inroads in neuroblastoma research



4 Patient's diagnosis puts her back on health care career path



5 Physician-scientists' vaccine would personalize care



7 Tennis player John Isner honors mom with named reception area

the inside lineup

They call themselves the “bridge builders” and “silo slayers.” Whatever name they go by, the leaders of UNC Lineberger’s Office of Community Outreach and Engagement are aligned in their mission — to get the community involved in UNC Lineberger’s cancer research, care, programs and policy efforts to better understand and serve the cancer needs of North Carolinians.

UNC Lineberger launched the Office of Community Outreach and Engagement

last year under the leadership of UNC Lineberger’s **Stephanie Wheeler, PhD, MPH**, **Barbara Alvarez Martin, MPH**, and **Marjory Charlot, MD, MPH, MSc**, were named assistant directors.

“We hope to shift the mind-set at the cancer center,” Martin said. “The community has a lot to share with us, and we need to be listening.”

After embarking on a listening tour to better understand UNC Lineberger’s existing resources, the leadership team

recruited a Community Advisory Board to offer direction, support and to be a bridge to the community in North Carolina.

“The board is made up of people who come from a variety of different backgrounds who are all invested in improving cancer outcomes in North Carolina,” Wheeler said.

They also recruited additional staff to form a team of 12 people to help facilitate,

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Outside support is key to navigating cancer survivorship

Dates to Remember

Cancer Transitions are free workshops held at the SECU Family House in Chapel Hill from 10 a.m. to 3 p.m. on the following days:

- **March 21**
- **May 2**
- **July 11**
- **September 12**
- **November 14**

Please register for an upcoming program at unclineberger.org/transitions or call the Patient & Family Resource Center at 984-974-8100 with any questions.

Additionally, UNC Lineberger holds an annual cancer survivorship day conference. Join us **Saturday, May 16th** at the Friday Center. Register at unclineberger.org/transitions.

A cancer diagnosis can be a challenging road for many patients to navigate. They spend time learning about their disease, undergoing treatments and dealing with side effects, all the while looking forward to the day they are free of disease. But the path after treatment ends is not always straightforward or free of obstacles.

Helping patients through this phase of their cancer journey is **Deborah Mayer, PhD, ANP-BC, AOCN, FAAN**, the director of cancer survivorship for UNC Lineberger, the Frances Hill Fox Distinguished Professor in the UNC School of Nursing and the interim director of the National Cancer Institute’s Office of Cancer Survivorship. Mayer has been an oncology nurse since 1975. During her career, she has seen scientific discoveries change the landscape of cancer, but



Chris Draft with Deborah Mayer in 2018. Draft, a former NFL player, lost his wife, Lakeasha Rutledge Draft, to lung cancer in 2011. Together, they created Team Draft, an initiative of the Chris Draft Family Foundation to raise awareness and support early detection, treatment, research and survivorship.

See [SUPPORT](#), page 7



Shelton Earp, MD

director's message

At UNC Lineberger and the North Carolina Cancer Hospital, every researcher, physician, faculty and staff member knows why we come to work each day — to serve the people of North Carolina and beyond. As the people's cancer center, we are always looking for ways to bring quality cancer care, top-notch research and key resources to patients and families across the state. We recently submitted

our Cancer Center Support Grant application to the National Cancer Institute, and I am amazed and pleased by the depth and breadth of the cancer center's accomplishments and impact, in North Carolina and across the nation, during the past five years.

More than 11,000 patients have participated in UNC Lineberger's interventional clinical trials, and we have solidified our status as a national leader in cellular immunotherapy with eight FDA-approved early phase chimeric antigen receptor T-cell (CAR-T) trials in our on-site good manufacturing practices certified Advanced Cellular Therapeutics Facility.

Our faculty and staff have collaborated across basic, clinical and population sciences to publish more than 6,500 cancer related papers, detailing breakthroughs and advancements in cancer research and care. And your cancer center faculty members are firmly in the top 10 for cancer-related research funding.

For the past several years, we've been growing our service to the state by enlarging our community engagement and outreach team, allowing us to listen to what communities want and how we address the problem of cancer inequities for challenged populations, including those in rural areas with declining populations and services. We are committed to cancer prevention, early detection and compassionate cancer care for patients not only here in Chapel Hill but across the state. We hope to ease the burden of cancer using research methods that explore shortfalls in the prevention, diagnosis, treatment and outcomes related to cancer and then design and implement solutions.

You'll get a better sense of how far-reaching our outreach and engagement efforts are in this edition of Cancer Lines, as we explore the work the UNC Lineberger team is doing. You'll learn about two physician researchers involved in a novel clinical trial exploring cancer vaccines. You'll discover more about the clinical care patients receive when you read about a patient who suffered from breast and colon cancer and her support team. You'll realize how far community engagement truly goes when a group of people rally behind a young boy and his family to offer both emotional and financial support.

These stories are excellent examples of the work UNC Lineberger's faculty and staff do here in Chapel Hill and across the state. We remain committed to bringing the people of North Carolina top-notch clinical care, forward-thinking research and innovations to bring cancer care into the future. Thanks to you we are able to provide today's best care and tomorrow's best hope. 8

OUTREACH *continued from page 1*

synergize and amplify the center's outreach and engagement efforts.

Together, the team developed a vision and a mission for the office that has four prongs.

First, they will monitor the state's cancer burden and identify disparities in cancer treatment and outcomes; engage diverse stakeholders — both at UNC-Chapel Hill and across the state — in addressing and reducing the cancer burden; amplify existing outreach and supportive care efforts; and facilitate impactful cancer research in North Carolina and beyond.

Their work builds on UNC Lineberger's long history of serving the state through clinical care, research policy and community engagement. Already, the center has research and outreach efforts in all 100 counties in North Carolina and serves patients from every county.

