

BreakThroughs

SPRING 2019



Duke Cancer Institute

CANCER PREVENTION

Bringing
Care to
the Durham
Community



JUST ASK

How can we increase diversity in clinical trials?

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From All Sides Now



MICHAEL B. KASTAN

LES TODD

ON THE COVER:

PARTNERS IN PREVENTION. Pastor Ronald L. Godbee and Researcher Meira Epplein, PhD, worked together to spread the word in the Durham community about an easy way to prevent stomach cancer. Read the story on page 7. Photo by Ken Huth.

Fighting cancer means creating new treatments, certainly. However, at Duke Cancer Institute (DCI), it means so much more.

Finding creative ways to prevent cancer. Ensuring that clinical trials of new treatments reflect our diverse population. Pioneering “liquid biopsies” to help doctors provide personalized cancer treatment.

Those are just a few of the innovations happening at DCI that you’ll read about in this issue.

As we pursue multiple avenues in our mission to reduce the burden of cancer, we don’t limit ourselves to the bedside or the research lab. At Duke Cancer Institute, we also count on our partners in the Durham community and nationwide to help us with our mission.

In this issue of *Breakthroughs*, you will also read about some of our collaborators in this fight.

One is a Durham pastor who has worked with our researchers to spread the word in the Durham community about how to prevent stomach cancer.

Another is a friend of DCI who has founded two nonprofit patient

advocacy foundations. Her work has made a tremendous difference in helping people with serious illnesses all over the United States navigate insurance and financial concerns.

“As we pursue multiple avenues in our mission to reduce the burden of cancer, we don’t limit ourselves to the bedside or the research lab.”

Michael B. Kastan

At DCI, we are working in all these arenas, and more, to discover, develop, and deliver the future of cancer care...now.

Will you please join us?

A handwritten signature in black ink that reads "Michael Kastan".

Michael B. Kastan, MD, PhD
Executive Director, Duke Cancer Institute
William and Jane Shingleton Professor,
Pharmacology and Cancer Biology
Professor of Pediatrics

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Advisory Committee: Rachel Greenup, MD;
Donald McDonnell, PhD; Steven Patierno, PhD;
Hope Uronis, MD

Senior Executive Director of Development,
Duke Cancer Institute
Amy Deshler

Publisher **Amy Deshler**

Editor **Angela Spivey**

Writers **Karen E. Butler, Julie Harbin, Jessica Hyland, Aliza Inbari, Mary-Russell Roberson**

Designer **Pam Chastain Design**

Art Director **David Pickel**

Photography: **Karen E. Butler, Alex Boerner, John Gessner, John Hansen, Chris Hildreth/Rooster Media, Ken Huth, Jessica Hyland, Alexander Kravets, Allie Mullin Photography, Les Todd, Yousuf Zafar**

Illustration: **Ken Orvidas**

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Program for Young Adults with Cancer Gets a Boost

Teen and young adult cancer patients will receive expanded services at Duke, thanks to a \$400,000 award from First Citizens Bank and Teen Cancer America.

“Duke Cancer Institute, Teen Cancer America, and First Citizens Bank share a passion for helping teens and young adults facing cancer,” says Cheyenne Corbett, PhD, administrative director for Duke Cancer Institute’s Supportive Care and Survivorship Center and Center for Onco-Primary Care. “We recognize the unique medical, social, economic, and emotional needs of this vulnerable population.”

First Citizens and Teen Cancer America have pledged \$400,000 to Duke’s Teen and Young Adult Oncology (TYAO)

program. The award will support staffing for a medical family therapist, patient navigator, and psychologist. Funds will also support teen and young adult-focused activities and a patient-centered model of care.



YOUNG ADULT CANCER PATIENT

Shannon Voelkel and her mother, Mary Voelkel is being treated at Duke for non-Hodgkin lymphoma.



ON HAND FOR THE CHECK PRESENTATION FROM FIRST CITIZENS BANK AND TEEN CANCER AMERICA: Jeff Ward, First Citizens Bank; Simon Davies, Teen Cancer America; DCI Executive Director Michael Kastan, MD, PhD; young adult cancer patient Shannon Voelkel; DCI Deputy Director Steven Patierno, PhD; Duke University President Vincent Price, PhD; and Nolan Smith, Duke men’s basketball.

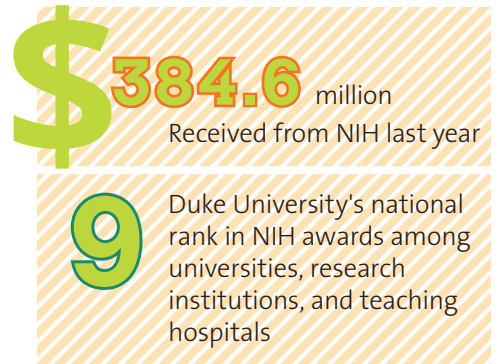
Duke University Among Top 10 for Federal Medical Research Funding

Duke University received \$384.6 million last year from the National Institutes of Health (NIH) to advance medical research, ranking ninth in the country among universities, research institutions, and teaching hospitals that are awarded the taxpayer-based research dollars.

Duke was the largest recipient of NIH grant funding in North Carolina for fiscal

year 2018, according to the Blue Ridge Institute for Medical Research, which publishes an annual analysis of NIH funding.

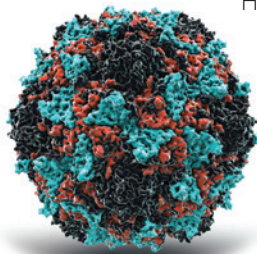
The NIH is the largest public funder of biomedical research in the world, investing more than \$32 billion a year to advance research aimed at improving health.



Poliovirus for Breast Cancer?

A genetically modified poliovirus therapy developed at Duke that has shown early success in patients with brain tumors is now being tested in a clinical trial of breast cancer.

The modified virus appears to jumpstart a targeted immune response against tumor cells. Studies



in animals suggest that it has activity against breast cancer.

A new clinical study led by Shelley Hwang, MD, chief of breast surgery at Duke Cancer Institute, will find out if those findings hold up in tumors in women. The trial aims to enroll six women with triple negative breast cancer.

