RUTGERS
Cancer Institute
of New Jersey

Summer ■ 2015

CANCER Connection

Graceful Warrior:

While determined to put breast cancer in its place, Kriss Fierro fights with a courageous, yet calm, reserve.

Director's Corner

NICK ROMANENKO

As scientists and clinicians from around the globe gathered at international cancer meetings this spring to share results of current research, we also shared insights for the future of cancer exploration. While today's research shows we are making great progress in chipping away at this disease, continued investments in intelligence, funding, and resources are critical to advancing this knowledge. Proposed federal support for a national precision medicine initiative referenced by President Obama in his State of the Union to help bring personalized treatments to cancer patients speaks to the type of commitment necessary to build on current work. Support from state, local and philanthropic entities also continues to be very important.

Now at a tipping point to bring research to patient care at a greater pace, these various efforts to support impactful research is critical. For instance, funding from various private entities is helping to boost federal funding given to physician scientist Darren Carpizo, MD, PhD, FACS, to explore the p53 tumor suppressor gene and identify novel cancer therapies *(page 21)*. And philanthropic support from entities such as the Breast Cancer Alliance is helping us invest in the education of future clinicians, surgeons and scientists. As you'll read on page 23, thanks to the Alliance's funding of a breast surgery fellowship at the Cancer Institute and Rutgers Robert Wood Johnson Medical School, Tara Balija, MD, will be able to offer the critical care needed by breast cancer patients like Kriss Fierro *(page 6)*.

Investment in cancer research also comes from the grass roots level. When the first *Century for the Cure* bike ride launched with only a handful of participants, ride founder Scott Glickman who was treated at the Cancer Institute more than 15 years ago for stage IV non-Hodgkin's lymphoma, never thought it would grow into such a successful event that is helping to save lives. Having just celebrated its tenth year, the ride has cumulatively raised $1.4 million to support young investigators and spearhead cutting-edge clinical trials at the Cancer Institute *(page 25)*.

Whether the investment is big or small, we at Rutgers Cancer Institute are dedicated to bringing state-of-the-art technology and research to benefit the care of the people of New Jersey and beyond. We hope you will continue to support us in our mission.

Sincerely,

Robert S. DiPaola, MD
Director, Rutgers Cancer Institute of New Jersey

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of New Jersey

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Forefront

News from the front lines at Rutgers Cancer Institute of New Jersey

A New Lease on Life for Prostate Tissue

What if a prostate cancer patient could learn which anti-cancer treatments would work best for him without having to swallow a single pill or endure a single intravenous line or injection? Research from Rutgers Cancer Institute of New Jersey involving the development of human prostate organoid models could have implications for how future therapy is guided for this population, say investigators. At focus is the development of prostate stem cell-derived organoids, the size of a pinhead, that were developed from prostate cancer biopsy and resected tissue taken from patients with early-stage and advanced prostate cancer.

Next generation androgen deprivation therapy, radiation and chemotherapy have been clinically effective against advanced prostate cancer. But despite short-term responses, disease recurrence typically occurs. A majority of these recurring tumors are found to have drug resistance that can be identified during initial therapy if primary tumor cells from individual patients can be maintained and their features examined. Cancer Institute of New Jersey investigators wanted to develop a more suitable model in which to better understand how each patient's cancer cells respond to therapy and identify early markers of drug resistance.

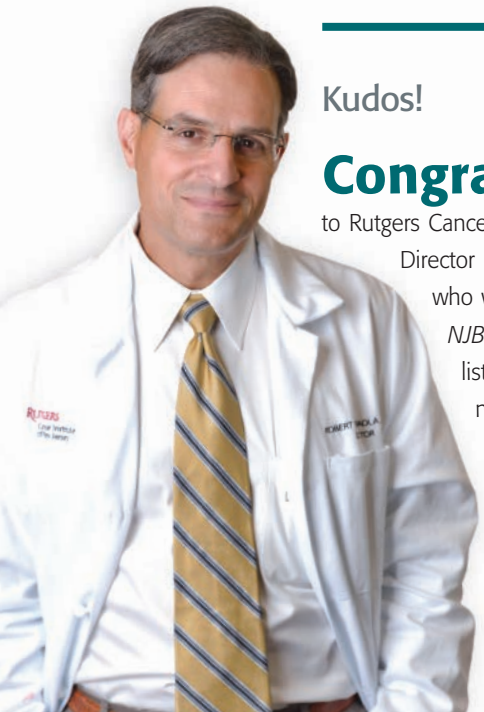
Utilizing patient-derived cells from primary prostatectomy tissue, researchers incorporated developmental epithelial and mesenchymal signals, stem-like cells and other growth requirements in three-dimensional (3D) cultures to foster development of 17 prostate organoids out of 19 tissue samples. Preliminary data show the prostate organoids that were developed in the laboratory have the same tissue and cell make-up of human prostates and possess such functioning aspects as secretion of the prostate specific antigen (PSA) protein.