"We have multiple decades' worth of history as a cancer center doing so much of this work across cancer communities," Wheeler said. "But what we needed was more of an organizing structure to these efforts, and that's why this office was created — to help us coordinate and bring together the researchers all across the cancer center who are doing work to serve the same mission."

The work is particularly motivating for Wheeler, who has led multiple research projects focused on addressing the needs of underserved populations in North Carolina.

"I got involved in this effort because so much of the work that I was already doing from a research perspective was based in North Carolina communities," she said.

Through the Carolina Cancer Screening Initiative, led by UNC Lineberger's **Daniel Reuland, MD, MPH**, Wheeler worked to boost colorectal cancer screening in underserved areas of the state.

"This is the guiding principle of what our Community Outreach and Engagement office is intended to do — to promote cancer-related research and clinical efforts across the entire state with an emphasis on reducing morbidity and mortality in medically underserved populations where we see a disproportionate burden of cancer," she said.

UNC Lineberger researchers have launched other

Future Initiatives

- *Facilitate requests for research project funding applications with requirements for at least 51 percent of funds going to community partners.*
- *Use existing telehealth resources to involve the public in educational programs, help educate providers and researchers on patient perspectives, and educate patients about clinical trials.*
- *Identify and explore the biological and social causes of stomach cancer, and understand disparities in death rates in North Carolina between white and black, Hispanic and American Indian populations.*
- *Facilitate efforts to conduct a cancer control needs assessment in the lesbian, gay, bisexual, transgender and queer population, and partner with other schools and centers to offer trainings for providers, researchers and others.*
- *Expand the listening tour to include town hall-style meetings.*
- *Support cancer screening initiatives.*

projects to address the state's cancer burden and reduce disparities in outcomes. They are focused on building partnerships with community organizations and other institutions to fulfill their mission.

"We want to amplify what is already going on, and create synergies by connecting researchers and clinicians to broader audiences," Martin said.

ACCURE, or Accountability for Cancer Care through Undoing Racism, is a multi-faceted intervention developed with the Greensboro Health Disparities Collaborative, to ensure patients completed treatment for early stage breast and lung cancer.

Results of the ACCURE study led by UNC Lineberger's Samuel Cykert, MD, showed this effort eliminated disparities in treatment completion rates between white and black patients over the course of the study.

The principal investigator of the study, UNC Lineberger's **Samuel Cykert, MD**, said the effort eliminated a 9 percent gap in treatment completion between white and black patients over the course of the study.

Trimming Risk in Men, led by UNC Lineberger's **Laura Linnan, ScD**, used barbershops in North Carolina as a platform to educate men about prostate cancer and colorectal cancer risk as part of an effort to address disparities for black men.

Martin said a critical reason these studies succeeded was because they partnered with the communities they served.

"Lineberger is such a valued resource in this state," she said. "It's important for us to remember that community partners also have a lot to offer the cancer center. The benefits flow in both directions. If we're looking for innovative ways of to reduce cancer outcomes, let's look to the community for ideas and inspiration. They are the ones we are serving."

Charlot, COE co-director and medical oncologist who treats patients with lung cancer, is leading an ongoing initiative to address under-representation of African-American cancer patients in clinical trials.

While people identifying as African-American represent 22 percent of the population in North Carolina, 18 percent of people recruited to interventional treatment trials at UNC identified as African-American.

The project is an example of the center's work to reduce cancer-related disparities in North Carolina.

"One of our goals for the Community Outreach and Engagement Office is to ensure that the representation of our patients on clinical trials mirrors the demographics of North Carolina," Charlot said.

Supported by the V Foundation for Cancer Research, the program will use a patient navigator to provide an extra layer of support for African-American patients and people of low socioeconomic status as they consider clinical trials.

"We are providing education to providers and research teams about the importance of ensuring equitable access to clinical trials while also trying to reduce any barriers that could be there for trial participation, such as lack of awareness of available trials, transportation, lodging or time," Charlot said. "This is important work, as participation in clinical trials demonstrates access to high-quality cancer care." 8

Donor gift shows support for family, innovative therapy

For Heather and Scott DeBruin, their son Wade's legacy is never forgotten. It's in memories of his signature "unicorn" laugh; it's in the face of his twin sister; and it's in the support and generosity of a community of people who stepped up to help them when they needed it most.

Now the DeBruins, along with UNC alumna Kate Welbourn and her husband, John, a former player in the NFL, are looking to pave the way for other children and their families to find that same support and care in the wake of a neuroblastoma diagnosis.

Wade's Army, a nonprofit organization created by Wade's parents and the Welbourns after his death in 2011, was designed to support families with needs related to a neuroblastoma diagnosis, as well as support research and science into finding a cure for the disease. The organization recently donated \$200,000 to support the work of UNC Lineberger's **George Hucks, MD**, a pediatric oncologist focused on neuroblastoma.

"In terms of pediatric cancer, neuroblastoma is one of the hardest to treat and most deadly," Hucks said. "These patients get every treatment we know of, chemotherapy, radiation, surgery, immune-based antibody therapy, and despite all that, the cure rates are in the 50 to 60 percent range. If you relapse, it's pretty much incurable."

Both the DeBruins and the Welbourns were excited by Hucks' neuroblastoma clinical trial because it was unlike other clinical trials for the disease. Hucks' phase I trial uses chimeric antigen receptor T-cell (CAR-T) therapy to fight cancer using a patient's own T-cells.

UNC Lineberger is one of a select few academic medical centers in the United States that has the faculty and facilities to discover, design and deliver CAR-T therapy. The process involves collecting a patient's T-cells, modifying them at the cancer center's Good Manufacturing Practices certified Advanced Cellular Therapeutics Facility, and then reinfusing the modified T-cells into the patient. All this happens without the patient needing to leave Chapel Hill.