Patients will have a biopsy, then receive an injection of

the modified poliovirus directly into the breast tumor. After two weeks, they will receive standard-of-care surgery to remove the tumor. Researchers will look for changes in immune-system cells inside the tumors that happen as a result of the poliovirus treatment.

To learn more about the study, contact Duke Breast Oncology Research, Breastcl@dm.duke.edu or call 919-660-1278.



KEEN ORVIDAS

Most studies of new treatments don't reflect the diversity of people in the real world. That's a problem.

GETTING REAL WITH CLINICAL TRIALS

BY ANGELA SPIVEY

THE NEXT TIME YOU TAKE A MEDICATION, CONSIDER THIS: it's available because it was shown to be safe and effective in clinical trials. In these controlled studies, researchers give a new treatment drug to actual patients and measure their responses.

But most people who enroll in those trials are white. If you're a person of color, how do you know the drug will work the same for you?

The lack of diversity in clinical trials is a recognized problem in development of new treatments for many diseases, including cancer. Duke researchers are trying new ways to solve it.

Nadine Barrett, PhD, associate director of community engagement and stakeholder strategy at Duke Cancer Institute, has studied differences among people and how they affect behavior since she was a graduate student in medical sociology. Her interest in access to health care was sparked when she emigrated to the United States at age 15. Her mom, who had been a nurse in England, worked as a babysitter when they came to the U.S, and for years, the young family lacked health insurance. She saw her mom struggle to understand the American health care system.

At Duke, Barrett has developed a training program called Just Ask: Increasing Diversity in Clinical Research Participation.

"The number-one reason that most people say they participated in a clinical trial is because they were asked," Barrett says. "If we have patients

coming through our front door, and they at least get asked, diversity could be increased just from that alone," she says. "So why are we not asking most of our patients to participate in clinical trials?"

The answer to that question may lie in implicit bias—unconscious assumptions that we tend to make about others. Maybe a health care provider assumes that a person of color wouldn't adhere to a strict medication regimen or that they wouldn't want to participate in a trial because of mistrust based on historical ethics violations such as the Tuskegee Syphilis Study.

The Just Ask training helps doctors, nurses, and other clinical research staff recognize their biases, and it teaches strategies for building rapport. Barrett gives an example. "Put the notebook away, walk up with your hands free, shake hands. What does it mean to make sure that I'm engaging with this person in a respectful way regardless of whether they're the same race as me or not?"

Barrett has presented Just Ask to several clinical research teams at Duke as well as St. Jude's Hospital. She's expanding the program and testing its effectiveness with a \$71,000 grant from the V Foundation, funded by the Victory Ride to Cure Cancer (see "Vibert's Victory Ride," page 18).

SURPRISING RESULTS

Just Ask was one of many strategies that a research group led by Dan George, MD, used in a trial that led to a surprising discovery that has



NADINE BARRETT developed a training program to help research staff recruit a more diverse group of people to volunteer for clinical trials.

JOIN THE FIGHT!

Your gift will support innovations in diversifying cancer treatment and research. Please use the enclosed envelope, or give online at bit.ly/dcispring19

launched a national debate about race and prostate cancer treatment.

It's known that, overall, black men tend to have more aggressive prostate cancer and die from it earlier. But George, professor of medicine and professor of surgery, was intrigued by retrospective studies that suggested that a particular drug—abiraterone—worked better in black men than in white men.

He wanted to find out if the results would hold up in a prospective study (in which patients are identified first and followed for outcomes). So he launched a trial of the drug that aimed to enroll 100 patients with advanced prostate cancer—50 white men and 50 black men—to evaluate their outcomes.

“The number-one reason that most people say they participated in a clinical trial is because they were asked. If we have patients coming through our front door, and they at least get asked, diversity could be increased just from that alone.”

—Nadine Barrett

George didn't expect any problem enrolling enough patients in both groups. The study was providing free access to an expensive drug that was new at the time. The prostate cancer patient population at Duke Cancer Institute is 25 percent black. And this trial was also open to smaller cancer centers around the southeast that are affiliated with Duke.

But in the first year, the trial had enrolled only seven men in total. “We knew we weren't going to get there,” says Carol Winters, RN, OCN, CCRC, the study's project manager. So George asked the study sponsor, Janssen Pharmaceuticals, for more funds to expand to other centers. He persuaded colleagues at cancer centers in Alabama, Louisiana, New Orleans, and Michigan to join.

To reach full enrollment, the team used regular conference calls and Skype sessions to stay in touch with staff at the other sites. “We needed to keep the study at the top of their minds,” says Colleen Riggan, BSN, RN, a co-project manager. The study team is publishing a paper in a scientific journal about these strategies.

The results of the trial, presented in June 2018, showed that black men in the study had longer median time to disease

progression, as measured by PSA, a blood marker of the disease, than white men in the study. In addition, the black men's PSA levels decreased more than white men's. These results were surprising because, in general, black men with prostate cancer tend to be sicker and die faster.

One interpretation is that the usual health disparities fade when everyone gets the same access to high-quality care. “We need to help educate clinicians that these patients need to be treated aggressively with standard-of-care therapies when they're most appropriate,” George told a reporter for *Bioworld*.

Another possibility is that biological differences associated with racial ancestry may drive responses to treatment. For instance, maybe some black men are more likely to have variants of genes involved in breaking down and transporting testosterone. George and others at Duke are conducting genetic studies on samples from men in the trial to find out more.

The trend in better overall survival for black men treated with both chemotherapy and with drugs that target hormones is borne out by other studies. One was an analysis of a large Veterans Health Administration database that included nearly 3,000 men. The study showed better overall survival rates among black men with metastatic disease who were treated with abiraterone or enzalutamide.

“We don't really know why this is occurring, but it is definitely something that demands further research,” says Duke medical oncologist Megan McNamara, MD, who presented those results at a meeting of the American Society of Clinical Oncology.

Understanding race-related biological differences that may affect treatment response will inform care of all men with prostate cancer. “We want to get a more precise genetic definition of not just the tumor, but of the patient,” George says. “Diversifying the population in clinical studies will help accomplish that. Historically, our clinical trials haven't included men of color.”