"When it comes to better undestanding therapy resistance in prostate cancer, animal models and human prostate cancer cell lines by themselves are limiting. By using the patient's own tissue in 3D cultures, we are able to develop a new laboratory platform for drug testing that maintains the genetic features of the primary prostate, thus enabling scientists to better identify biomarkers of drug resistance or hormonal resistance," notes senior author of the work, **Hatem Sabaawy, MD, PhD** *(above)*, resident member at the Cancer Institute and assistant professor of medicine at Rutgers Robert Wood Johnson Medical School. "We are encouraged that this prostate organoid model can be used with precision medicine and co-clinical approaches to help guide future clinical trials." ■

The findings were presented at the Annual Meeting of the American Association for Cancer Research in April. The work was supported by the Rutgers Cancer Institute of New Jersey Cancer Center Support Grant (P30CA072720) from the National Cancer Institute.

Kudos!

Congratulations to Rutgers Cancer Institute of New Jersey Director **Robert DiPaola, MD**, who was ranked on this year's *NJBIZ* "Power 50 Health Care" list. Dr. DiPaola was recognized in part for his leadership in moving the precision medicine initiative forward at the Cancer Institute. ■



NICK ROMANENKO

Favorable Outcomes for Prostate Patients

A population-based study from Rutgers Cancer Institute of New Jersey shows favorable 15-year survival outcomes among patients with low-risk prostate cancer who were initially treated with conservative management.

The research, which appeared in the March online edition of *European Urology* (doi: 10.1016/j.eururo.2015.03.021), examined 33,137 Medicare patients aged 65 or older who were diagnosed with early-stage (T1 or T2) prostate cancer from 1992 through 2009 and received conservative management (no surgery, radiotherapy, cryotherapy or androgen deprivation therapy) within the first six months of diagnosis. The work extends previous

JOHN EMERSON

data examination by investigators by an additional five years and "helps provide a more complete picture of potential outcomes for patients who have a life expectancy greater than 10 years," notes lead author **Grace Lu-Yao, PhD, MPH** *(above)*, cancer epidemiologist at the Cancer Institute of New Jersey and professor of medicine at Rutgers Robert Wood Johnson Medical School.

Investigators found that men aged 64 to 74 with a Gleason score (a grading system that indicates how likely a tumor will spread) of between five and seven had a lower risk (5.7 percent) of dying from prostate cancer over a 15-year period as compared to men 75 and older, whose risk was 10.1 percent. For men with the highest level Gleason scores (between eight and 10), 15-year prostate cancer mortality rates were 22 percent for men aged 65 to 74 and 27 percent for men 75 and older.

"The proportion of men diagnosed with localized prostate cancer who choose to have conservative management is relatively small but is on the rise. The information provided by this long-term study will help facilitate treatment decisions and can help change the conversation between patient and physician," says Lu-Yao. "Our study, which includes data from the PSA testing era, is a more current representation of outlook survival for this population." ■

Researchers utilized information from the Surveillance, Epidemiology and End Results (SEER) cancer registries and Medicare claims. The work was supported by funding from the National Cancer Institute (NCI) (R01 CA116399) and the Rutgers Cancer Institute of New Jersey core grant (NCI CA-72720-10).

#TeenTanning

Indoor tanning exposes users to UV rays which can damage the skin and lead to skin cancer. According to the Centers for Disease Control and Prevention, this practice is particularly dangerous for those who begin indoor tanning in adolescence or early adulthood, as it puts them at a higher risk of developing melanoma, the deadliest of all skin cancers. Investigators from Rutgers Cancer Institute of New Jersey and Rutgers School of Public Health aimed to learn more about indoor tanning use in this population.