Heather DeBruin said the fact that CAR-T therapy can be done at UNC Lineberger without families having to travel is something that's important to her.

"The idea of keeping treatment local is a big draw for me," she said. "Without research centers close by, people have to travel, which not only costs a lot of money, but it's lonely. North Carolina can serve all these different states, like South Carolina and Tennessee, so families don't have to go through the anxiety and fear."

Kate Welbourn was also enthusiastic about connecting with UNC, based on her school experience at Kenan-Flagler Business School. "I had three of the best years of my life at Carolina, and for me to give back to the Carolina community is really an honor."

For the DeBruins, their cancer journey started with a maternal instinct that something wasn't right. Wade



Above: The DeBruin family. Below: The Welbourn family.



was 19 months old and had a low-grade fever that never completely subsided. After a few visits to the pediatrician, an ultrasound revealed that Wade had neuroblastoma, a cancer of the nerve cells that affects infants and young children.

At the time, the DeBruins were living in Evansville, Indiana, which didn't have the resources to care for someone with Wade's disease. His treatments took him first to Indianapolis, then the family decided to continue his treatment at Cincinnati Children's Hospital Medical Center in Ohio — three hours from the family's home and far from their family and friends.

Heather DeBruin chronicled their cancer journey online, since even a virtual connection with loved ones helped them cope. People started sending the family checks to help with the costs of Wade's treatment, as well as care packages in the mail, something that made an impression on the family.

"When you have low days, support is so important," Scott DeBruin said. "When you're having a lousy day, just that small gesture can be enough to get you through."

One person who wanted to support the family was Kate Welbourn. Pregnant with twins, the mom-to-be saw online that Heather, her high school soccer teammate and also mom of twins, had gone through something profound, and she wanted to help.

As a former offensive lineman in the NFL, John Welbourn had name recognition, and Kate wanted to capitalize on that to reach more people and spread

awareness about neuroblastoma, with proceeds going to Wade's Army. They started small — a T-shirt drive and a special workout in Wade's honor. They raised \$15,000 initially, then their efforts started to take off with every year that passed, raising \$1 million over seven years.

Those funds allow Wade's Army to offer families in need the same kind of support the DeBruins received during Wade's cancer journey. And now, that money is going to fund critical research into neuroblastoma.

"A cure, obviously, would be the best result," Scott DeBruin said. "Beyond that, our hope is with research like this we learn something material that will shape the next phase clinical trials or answer the important questions."

With the phase I trial, Hucks is assessing the safety of the CAR-T therapy. Once the safety profile is established, the researchers will focus on determining a dosage minimum and then increase dosages during future trials to help with treatment plans for neuroblastoma patients.

"There are a lot of treatment options, but none is really effective," Hucks said.


"All children's cancers are challenging, but this one is uniquely hard to treat and hard to cure, and the patients go through so much to achieve the cure when it does work."

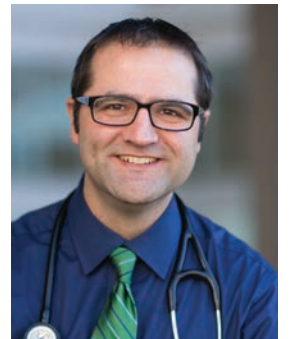
Hucks and his team hope to have 10-18 patients enrolled in the phase I trial, something the Wade's Army gift helps ensure.

"The unique challenge of this trial is it's costly," Hucks said. "We're not simply taking a drug and repurposing it for kids; this is a complicated procedure designed for each individual patient. It's an expensive process. In order to do these trials, which we think are transformational in cancer care, we have to have the funds."

Hucks said working with organizations like Wade's Army is the best way to find patients and get the word out about the clinical trial. UNC Lineberger supporters have also been critical to making these connections through the Carolina community.

"We'd been looking for ways to back research, and we are committed to solving kids' cancer, and asked for RFPs, how to treat it in a different way," Kate Welbourn said. "My friend [and UNC Lineberger Board of Visitors member] Margaret Dean reached out to me and connected us with UNC's program."

"Partnerships are important," Hucks said. "The more parent-led groups we can partner with, that's how the battle is going to be won." 



George Hucks, MD

"In terms of pediatric cancer, neuroblastoma is one of the hardest to treat and most deadly. These patients get every treatment we know of, chemotherapy, radiation, surgery, immune-based antibody therapy, and despite all that, the cure rates are in the 50 to 60 percent range. If you relapse, it's pretty much incurable."

- George Hucks, MD

Patient's experiences with cancer lead to career change

A breast cancer diagnosis in 2014 was just the beginning of a long road to recovery but also self-discovery for Caterri Woodrum, now 58. Woodrum spent a year undergoing surgeries, chemotherapy and radiation for her triple negative breast cancer. In 2016, a surprising colon cancer diagnosis started the process all over again.

Today, Woodrum is cancer-free and credits the care she received at the North Carolina Cancer Hospital, the clinical arm of UNC Lineberger, with a re-entry into the health care industry. But the support of her family and friends was also a game-changer for Woodrum, along with a family phrase that kept her going during the treatment phase — “suck it up, and be a Marine.”

Woodrum's family members had service backgrounds in different branches of the military, something they used to help her get through surgery, treatments and follow-up care. Her father knew about her “be a Marine” phrase and gifted her with a Marine field jacket, complete with medals and ribbons honoring milestones in her cancer journey.

“I would wear it to my office when days were tough,” she said. “It was a coping mechanism to remind me that I could get through this and survive. Breast cancer treatment is difficult. You've got to deal with loss of hair, deal with wigs, scarves, and be a professional. People would know (by the Marine jacket) that it was a tough day, and they'd be supportive.”