PEOPLE OF COLOR IN CLINICAL TRIALS

13%

of the U.S. population is black

but 2.75%

of oncology clinical trials participants are black

Source: U.S. Food and Drug Administration, 2015–2016

Cancer Prevention

Making it easy like Sunday Morning

BY ALIZA INBARI



JOHN HANSEN

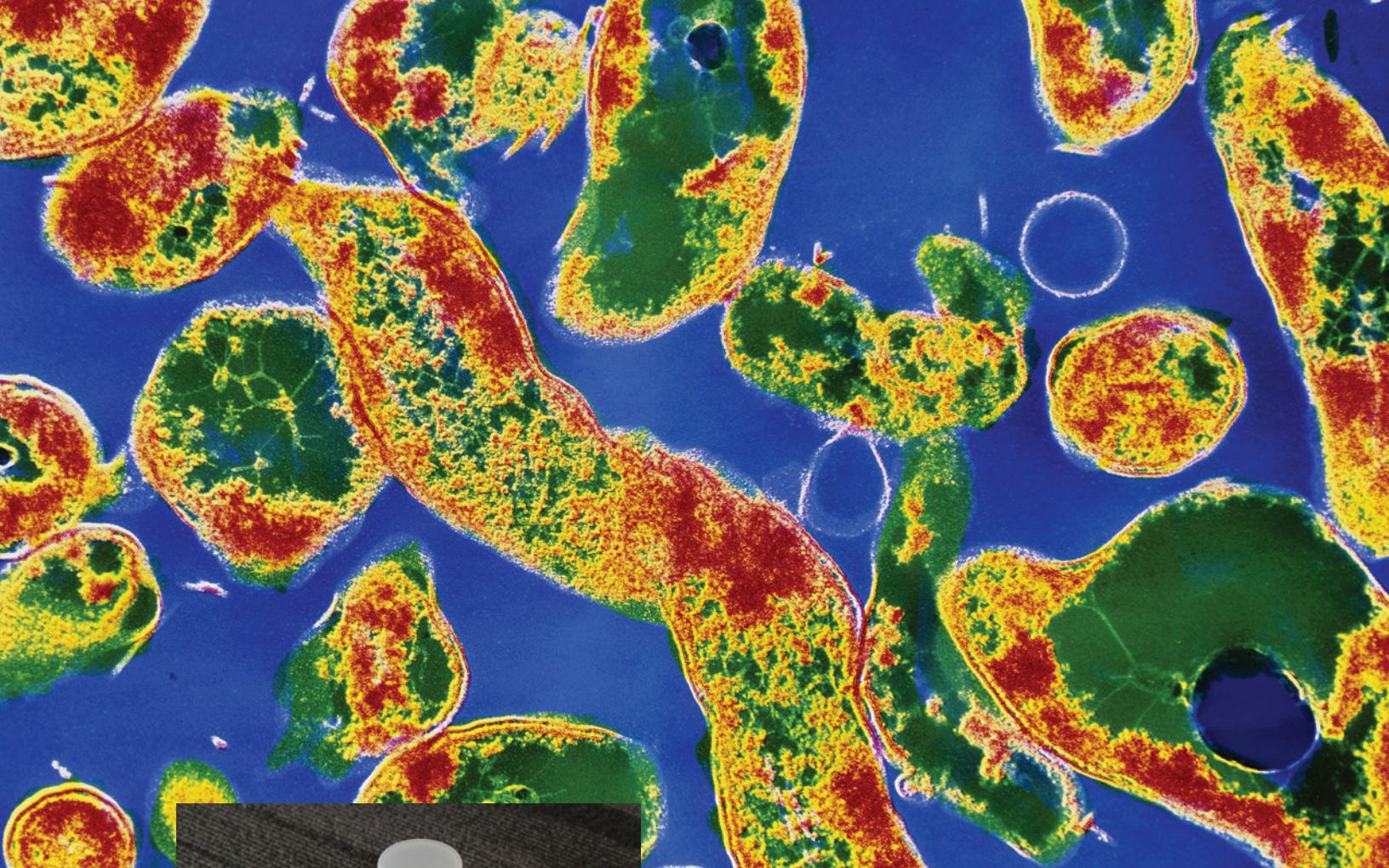
GILDA SUITER, 54, OF DURHAM, NORTH CAROLINA, STRUGGLED WITH GASTRO-ESOPHAGEAL REFLUX DISEASE, known as acid reflux, for several years.

Two years ago, her doctor recommended that she take a urea breath test—a non-invasive diagnostic test to detect a common bacterium called *Helicobacter pylori* (*H. pylori*). He thought *H. pylori* might be causing her stomach issues.

The test is based on the ability of the bacterium to convert urea to carbon dioxide. Patients exhale into a balloon-like bag, and then drink a lemon-flavored solution that contains urea. After 15 minutes, they give a second breath sample to test for an increase in carbon dioxide.

Suiter did not follow her doctor's advice. "I just did not want to drink that stuff. That was a real drawback for me, and I brushed it off," she says.

Researcher **Meira Epplein** (far left) partnered with Durham Pastor **Ronald L. Godbee** to spread the word about cancer prevention at the River Church. **Gilda Suiter** (center) benefited from a simple test and preventative treatment.



EASY PREVENTION. The bacterium *H. pylori* is the leading risk factor for stomach cancer. In 2019, Duke researcher Meira Epplein found early evidence that the bacterium is also linked to higher risk of colorectal cancer. At bottom, a simple breath test can detect *H. pylori* so that people can receive antibiotics to eradicate it.

Last year, Suiter got another chance to take the test—at her church. Meira Epplein, PhD, a cancer epidemiologist at Duke Cancer Institute (DCI), and Sydnee Crankshaw, MPA, research program leader at DCI Cancer Control and Population Sciences, visited the River Church in Durham as part of the Durham Initiative for Stomach Health (DISH). Epplein, associate professor in the Department of Population Health Sciences, started this project to help prevent stomach cancer. “Infection with *H. pylori* is the leading risk factor for developing stomach cancer, and eradicating it can reduce the risk of stomach cancer by 50 percent,” she says.

After hearing Epplein speak, Suiter decided to do the urea test. “They explained what *H. pylori* is and how it affects people in the African American community, and my

daughter encouraged me to participate in the study,” Suiter says. “Many of us are not aware that the test can help detect issues in the stomach that may lead to stomach cancer.”

Suiter did have *H. pylori* in her stomach. She shared the diagnosis with her primary care doctor and asked to be treated. Her doctor administered a 14-day antibiotic regimen. Last November, Epplein and her team retested her and found that the bacteria was gone.