Drawing data from 1,754 New Jersey high school students who answered questions about indoor tanning use in the 2012 New Jersey Youth Tobacco Survey, researchers found that more than a third who engage in the practice do so frequently and many would find it hard to stop. They also found that frequent indoor tanners were more likely to smoke and to engage in social media activities related to indoor tanning.

"Even though a commercial tanning bed ban is now in place for many high-schoolers in New Jersey, we have learned from other states that this does not entirely eliminate indoor tanning among youth. There is still a need to develop and implement interventions for all youth to reduce the likelihood that they will engage in this practice," notes lead author **Elliot J. Coups, PhD**, behavioral scientist at the Cancer Institute of New Jersey and associate professor of medicine at Rutgers Robert Wood Johnson Medical School. He also notes that since more than half of frequent tanners are using social media related to indoor tanning, it might serve as a viable mechanism to deliver messaging about its health risks. ■

The work appeared in the April edition of the Journal of the American Academy of Dermatology (doi: 10.1016/j.jaad.2015 .01.035).


STEVE HOCKSTEIN

Rajat Bannerji, MD, PhD, *is a member of the Leukemia, Lymphoma and Hematologic Malignancies Program at Rutgers Cancer Institute of New Jersey who has an interest in the treatment of chronic lymphocytic leukemia (CLL) and an interest in drug development for the treatment of blood cancers. He also is an associate professor of medicine at Rutgers Robert Wood Johnson Medical School.*

On his way to developing a CLL research program at the Cancer Institute of New Jersey, Dr. Bannerji has traveled a long road through the military and the pharmaceutical industry to his current role as an academic clinical researcher. He began his research career in the mid-1980s as a graduate student in the laboratory of Dr. Eli Gilboa, at Memorial Sloan Kettering Cancer Center, working on tumor vaccine strategies in mouse models of cancer. Following medical school at Cornell and residency at the Johns Hopkins Hospital, he resumed research as an oncology fellow in the laboratory of Dr. John Byrd, then at Johns Hopkins. It was during his time with Dr. Byrd, both in the lab and as a clinical fellow at the Walter Reed Army Medical Center and at the National Naval Medical Center, that Dr. Bannerji developed an interest in hematologic malignancies, specifically CLL, and an interest in drug development.

Clinical research is the key step in bringing promising drugs from the lab to seeing their effects, both therapeutic and toxic, in patients. While working as a general oncologist in the U.S. Army, Dr. Bannerji gained experience as an investigator on clinical trials of the Southwest Oncology Group (SWOG), one of the large academic cooperative groups. Following his military service, Dr. Bannerji joined Schering Plough (now Merck & Co.) to lead the development of dinaciclib (SCH 727965, MK 7965), an anticancer drug which works as a cyclin dependent kinase inhibitor. Dr. Bannerji worked with pre-clinical laboratory scientists, to design the 'first in human' phase I clinical trial with this new agent to establish the safety and tolerability of the drug and to determine the dose for further studies. Following phase I studies in patients with solid tumors, a phase I study was conducted in CLL patients where the drug showed activity. Dr. Bannerji developed half a dozen clinical trials with dinaciclib including phase II trials in breast cancer, lung cancer, and acute leukemia. His work included all aspects of drug development including discussions with the FDA. Before he left Merck to join the Cancer Institute of New Jersey, Dr. Bannerji worked on writing a phase III trial of this agent in CLL. Although dinaciclib remains an experimental agent, Dr. Bannerji developed significant expertise, in just over six years in the pharmaceutical industry, in the design and conduct of clinical studies.

The American Society of Clinical Oncology reported the Advance of the Year for 2014 was in the treatment of CLL. In that year, four new treatments for CLL were approved by the FDA. These include two new oral therapies, ibrutinib and idelalisib; a new monoclonal antibody, obinutuzumab; and a new first line indication for the antibody ofatumumab. The Cancer Institute was an active participant in the randomized clinical trial which resulted in the approval of ibrutinib for the treatment of previously treated patients with CLL.