Formerly holding executive positions at the N.C. Museum of Art and the art museum's foundation, Woodrum is a creative type, but she also spent more than a decade in the pharmaceutical industry. She was an executive and self-professed workaholic, checking email constantly, postponing vacations and taking work home with her. Since her diagnoses, though, she's made major changes to her life, leaving her position at the museum and focusing instead on health care and health coaching.

“The experience left me on the other side saying ‘why didn't I stay in health care?’” she said. “It was a life-changing event all the way around and made me stop and smell the roses, take stock.” Woodrum is now a national board certified health and wellness coach helping others navigate the health care system. She recently accepted the position of executive director and CEO for the Autoimmune Encephalitis Alliance, a national nonprofit headquartered in Durham, North Carolina, devoted to patient advocacy and disease awareness of autoimmune encephalitis. She said her health coaching credentials will come in handy in this role.

Being on the clinical patient side of the health care industry was eye-opening for Woodrum, but it helped her appreciate the top-notch care and collaboration from her team, UNC Lineberger's **Lisa Carey, MD, FASCO**, the Richardson and Marilyn Jacobs Preyer Distinguished Professor in Breast Cancer Research, **David Ollila, MD**, the James and Jesse Millis Distinguished Professor of Surgery, **Lawrence Marks, MD, FASCO**, the Sidney K. Simon distinguished Professor of Oncology Research, **Autumn McRee, MD**, director



Caterri Woodrum.

“ ‘Fighting cancer,’ sounds a little strange, but it's how you feel; you're under attack and it feels like a battle. Humanizing this fight where people recognize that cancer is something you live through – ‘live through’ being the operative phrase – is the critical objective. Not everyone will win this battle, and that's the hardest part.”

- Caterri Woodrum

of GI clinical trials program and **Karen Stitzenberg, MD, MPH, FACS**.

“I have faith in the people here. Lisa works with Autumn, they are both aware of what's going on with me,” Woodrum said. “The coordination is phenomenal. You get the feeling that they know you, know your quirks, what you'll be difficult about.” In fact, Woodrum praised the entire care team, from her chemotherapy nurses and radiation techs to the friendly and supportive parking attendants.

Having a great team at the hospital was important to Woodrum's physical health, but it was her family and friends that helped keep her mentally healthy and her spirits high, particularly when facing surgery and treatments that are hard on the body.

“I thought ‘this is just another rite of passage. You'll get through it, and after doing so you will realize you can face anything; you won't be afraid of anything,’” she said.

Faith also played a role in helping her through the tough times. “My faith in God is very strong. I think that leaning on your faith is key to having hope and confidence. It's all part of the attitude of getting through a tough situation,” she said. “It's a disease. It's

not a death knell. Yes, it can be terminal, but so can a lot of other things.”

Woodrum hopes to bring that positive attitude to those struggling with cancer and other health conditions through her work with the Autoimmune Encephalitis Alliance. She said she wants to emphasize that survival is not an impossibility.

“‘Fighting cancer,’ sounds a little strange, but it's how you feel; you're under attack and it feels like a battle,” she said. “Humanizing this fight where people recognize that cancer is something you live through – ‘live through’ being the operative phrase – is the critical objective. Not everyone will win this battle, and that's the hardest part.”

For Woodrum, cancer survivorship is just as important as the surgery and treatments she went through on her cancer journey. She has reached the five-year survivorship milestone for her breast cancer and is three years into follow-up care for her colon cancer, something she hopes to mark with five years soon.

“People say ‘it must have been tough,’ but in a bizarre way, it was truly a blessing,” she said. “It turns your attention to what's important. There's life after it. It's a robust and happy life.” 🦋

Doctors eye personalized, adaptive cancer vaccine

When they talk about their plans to develop a personalized and adaptive immune-based cancer therapy, **Ben Vincent, MD**, and **Jared Weiss, MD**, do not beat around the bush.

They say an upcoming clinical trial is their shot at curing lung and head and neck squamous cell carcinomas – cancers linked to smoking.

“Once you have the best idea you can have, you go all in and you try to cure cancer,” Weiss said. “That’s what we’re doing.”

Vincent and Weiss are in the final stages of launching a clinical trial for a therapy they’re calling PANDA-VAC, which stands for “personalized and adaptive vaccine.”

In this experimental approach, they are looking to develop personalized vaccines to trigger patients’ immune systems to fight their own lung cancer and head and neck cancer.

They have passed two of the key regulatory hurdles and are planning to launch the trial this spring for a small group of people.

“We’re actually trying to figure out in each individual patient: How is the cancer evolving to resist our therapies, and can we be out in front of that until all of the cancer cells are gone?” Vincent said.

‘No accident’

Initially, it was a love of sushi that brought Weiss and Vincent together to hash out their idea. But there were several other factors that allowed them to partner on the clinical trial.

They credit UNC Lineberger’s uniquely collaborative environment, supportive leadership and institutional expertise in key scientific areas — including in genetic sequencing and bioinformatics — with facilitating their bold idea.

“The culture here is extremely collaborative and extremely friendly,” Weiss said.

Their scientific backgrounds are also very complementary.

Weiss is a medical oncologist specializing in lung and head and neck cancer. He is the national principal investigator for multiple clinical trials for new therapies.

A self-described “big-time nerd,” Weiss credits a love of people and a clumsiness in the laboratory in his decision to become a doctor.