“I’m glad I did that,” says Suiter. Now she shares her experience with family and friends and encourages them to get tested for *H. pylori*.

HIGHER DEATH RATES AMONG BLACK MEN

Infection with *H. pylori* is very common. About 50 percent of the world’s popu-

HOW YOU CAN HELP

You can make a difference in preventing cancer. To donate, use the enclosed envelope, or visit bit.ly/dcispring19

“As a pastor, my major concern is not just getting people to the afterlife, but also securing them in the present life and assuring the longevity of the people that I love.”

Pastor Ronald L. Godbee

lution is infected with the bacterium, Epplein says. The bacterium is transmitted person-to-person by saliva or spread by fecal contamination of food or water.

In the United States, *H. pylori* infects 30 percent of the overall population. However, it is believed that 50 percent of African Americans, Asian Americans, and Hispanic Americans are infected.

“People of color are two to three times more likely to

be diagnosed with stomach cancer than whites,” says Epplein, who comes from an Ashkenazi (European) Jewish heritage, a population that is also more likely to be infected with *H. pylori* and to be diagnosed with stomach cancer. Her great-grandmother died of stomach cancer.

“Stomach cancer is the sixth-leading cause of death from cancer in African American men, and it accounts for the greatest disparity in death rates from cancer between African Americans and whites,” she says.

Epplein, who earned a master’s degree in international studies with a focus on China, worked and traveled in China prior to pursuing her academic career. She saw firsthand health disparities between wealthy communities in Beijing and poor communities in the countryside, and that fueled her passion to reduce health disparities and help underserved populations.

She capitalized on community outreach efforts that DCI researchers Steven Patierno, PhD, and Nadine Barrett, PhD, developed with the River Church in Durham in the past two years, and found a nontraditional way to recruit participants to her study. Epplein partnered with church leader Pastor Ronald L. Godbee to conduct the study and administer *H. pylori* testing at the

church rather than at a clinic, to make it more accessible for participants.

Epplein and Crankshaw participated in several Sunday morning services. Godbee invited them to the stage to introduce the study to the congregation and talk about the importance of *H. pylori* testing. “He put his arms around us and said: ‘I trust these people. They really care,’” says Epplein. “The warmth of the community was really wonderful, and they were amazingly open to us.”

A WELCOMING COMMUNITY

Godbee feels that promoting health and wellness is part of his role as a spiritual leader. “This study provided us an opportunity to secure the health and well-being in our congregation,” he says. “As a pastor, my major concern is not just getting people to the afterlife, but also securing them in the present life and assuring the longevity of the people that I love.”

Epplein recruited 92 congregants to participate in the study. In May 2018, she and her team set up a study event at the church. The participants were asked to complete an extensive health questionnaire, give a blood sample, and take the urea breath test.

Epplein found that 25 percent of the participants (23 people) were *H. pylori*

positive. “We sent letters to all of them to tell about their results and educate them about available treatments to eradicate the bacteria,” she says. “We encouraged them to share this information with their primary care doctors and ask to be treated.” Participants who needed help getting care were referred to DCI’s community-facing patient navigators, who helped them find a primary care provider.

In November 2018, Epplein came back to the River Church to retest the study participants. “We found that 21 of them decided to be treated for their infection, typically a regimen of antibiotics and acid reducers for two weeks, and the vast majority successfully eradicated the bacteria,” says Epplein. “We are very excited about that.”

Epplein plans to expand the study to other sites in the future. She hopes that one day the *H. pylori* test will become standard screening for people over 40, just like mammograms and colonoscopies are. “There are so many cancers that we don’t know how to prevent, but we do know how to prevent stomach cancers,” she says. “It’s time to do that.”

Reaching Out

The Men's Health Initiative

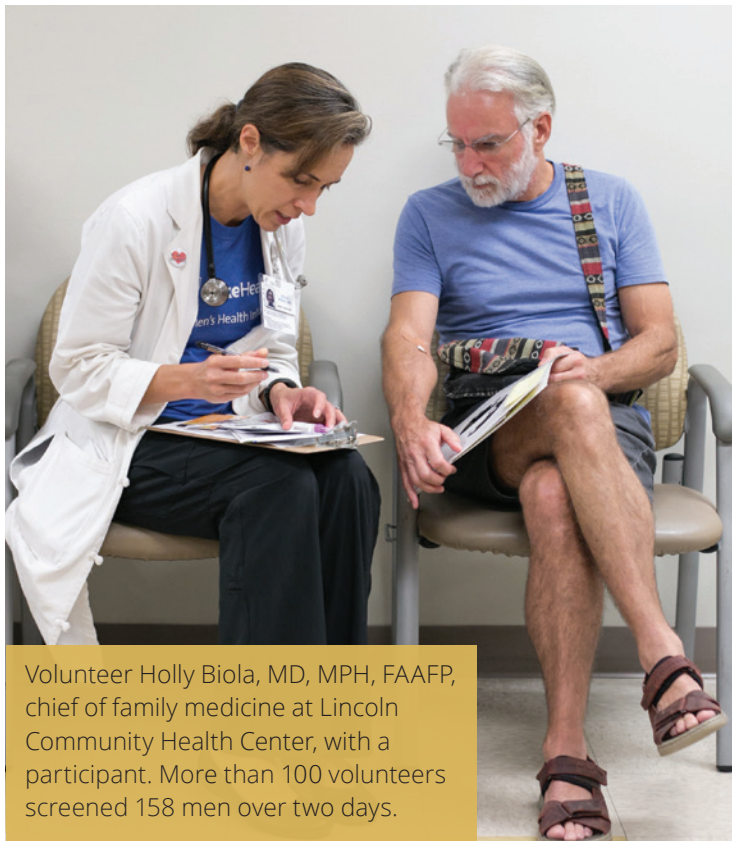
- In its 25th year.
- Free general health screening and prostate cancer screening.
- In 2018, 158 men received screening at Lincoln Community Health Center and Duke Primary Care Croasdaile.
- A collaboration between Duke Cancer Institute, Duke Urology, Duke Primary Care, and Lincoln Community Health Center.