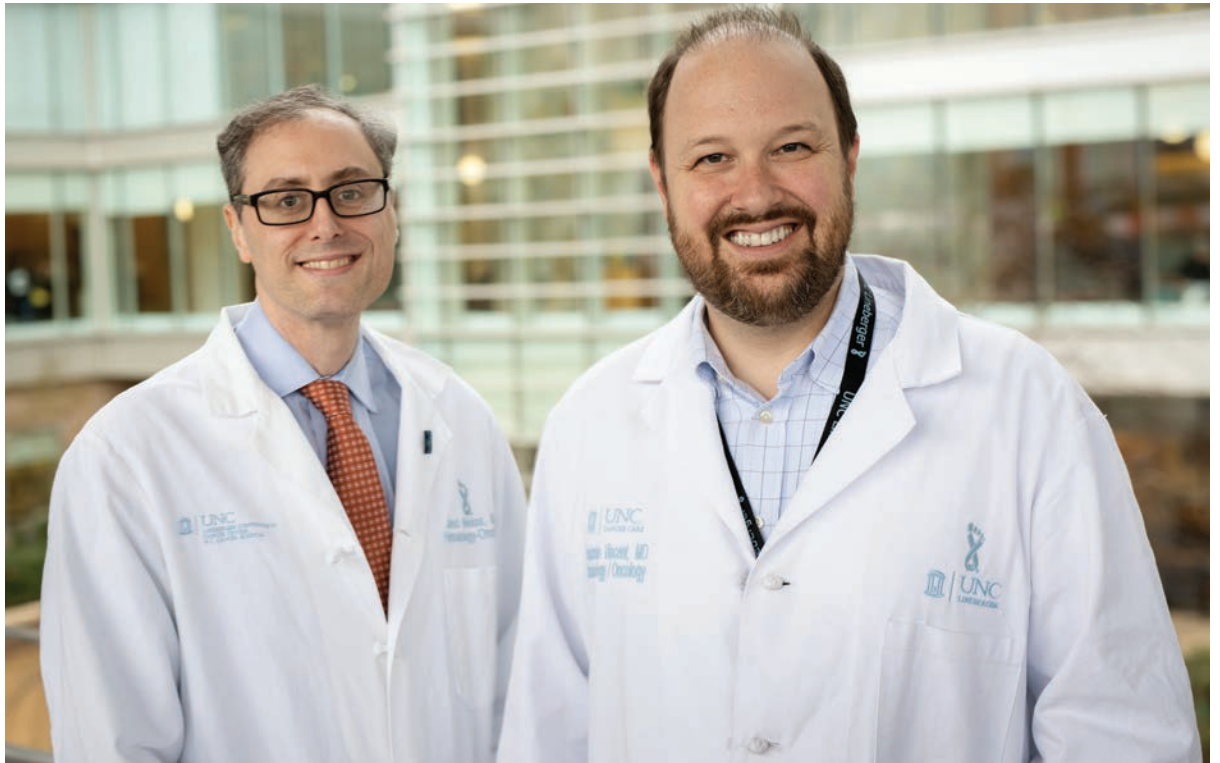
He studied neuroscience at Brown University, and worked in a neuroscience laboratory as an undergraduate.

At Yale School of Medicine, his decision to become an oncologist was one of just two that he’s made based on intuition (the other being the decision to marry his wife). He knew when he met his first cancer patient.

“I had an overwhelming feeling that these were the people I wanted to serve,” said Weiss, who is now an associate professor in the UNC School of Medicine and associate director of finance for the UNC Lineberger Clinical Protocol Office.

He saw a major need to improve care for patients with lung cancer. Since then, he’s seen major advances in targeted treatments and immunotherapies. But still, there is tremendous need for improvement.

In North Carolina, lung and bronchus cancer is the



Ben Vincent, MD, right, and Jared Weiss, MD, left, are working on a clinical trial for a personalized and adaptive cancer vaccine.

leading cause of cancer death, according to the N.C. State Center for Health Statistics.

“It’s no accident this is our chosen work,” Weiss said.

Vincent was a philosophy major at UNC-Chapel Hill who said he went to medical school because he “couldn’t make a living as a fiction writer, which was my original career plan.”

“I liked helping people, and I had some friends and family who said ‘you like thinking about problems, and you like making a positive impact on other people’s lives, that’s what doctors do, so you could try to go to medical school,’” he said.

He developed a deep interest in immunology while attending the UNC School of Medicine, and he trained in the immunology laboratory as much as he could.

Like Weiss, he decided to become a medical oncologist after meeting cancer patients as a student.

“I saw their grace under pressure, the capacity to develop deep, meaningful relationships with them in a small amount of time, the importance of interacting with them as people ...,” he said.

As a physician-researcher, Vincent both cares for patients and runs a lab focused on cancer immunology research. His lab has conducted many preclinical studies to understand how to deliver cancer vaccines.

Starting the fire

Immunotherapies have been developed and approved in the United States to fight lung cancer, melanoma and other disease types. Known as “checkpoint inhibitors,” Weiss likened the mechanism of these immunotherapy treatments to “pouring gas on the fire;” they help boost the immune system’s response against cancer.

But he said the PANDA-VAC approach is an attempt to get the fire going in the first place.

“If you don’t have a fire to begin with, it doesn’t matter how much you amplify it,” Weiss said. “PANDA-VAC to me is an attempt to start that fire.”

To create experimental vaccines against cancer, researchers first sequence the DNA in a patient’s tumor.

They use that information to find signatures within the cancer cells’ DNA that make them unique. Those signatures could indicate the tumor produces an irregular marker known as a “neo-antigen” that they could use to help the immune system recognize the cancer.

Once they have identified potential neo-antigens within the cancer cell, they generate an experimental vaccine using protein fragments of the irregular cancer marker. The approach is not only personalized but also adaptive.

They want to be able update the therapy as the patient’s tumor adapts and tries to evade the therapy.