PHOTOS BY ALLIE MULLIN
PHOTOGRAPHY



Bradley Potts, MD, a resident in the urology residency program in the Duke Department of Surgery, greets a participant.

Men can receive free prostate cancer screening, blood pressure tests, body mass index testing, diabetes risk assessments, and nutritional counseling.

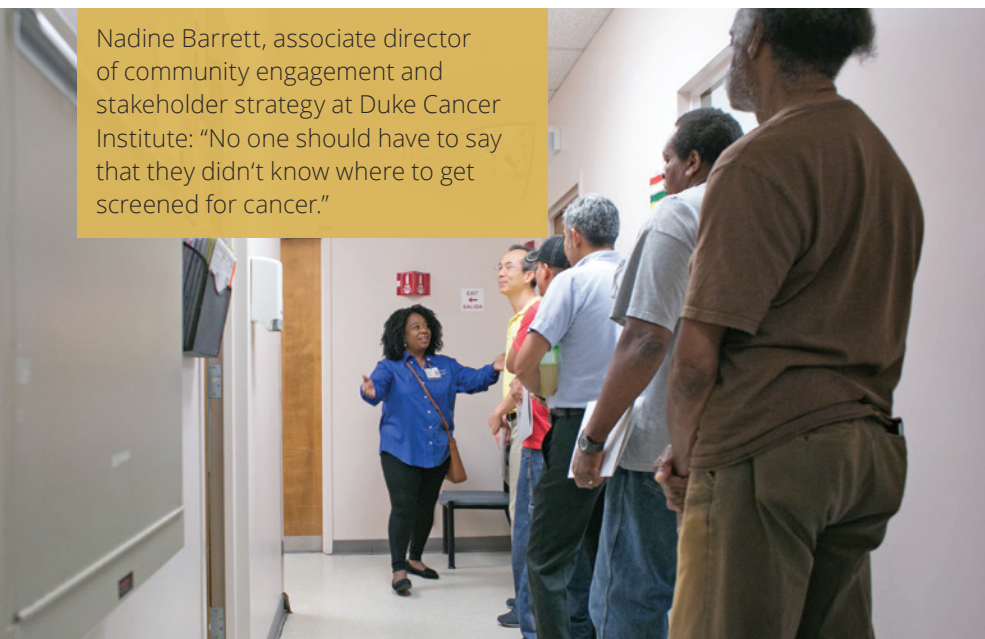


Volunteer Holly Biola, MD, MPH, FAAFP, chief of family medicine at Lincoln Community Health Center, with a participant. More than 100 volunteers screened 158 men over two days.



Duke Cancer Institute patient navigator Xiomara Boyce, MS, who is a cancer survivor herself. If men from a screening event get diagnosed with cancer, navigators like Boyce can help them find the treatment resources they need at Duke.

Nadine Barrett, associate director of community engagement and stakeholder strategy at Duke Cancer Institute: “No one should have to say that they didn’t know where to get screened for cancer.”



TO LEARN MORE

about outreach efforts at DCI, visit dukecancerinstitute.org/office-health-equity

Liquid Biopsies

Smooth the Way for Personalized Medicine

BY MARY-RUSSELL ROBERSON

What if just two vials of your blood could tell doctors which cancer treatment would work best for you?

b By design, some of the newest and most exciting cancer treatments don't work for everybody. Instead, they target tumors that have a specific genetic mutation or characteristic. A treatment like this might be a miracle drug for a patient whose tumors have that mutation, while doing nothing at all for a patient whose tumors don't.

Distinguishing between those patients ahead of time is essential to unlocking the power of personalized medicine.

It's a complicated task because a tumor can have more than a dozen mutations, and they can change over time and from spot to spot within a person's body.

That's where the liquid biopsy comes in.

A liquid biopsy is an analysis of blood (or other bodily fluid) to learn about the genetics and other characteristics of a patient's cancer.

"Liquid biopsies can potentially get you to the right treatment for a patient much quicker than an invasive tissue biopsy," says John Strickler, MD, an assistant professor of medicine who specializes in gastrointestinal (GI) cancers. "With two vials of blood, we can know what is going on in the tumor."

Liquid biopsies have many advantages over traditional tissue biopsies. They are quicker, cheaper, and safer for patients. They are easy to repeat to see if the genetic profile of the tumor has changed, which commonly happens when tumors develop resistance to treatment.

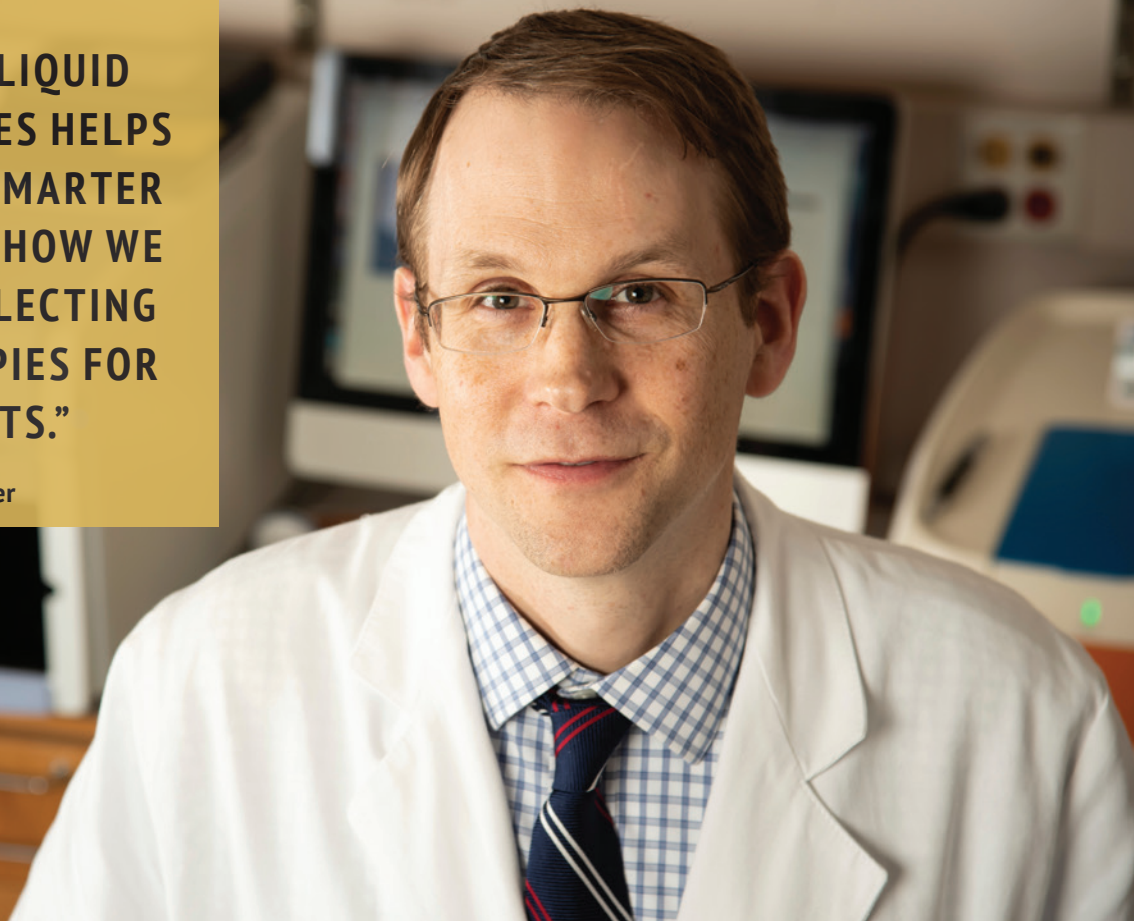
Liquid biopsies also work well in cases where cancerous tissue is hard to access or doesn't yield enough tissue to analyze.