“Our idea is we can improve therapy not just by giving this personalized product, but by continuing to study the patient’s cancer through blood samples and targeted biopsy, and then changing the vaccine so when the cancer changes, we change to adapt to it,” Weiss said.

While they are planning to launch an initial, proof-of-concept clinical trial of this therapy, they want to use their approach for more treatments in the future. They are hoping to make a transformative impact.

“This is being supported by Lineberger, which is the cancer center for the people’s hospital of North Carolina, and North Carolinians have been heavily afflicted by diseases associated with tobacco use,” Vincent said. “It’s also our shot for the people of North Carolina.”

As important as the outcome of the trial is, both men enjoy time spent outside the lab, too. Weiss roasts his own coffee and enjoys photography, while Vincent is an “encyclopedia of bourbon.” Residents of Chapel Hill, both Vincent and Weiss are fathers to three children each and make spending time with their kids and wives a top priority. 8

Marketing trends attract teens, young adults to vaping, e-cigarettes

A UNC Lineberger researcher predicts an e-cigarette marketing trend could lead more people to try vaping products, including teens and younger people.

In an industry watch update published in the journal *Tobacco Control*, **Rebecca S. Williams, PhD, MHS**, department of health behavior, reported on the resurgence of cheap, disposable e-cigarettes that are easily found online.



R. Williams

Many of the products are modeled after Juul, the widely popular e-cigarette that uses pod style e-liquid containers, Williams said. Some have a nicotine concentration of up to 7 percent, which is higher than nicotine concentrations provided by Juul.

The products are priced as low as \$4.60, which is about the same as a single refill of a Juul pod, which are typically sold in packs of four.

“These are going to draw users in – in particular youth users that might not have otherwise tried these products,” said Williams, who analyzed online marketing of disposable e-cigarettes vendors. “These products are so cheap; there’s a very low cost to entry.”

Pancreatic cancer tumor classification could optimize treatment choices

A study from UNC Lineberger could help predict resistance to treatments for pancreatic cancer, one of the deadliest cancer types.

In *Clinical Cancer Research*, researchers led by UNC Lineberger’s **Jen Jen Yeh, MD**, department of surgery, and **Naim Rashid, PhD**, department of biostatistics, reported findings for how two subtypes of pancreatic cancer respond to treatments differently. Importantly, they found one subtype of the disease showed poor responses to common therapies and also had worse survival outcomes. “Our study evaluated the best way to classify tumors according to available treatment response data from prior clinical trials,” Yeh said. “Our hope is we can use this information to tailor treatments, and potentially avoid giving therapies that may not work well for certain patients.”



Yeh



Rashid

Scientists discover diverse stem cell populations within the mouth

UNC Lineberger researchers, along with a multidisciplinary team of investigators from Vanderbilt University Medical Center, King’s College and the University of California, San Francisco, have discovered how mouth stem cells may uniquely be equipped to help improve healing in other parts of the body after disease or injury.

The team of researchers, led by investigators **Kevin M. Byrd, DDS, PhD**, of the UNC Adams

School of Dentistry, and UNC Lineberger’s **Scott Williams, PhD**, department of pathology, sought to understand how stem cells in the mouth balance making new cells with removing unneeded cells. Their findings are published in the journal *Cell Stem Cell*.



S. Williams

The team was surprised to discover that cell creation and removal happened very differently throughout the mouth. They were particularly interested in the cells that divided less frequently because these types of cells play an important role in healing in other parts of the body. The team found these cells were activated immediately after an injury, such as burning the roof of the mouth while eating.

“How these cells do this even as we age is unclear, but we now think these cells may become an important model system for studying how stem cell populations respond to stress,” Byrd said. “For example, we know that the roof of the mouth rarely gets cancer compared to other places in the mouth, and how these cells are able to both protect us from frequent injury but also resist making oral cancer is fascinating to consider.”

KRAS gene mutation differences can aid pancreatic cancer treatment

A new study from UNC Lineberger researchers reveals important findings about how a common genetic mutation in pancreatic cancer works to drive tumor growth.

In the journal *Cancer Discovery*, researchers led by UNC Lineberger’s **Channing Der, PhD**, and **Aaron Hobbs, PhD**, reported details of the role of a particular mutation called KRAS G12R in pancreatic cancer, and therapeutic strategies that might work for this mutation type.



Der



Hobbs

The study reflects a shift in the way researchers approach KRAS mutations in pancreatic cancer. By studying unique differences in DNA mutations within the same gene, researchers are working to uncover the unique, mutation-specific mechanisms that drive cancerous growth. This could potentially lead to different therapeutic strategies for each mutation type.

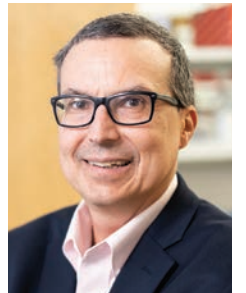
“The different properties of KRAS G12R may render pancreatic cancers with this mutation responsive to therapies that otherwise are not expected to work on other pancreatic cancers with other KRAS mutations,” said Der, who is a UNC Lineberger member and Kenan Distinguished Professor in the UNC School of Medicine Department of Pharmacology.

Biological clues key to treating aggressive breast cancer tumors

A UNC Lineberger team led by **Charles Perou, PhD**, the May Goldman Shaw Distinguished Professor in the departments of genetics and pathology, and **Jonathan Serody, MD**, the Elizabeth Thomas Professor

of Medicine, Microbiology and Immunology, have discovered a promising method to identify aggressive breast cancer tumors that will respond to drugs that unleash the immune system against cancer.

The U.S. Food and Drug Administration recently approved a treatment that combines an immunotherapy drug and chemotherapy for triple negative breast cancer, but not all cases of this aggressive form of breast cancer responded in clinical studies.