A LANDMARK TRIAL
Andrew Armstrong used liquid biopsies in a clinical trial called PROPHECY. The results showed that a liquid biopsy test that detects circulating tumor cells in the blood could help guide the selection of treatment for men with advanced prostate cancer. One of the tests used in the trial is covered by Medicare and is available at Duke.



“USING LIQUID BIOPSIES HELPS US BE SMARTER ABOUT HOW WE ARE SELECTING THERAPIES FOR PATIENTS.”

John Strickler



LES TODD

And, a liquid biopsy can provide a more comprehensive picture of all the cancer throughout the body, rather than information from just the spot where solid tissue was sampled. A tissue biopsy in one area can easily miss crucial mutations elsewhere.

In several of Strickler’s patients with metastatic GI cancers, a liquid biopsy showed rare mutations that the tissue biopsy didn’t, allowing him to try a targeted therapy that wouldn’t otherwise have been indicated. These patients had meaningful improvements in survival with better quality of life. In other words: relief from symptoms and more time with loved ones.

“The liquid biopsies are a valuable tool,” he says. “They are convenient, cost-effective, and safe. They help us provide better care, and they are something we can use to make our existing treatments better.”

LIQUID BIOPSIES IN CLINICAL TRIALS

At present, liquid biopsies aren’t used routinely in the care of any cancer except lung cancer. But Strickler expects that clinical trials will change that. He’s doing his part to move things along by conducting several clinical trials using liquid biopsies in patients with colorectal cancer.

Strickler has just launched a new trial, COLOMATE, in which he will be using liquid biopsies to match patients to the therapies most likely to help them, including some offered through clinical trials.

The multi-center trial aims to recruit more than 500 patients with metastatic colorectal cancer whose cancer has

In the COLOMATE clinical trial, **John Strickler** is using a blood test that detects DNA from tumors to select therapies for people with colorectal cancer.

progressed after at least two lines of standard chemotherapy. It will be the largest clinical trial using liquid biopsies with colorectal cancer to date.

“The hope is, number one, that we can use results from the liquid biopsies to give patients better outcomes than they would have received from standard treatment,” he says, “and, two, show that liquid biopsies can be used in the GI oncology clinic to improve our care because it’s safe, easy, and efficient.”

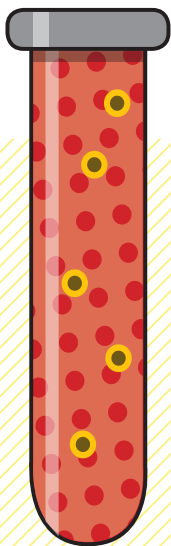
The type of liquid biopsy that will be used in the COLOMATE trial analyzes bits of DNA in the bloodstream that have come from tumors. It’s called cell-free DNA (cfDNA) because it’s no longer inside a cell.

“The liquid biopsy is capturing fragments of DNA from the tumor and sequencing that as if it were tumor tissue,” he says. That genetic profile will show if there are particular mutations that might make the cancer susceptible to a targeted therapy. Some of the mutations might be the original drivers of the cancer, such as the human epidermal growth factor receptor 2 (HER-2), while other mutations might have arisen as a result of treatment.

Strickler notes that the cfDNA liquid biopsy has been widely available for several years in a very different application: it can be used in pregnant women as a way to check fetal DNA for Down Syndrome.

Another type of liquid biopsy gathers whole tumor cells

QUICKER, CHEAPER, SAFER



To learn about the **genetics and other characteristics of a patient's cancer**, Duke researchers are using liquid biopsies. These tests analyze blood samples **for tumor DNA or actual tumor cells** that have broken away and are circulating in the blood.

LIQUID BIOPSIES	TRADITIONAL TISSUE BIOPSIES
Samples of blood	Sample from surgical biopsy or needle biopsy
Non-invasive	Invasive
Easy to obtain	Not easily obtained
Real-time detection of tissue profile	Limited tissue profile

Some of the most effective cancer treatments target tumors that have a specific genetic mutation or characteristic. Researchers are using liquid biopsies to predict whether or not a particular treatment will work for an individual patient.

Currently, liquid biopsies are used only in clinical research, and not in routine clinical care, though that may change soon.

from the bloodstream. These cells are called circulating tumor cells (CTC). Like all cells, they contain RNA, which contains instructions for making proteins. The RNA or its proteins can be analyzed for evidence of mutations.

Andrew Armstrong, MD, professor of medicine, surgery, and pharmacology and cancer biology, is a medical oncologist who specializes in prostate cancer and other genitourinary cancers. Armstrong used CTC liquid biopsies in a clinical trial called PROPHECY. The results were presented last year and are published in the *Journal of Clinical Oncology*.