Perou

Researchers discovered promising biological clues that could help identify which tumors might respond to the combination treatment. Their findings, published in the journal *Cell*, were drawn from studies in mice and an analysis of data from six clinical trials. If confirmed in future studies, the insights could help guide patients to the right treatments, sparing them from those that are not effective. It also could lead to an approach to make the drugs work in cancers that don’t initially respond.



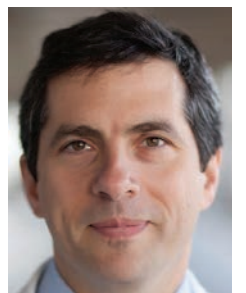
Serody

“Potentially, we have a new biomarker to be used to figure out which triple negative breast cancer patients should be receiving immunotherapies,” Perou said.

Researchers find possible approach to block medulloblastoma growth

UNC Lineberger researchers have identified a potential approach to stop the growth of the most common type of brain tumor in children.

UNC Lineberger’s **Timothy Gershon, MD, PhD**, and colleagues reported in the journal *Development* that by blocking a signal called GSK-3, they could control tumor growth in a subtype of medulloblastoma brain tumor. Their preclinical findings may provide clues to a possible new targeted treatment strategy. “This work could lead to new insights into developmental brain malformations and also to new treatments for medulloblastoma that may spare the severe side effects of radiation and typical chemotherapy,” Gershon said.



Gershon

While as many as 80 percent of children with medulloblastoma survive long-term with radiation and chemotherapy, researchers said there is a need to improve therapies in order to limit debilitating side effects from those treatments, as well as to develop treatments that work for children whose cancer don’t respond to treatment.

“For one of the more common subtypes of medulloblastoma, we found we can target a signaling pathway to block tumor growth,” said **Jennifer Ocasio, PhD**, the study’s first author and a former graduate student in the UNC School of Medicine Neuroscience Curriculum.

Nuclear medicine division renamed Molecular Imaging and Therapeutics

In November, the Division of Nuclear Medicine's clinical unit was renamed the Division of Molecular Imaging and Therapeutics (Mit). The new name more accurately describes the application of molecular imaging has become to nuclear medicine services at UNC and to the specialty as a whole.

"We offer a very broad spectrum of imaging procedures, including 2 SPECT/CT, 6 SPECT and 2 PET/CT and PET/MR cameras. Our clinical operation covers the UNC Medical Center and Hillsborough Hospital. We perform approximately 12,000 procedures each year, including 5,000 oncology PET studies and about 1,000 cardiac PET studies. We cover eight multidisciplinary conferences where dedicated workstation PET studies are reviewed," said Amir Khandani, MD, Division Chief, Mit.

"In just four years at UNC Medical Center, Mit services have added two new PET radiotracers and two new therapies to its menu of patient care therapeutics. In the

next 12 months, we're prepared to become an expanded access site for new agents for both prostate cancer PET imaging and a prostate cancer therapy, once both are FDA-approved."

John Isner names cancer hospital reception area in his mom's honor

The North Carolina Cancer Hospital has named its multidisciplinary clinic reception area in honor of Karen Isner. She is a two-time cancer survivor and the mother of professional tennis player John Isner.

Karen Isner received treatment for colon cancer at N.C. Cancer Hospital by a team of specialists, including **Benjamin Calvo, MD**, director of the Gastrointestinal Multidisciplinary Oncology Program, co-director of the UNC Lineberger Gastrointestinal Oncology Program and an associate professor of surgery at UNC School of Medicine.

"Today is a special moment for myself and my family, as we recognize the exceptional care my mother received at UNC Lineberger Comprehensive Cancer Center and the North Carolina Cancer Hospital," John Isner said during the dedication ceremony at the



Left to right: Shelley Earp, MD, UNC Lineberger director, Benjamin Calvo, MD, John Isner, tennis player, and Karen Isner at the dedication of the reception area named in Karen Isner's honor.

cancer hospital. "Not only am I grateful to be standing alongside my mother, but also amongst the incredible medical staff who took such great care of her."

"It has been a wonderful privilege to care for Karen and to see her thrive as a cancer survivor," said Calvo, who was Karen Isner's surgeon. "The naming of the clinical reception area in her honor is a well-deserved tribute to her. It underscores her family's commitment to help others who have been affected by cancer."

SUPPORT *continued from page 1*

she has been especially interested in what happens to patients when they finish treatment.

"I started paying attention to people when they go home and what they're dealing with; we see the 'snapshot' while they live the 'video,'" she said. "We were treatment focused, but we needed to focus on what happens after treatment. It's not an either-or."

Flash forward, and now Mayer has a clearer picture of what survivorship looks like for patients, their caregivers and their families. People continue their day to day lives, and even though they may be disease-free, there can be remnants of their cancer or its treatment that affect them. Mayer said there are often residual effects from chemotherapy, radiation and surgery, as well as other conditions that can occur, simply because the patient had cancer. For some survivors, a new cancer may appear, as 20 percent of new cancers are found in people who previously had cancer.

"We have to get everyone to focus on the new normal," she said. "Not what it was like before, but what it looks like after they've been diagnosed and treated because their lives have changed."

For many survivors, fatigue tops the list of complaints. But residual effects of chemotherapy, like neuropathy, or numbness, in the hands and feet, may take time to fade away or even never fully go away. Focusing on these issues and survivors as a whole is the idea behind the Cancer Transitions wellness program Mayer holds every other month, with an upcoming session Saturday, March 21 at the SECU Family House in Chapel Hill. The free workshops are open to adult cancer survivors and their caregivers, and experts discuss topics like nutritional wellness, physical activity and exercise, coping with stress, and medical management after treatment. Free parking and healthy snacks are provided.