The 118 men in the PROPHECY trial all had metastatic prostate cancer that had become resistant to the first-line hormone therapy. The typical next step is anti-androgen therapy via the drugs abiraterone or enzalutamide, or both. “The current practice is, the doctor prescribes these drugs and hopes they work,” Armstrong says.

Unfortunately, they don't work for everyone. One suspected culprit is an androgen receptor variant called AR-V7, which is thought to block the action of those drugs. The PROPHECY trial demonstrated that, indeed, the men whose CTCs tested positive for AR-V7 did not benefit from either drug. Of the men who tested negative for AR-V7, many had a good response to the treatment.

“These men need effective therapies quickly,” Armstrong says. “The trial suggests that the liquid biopsy could help guide optimal treatment selection. In men with AR-V7-driven prostate cancer, chemotherapy or a clinical trial may be the best option rather than anti-androgen therapy.”

The trial compared two different CTC assays, which used different techniques for seeking out AR-V7. “Both tests were

successful, and there was a pretty strong correlation between the two in the same patient,” Armstrong says. One of the tests, provided by Epic Sciences, is covered by Medicare and is available at Duke. Neither test is approved yet by the Food and Drug Administration, although it's possible that the data from PROPHECY could change that.

Joshua Lang, MD, an associate professor of hematology/oncology at the University of Wisconsin, who was not involved in PROPHECY, says the study design and implementation were strong, and the fact that it was a multisite trial makes the results generalizable. “It's really a landmark trial in the study of liquid biopsies,” he says.

Armstrong recently collaborated with a researcher in Duke's Pratt School of Engineering who developed a way of using sound waves to find and gently sort CTCs in blood. The new technique was designed by Tony Jun Huang, PhD, the William Bevan Professor of Mechanical Engineering and Materials Science, in collaboration with colleagues at MIT and Nanyang Technological University (Singapore). It improves on current technology by steering the cells into a chamber acoustically rather than by physical contact. This opens up the possibility of one day being able to collect undamaged cancer cells from a patient in order to grow them in the lab and test different drugs on them.

A SMARTER FUTURE

Right now, both Strickler and Armstrong are testing liquid biopsies primarily in patients with advanced disease. For one thing, people with early stage disease don't always have cfDNA or CTCs available in their blood. For another, part of the liquid biopsy's usefulness is in picking up mutations that developed during treatment.

However, as the technology continues to improve, it may eventually be used in newly diagnosed patients, or perhaps as a tool to diagnose cancer before it's even visible on a scan.

And as cancer researchers continue to design new therapies, there will be more opportunities to use liquid biopsies to make sure the right treatments get to the right patients.

Both Strickler and Armstrong are optimistic about the future of the technology.

“Using liquid biopsies helps us be smarter about how we are selecting therapies for patients,” Strickler says.

Armstrong says, “This is what personalized medicine is all about.”

You can make personalized cancer treatment a reality. To help, use the enclosed envelope, or visit bit.ly/dcispring19

More than 20 years ago, helping a friend with cancer awakened Nancy Davenport-Ennis to all the ways that the health care system fails patients. Then she did something about it.

Creating Answers

By Angela Spivey



ALEXANDER KRAVETS

Nancy Davenport-Ennis of Yorktown, Virginia, with her friend **Billy Outland**. More than 20 years ago, Outland's fiancé fought cancer for three and a half years before losing her battle. Her journey inspired Davenport-Ennis to start two national foundations to advocate for patients with serious diseases. Today, Outland is successfully battling pancreatic cancer with Duke's help.

Nancy Davenport-Ennis has survived cancer twice. One of her many strategies for thriving—look for ways to help others.

That's how, in 1996, Davenport-Ennis found herself in a 10 by 10 room in a warehouse with a rented desk and chair and a seven-year-old computer and printer. She had quit her job as an English teacher and rented that space to house the Patient Advocate Foundation. She had a vision for helping patients with serious diseases navigate the complex world of insurance and health care.

Davenport-Ennis served as CEO of the foundation for 18 years. It has grown to a staff of 200, and since its inception has helped 1.2 million patients from all 50 states.

It began in 1990, when Davenport-Ennis had just returned home from the hospital after a mastectomy, her second in less than a year. Her husband came home from the grocery store and said he had run into a friend who told him that his fiancé, Cheryl Grimmel, had just been diagnosed with stage 4 breast cancer. Local doctors said there wasn't much they could do.

Davenport-Ennis had never met Grimmel. But she asked her husband to help her get off the sofa. "I said, 'Honey, you have to put me in the car, and we have to go over there and talk to Cheryl. She has to understand there is always a next step.'"

Davenport-Ennis took Grimmel to Duke, where she learned she was eligible for a clinical trial that would treat her cancer with a bone marrow transplant. But her insurance company wouldn't pay. "The moment she went into the trial, nothing was covered, not even the things that would be covered normally in standard of care," Davenport-Ennis says.

The Ennises as well as Grimmel's family launched fundraisers that raised \$240,000 to pay for all of her care. "I thought, 'What do other patients do if they don't have friends who know about fundraising?'" Davenport-Ennis says.

She decided to create an answer to that question. She founded the Virginia Task Force for Insurance reform and helped pass a bill mandating that insurers cover high-dose chemotherapy and bone marrow transplant as treatments for breast cancer. The bill passed in 1994, just a few months before Grimmel died. Davenport-Ennis went on to help get similar bills passed in 16 other states.

Today, the situation has changed, because of the efforts of people like Davenport-Ennis. For most patients who enroll in clinical trials, health insurance covers standard treatment and exams, and the study sponsor pays for the cost of the drug or treatment being studied.

Grimmel lived three and a half years beyond her diagnosis—time that she got to spend with her son, who was 15 when she passed away. The night of Grimmel's funeral, Davenport-Ennis stayed up all night writing a business plan for the Patient Advocate Foundation. The foundation helps patients find ways to pay for care and provides personalized case management services (see "Learn More"). She also wrote a plan for and founded the National Patient Advocate Foundation, a policy organization that advocates for change.

"The compassion you experience at Duke is second to none."

—Nancy Davenport-Ennis

Davenport-Ennis says she has referred patients to Duke from all 50 states. "Duke offers outstanding research and physicians specialized in many fields, including cancer, who offer treatment options that may not be available in community settings," she says. "And the compassion you experience at Duke is second to none."

Nancy Davenport-Ennis and Jack Ennis are members of Duke Cancer Institute's Board of Advisors.