"We focus not just on recovery but what they need to be asking their providers and how to follow up about survivorship care plans," Mayer said.

Mayer said a lot of the cancer journey is out of patients' control, so an important part of survivorship is focusing on what they can manage, like eating a healthy diet, getting plenty of exercise and sleep. "If they have good health

"We have to get everyone to focus on the new normal. Not what it was like before, but what it looks like after they've been diagnosed and treated because their lives have changed."

- Deborah Mayer

behaviors after diagnosis, it may help them feel better and may even help keep cancer from coming back," she said.

One survivor said they enjoyed a past presentation on exercise in particular. "I thought the program was well done," they wrote in a survey. "DJ [from Get Real and Heel] did a great job with not only talking about programs available, but the exercises that he presented were simple to follow and remember."

Most importantly for survivors and their caregivers is meeting other people who know firsthand what they're going through. Mayer said it offers patients a chance to share experiences in an informal setting. "We see that they're comfortable with people who've had similar experiences," she said. "They can talk about those issues they may be reluctant to talk about with their providers, if they're in a busy clinic or feel like the issues they're having aren't as serious as active cancer."

Mayer said one group that's often overlooked is the caregivers, but the wellness program offers an opportunity for them to talk about their experiences, as well. "It's very validating for caregivers to hear from other caregivers, to hear what it's been like and the concerns they have about it," she said. A recent program participant agreed, saying that the topics covered were relevant and useful.

"The most valuable piece for me is the contact information for support in the future," the participant wrote in a survey. "I will definitely recommend the program and share its resources with others."

Honors and Awards

Honors

The American Society of Clinical Oncology elected UNC Lineberger's **Lisa A. Carey, MD, FASCO**, to its Board of Directors. She will begin her four-year term during ASCO's annual meeting in June.

The American Association for the Advancement of Science named UNC Lineberger's **Channing Der, PhD**, the Sarah Graham Kenan Distinguished Professor of Pharmacology, as an AAAS Fellow.

The Web of Science Group's 2019 Highly Cited Researchers list recognized 18 UNC Lineberger members for being among the world's most influential researchers of the past decade. Honorees included: **Ralph Baric, PhD; Noel Brewer, PhD; Lisa A. Carey, MD, FASCO; Myron Cohen, MD; Katherine A. Hoadley, PhD; Leaf Huang, PhD; David M. Margolis, MD; Edward A. Miao, MD, PhD; Piotr A. Mieczkowski, PhD; Seth M. Noar, PhD; Joel S. Parker, PhD; Barry M. Popkin, PhD; Charles M. Perou, PhD; Kurt M. Ribisl, PhD; Bryan L. Roth, MD, PhD; Paschal Sheeran, PhD; Patrick F. Sullivan, MD, FRANZCP; Jenny P. Y. Ting, PhD**

Awards

The Society for Immunotherapy of Cancer honored **Rahul Mirlekar, PhD**, a postdoctoral research associate at UNC Lineberger, as a recipient of its 2019 Young Investigator Award.

The North Carolina Biotechnology Center awarded \$100,000 to UNC Lineberger's **Chad Pecot, MD**, to study an experimental treatment that would silence a gene commonly mutated in cancer.

L'Oréal USA awarded **Christine Roden, PhD**, a postdoctoral research associate at UNC Lineberger, the 2019 Women in Science Fellowship.

calendar of events

March

21st ZTA 5k, Chapel Hill

28th Blue Ribbon Run, Wilmington

May

16th Victory Ride, Raleigh

Tuesdays

Glasshalfull, Chapel Hill

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

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Address service requested.



Above: Abigail Valgus, left, and Olivia Shirlen, right, held a bake sale to raise money for the North Carolina Cancer Hospital, in honor of Olivia's grandmother.
Below: Neighborhood friends helped Olivia and Abigail at their bake sale event.



The Holly Project honors patient memory, raises funds

The Holly Project held its annual fundraiser in December. This fundraiser is held by the Fryar family and friends to help raise money for UNC Lineberger in honor of Holly Fryar, a patient from Rocky Mount, whose dying wish was to help pediatric patients and their families who needed financial assistance to deal with the non-medical costs of cancer.

What began as a small fundraiser years ago has now turned into a community rally that has helped raise thousands of dollars for children and their families at UNC Lineberger, all in Fryar's memory.

Pig Out raises more than \$40,000 for UNC Lineberger



A group from the Coldwell Banker Howard Perry and Walston real estate agency presented a \$42,000 donation to UNC Lineberger to support its Comprehensive Cancer Support Program at the North Carolina Cancer Hospital. HPW raised the funds during its 2019 Pig Out For The Cure event in September.

Pig Out For The Cure is an annual barbecue fundraising event, with 100 percent of proceeds

benefiting UNC Lineberger.

The HPW offices in Chapel Hill, Durham Fuquay-Varina, North Raleigh and Raleigh sold barbecue plates during lunchtime, as well as raised money through sponsorships and online donations. The event has raised \$125,000 overall during the past seven years.

The event was started by Chapel Hill HPW agent Julie Amos, who was also a UNC Lineberger volunteer. The HPW Foundation added UNC Lineberger's Comprehensive Cancer Support Program as one of its charities in 2017.

The Farm Party supports research, cancer care



In its seventh year, the Farm Party was held November 16 at Teer Farm in Chapel Hill. This annual, family event raises money for research and cancer care at UNC Lineberger and features North Carolina barbecue, libations, bluegrass music from Counterclockwise String Band and a silent auction.

The event began in 2013, when the organizers banded together to raise money for UNC Lineberger in honor of a friend with leukemia who was treated at the North Carolina Cancer Hospital, the clinical home of UNC Lineberger.