LEARN MORE

The Patient Advocate Foundation

(patientadvocate.org) helps patients with chronic or life-threatening diseases get high-quality health care by providing, at no cost:

- Financial assistance, including a co-pay relief program
- Personal case management services to navigate health care and insurance challenges.

Davenport-Ennis's advice for patients: Ask questions. Get a second opinion. "Don't stop at first base," she says. "You've got one objective: either control that disease for the rest of your natural-born life, or eradicate it. So surround yourself with people who can get you to home base."



JESSICA HYLAND

◀ **GETTING HAIRY FOR MEN'S HEALTH.** Every November for the past seven years, faculty and staff from Duke University and Duke Health have formed teams to support the Movember Foundation's annual fundraiser. Participants raise cash and awareness for men's health by growing mustaches of every shape and size.

In 2019, these "MoDukes" raised a total of \$41,160, a record-breaking year for the combined teams.

The Movember Foundation supports groundbreaking science around the world, including several projects at Duke. To donate, visit the "MoDukes" team page at bit.ly/Modukes

Pictured are "MoDukes" team members **Luke Chambless, MD**; **Rajan Gupta, MD**; and **Pedro Vargas, MD**, at a "Bid-Your-Face-Off" auction gala event at Durham's Fullsteam Brewery.

—Jessica Hyland



YOUSUF ZAFAR

◀ **CRUSHING COLORECTAL CANCER.** Thirty-nine teams raised more than \$50,000 at the sixth annual **CRUSH Colorectal Cancer 5K Walk and Run**, to support research and community outreach and education. **Claudia Hager** of Durham (pictured) formed team **Darian Hager** in memory of her husband, who was diagnosed with colorectal cancer in January 2018 and passed away in June 2018. "His desire, once he found out that it was as serious as it was, was that his death wouldn't be in vain and that people would be aware of early screening," Claudia says. She had shirts and blue superhero capes made with Darian's likeness, and more than 50 people registered for the team. Their team raised nearly \$5,000, the most of any team this year.

—Julie Harbin



KAREN E. BUTLER

Cancer survivor **Tom Vibert** at the 2018 Victory Ride with **Michael Kastan, MD, PhD**, executive director, Duke Cancer Institute.

◀ **VIBERT'S VICTORY RIDE.** As an industrial engineer, **Tom Vibert** has excelled in his career by identifying waste and streamlining production processes, without jeopardizing quality.

It's no surprise then, that when diagnosed with stage 4 metastatic colon cancer, he dismissed the emotions that didn't serve him well. He chose instead to embrace an attitude that could propel him to a seemingly insurmountable goal—a second chance at a life free of cancer.

"From the outset, I aimed to be the best patient I could be," he says.

Genetic testing revealed that Vibert had inherited a condition, Lynch syndrome, that actually caused his cancer. However, this same condition also meant his tumor might be exceptionally responsive to certain immune therapies.

Vibert was referred to **John Strickler, MD**, a gastrointestinal oncologist at Duke. By that point, Vibert's disease had progressed, and he was experiencing severe pain.

Strickler enrolled Vibert in a clinical trial employing Nivolumab, a targeted treatment for inoperable or specific metastatic cancers. Vibert underwent infusions every two weeks. He found that the treatments had far fewer side effects than chemotherapy, and Vibert was able to remain on the regimen for more than two years.

According to scans, Vibert is now cancer free. And he no longer has to take pain medications.

Because he has Lynch syndrome, Vibert will always be susceptible to a cancer recurrence. If cancer returns, he says, "There's no doubt—I'm going to be ready to fight it again."

Vibert will ride in the **2019 V Foundation Victory Ride to Cure Cancer** on Saturday, May 18, at North Carolina State University's Centennial Campus in Raleigh, North Carolina. To donate to Tom's fundraising efforts, visit bit.ly/VibertVictory

—Karen E. Butler

A PLAN TO GIVE BACK



JOHN GESSNER

Ever since Duke Cancer Institute helped Meg Lindenger survive breast cancer 10 years ago, she and her husband, Bill, have been faithful supporters.

"The Bible tells us that what we own on earth doesn't really belong to us. We believe that," Meg says.

Duke also helped their daughter, Kim, through a breast cancer scare and a decision to have preventive surgery.

"Kim acted preemptively and courageously choosing her surgery," Bill says. "Dr. Randall Scheri talked with Kim and questioned her to make sure she clearly understood her decision. This is what good doctors do."

Most recently, the Lindengers established a charitable remainder unitrust using Individual Retirement Accounts. This gift provides a tax deduction and income payments to the couple and their daughter, while providing future support for cancer research at Duke.

"We minimize taxes and maximize the amount of money that will go to Duke," Bill says. "It gives us a

peace of mind that our trust assets will be invested with Duke University's \$8.5 billion endowment."

"We just can't give enough thanks to Duke," Meg says. "We feel it's important for our money to go to cancer research."

"We minimize taxes and maximize the amount of money that will go to Duke. It gives us a peace of mind that our trust assets will be invested with Duke University's \$8.5 billion endowment."

▶ To learn more about planned giving to Duke Cancer Institute, please contact Executive Director of Development Michelle Cohen, 919-385-3124, or michelle.cohen@duke.edu.



Duke Cancer Institute



YOU CAN SUPPORT THE FIGHT

Gifts to Duke Cancer Institute help us develop new treatments and provide compassionate care. To make a gift, visit bit.ly/dcispring19, or use the enclosed envelope. Thanks for your support!

DCI Office of Development
Amy Deshler, Senior Executive Director
919-385-3120
changingtherulesoncancer.org

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Defeating Cancer for the Whole Family

Dogs are our family members. They breathe the same air, drink the same water. And they get many of the same types of cancers.

Researchers at Duke and at the NC State College of Veterinary Medicine are working together to explore new cancer therapies that work better and cause fewer side effects, for both humans and pet dogs.

By studying cancer in both people and pet dogs at the same time, they hope to uncover treatments that target the true genetic drivers of the disease, and reveal how to stop it.



HELP US FIND THE ANSWERS for all our family members, whether they have two legs or four. To **make a gift**, use the enclosed envelope, or visit bit.ly/dcispring19

To learn more, visit dukecancerinstitute.org/C30