The field of cancer immunology is transforming the treatment of some very aggressive cancers such as metastatic melanoma, and immune therapies for cancer are now being studied in blood cancers. Coming full circle back to his graduate school research in cancer immunology, Dr. Bannerji is now leading a first in human clinical trial of a new monoclonal antibody, which aims to harness the patient's own immune system against their B-cell cancer (lymphomas or CLL). Dr. Bannerji is working to establish a CLL biorepository at the Cancer Institute, where frozen, viable, patient derived CLL cells – obtained with a simple blood draw from patients who have provided written informed consent – will be available as a resource to researchers for the study of CLL. ■

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Attitude Adjustment

As the U.S. Food and Drug Administration (FDA) is preparing to issue a final ruling on whether it will extend its tobacco regulatory authority to electronic cigarettes (e-cigarettes), researchers from Rutgers Cancer Institute of New Jersey and Rutgers School of Public Health have identified strong support for a number of e-cigarette policies among smokers.

The proposal made by the FDA in April 2014 would require e-cigarette makers to register their products with the FDA, make an application to market the devices, use a nicotine addiction warning label and create a minimum purchase age, along with other requirements. While previous research has captured e-cigarette use and awareness, there is little data on e-cigarette policy perceptions. **Olivia A. Wackowski, PhD, MPH**, assistant professor of health education and behavioral science in the Center for Tobacco Studies at the School of Public Health and member of the Cancer Institute's Cancer Prevention and Control Program, and **Cristine Delnevo, PhD, MPH**, co-leader of the Cancer Institute's Cancer Prevention and Control Program and director of the Center for Tobacco Studies further examined smokers' attitudes on such policies. Their work appears in the February online edition of *Tobacco Control* (doi: 10.1136/tobaccocontrol-2014-051953).

Investigators used nationally representative data from an online survey that captured 519 current smokers during a two-week period just prior to the announcement of the FDA's proposed rule. Overall, they found that while 90 percent of respondents were aware of e-cigarettes, nearly two-thirds (62.5 percent) did not know the devices are unregulated. A majority (83.5 percent) of all respondents also agreed that e-cigarettes should be FDA regulated. This number included 77.9 percent of current e-cigarette users. Nearly 87 percent of all respondents and 78 percent of e-cigarette users agreed that e-cigarettes should carry warning labels about potential risks, and a majority of respondents also agreed the devices should have the same legal age of sale as other tobacco products (87.7 percent all respondents; 91.8 percent current e-cigarette users).

One finding of note in this work is that nearly two-thirds of respondents did not realize e-cigarettes are not regulated under any government agency – possibly leading to a false sense of security about the safety of the devices. But when respondents were prompted, a vast majority of them believed they should be regulated by the FDA for both quality and safety. "As the FDA prepares to issue a final rule regarding e-cigarette regulation, it is important to have such data," notes Dr. Wackowski. ■

The research was supported in part by the New Jersey Health Foundation, the FDA Center for Tobacco Products (K01CA189301), and the National Cancer Institute (P30CA072720 and K01CA189301).

Clinical Trials Corner:

Like a Light Switch

Rutgers Cancer Institute of New Jersey is offering a clinical trial examining the investigational treatment known as ONC201 in patients with solid tumors whose cancer no longer responds to standard therapy. The goal of this 'first in human' study is to establish safe dosing levels of the treatment.

Prior research on the study drug conducted by the Cancer Institute of New Jersey and Oncoceutics, Inc. – which is also supporting this trial – suggests that ONC201 may be capable of turning off proteins that maintain tumor growth and and may help kill cancer cells while sparing normal ones. Pre-clinical study demonstrated ONC201 was effective in laboratory models against a number of solid tumors including colon cancer, triple-negative breast cancer and non-small cell lung cancer.

Mark Stein, MD, medical oncologist at the Cancer Institute and assistant professor of medicine at Rutgers Robert Wood Johnson Medical School, is the lead investigator on the study. "By exploring a novel agent that targets the cancer but leaves non-cancerous tissue untouched, we have an opportunity to not only provide a new treatment option for patients who have exhausted standard forms of therapy, but to also offer them a therapeutic that may result in a better quality of life since healthy cells are not impacted," he said.

Individuals aged 18 and older who are diagnosed with a solid tumor (not involving blood, bone marrow or lymph nodes) for which commonly used treatments no longer work are eligible to take part in the trial, although other criteria must also be met. Prior to being accepted into the study, participants would be required to undergo a number of tests including blood work and a physical exam. Accepted patients will receive two doses (cycles) of ONC201 in pill form by mouth every 21 days. After the second cycle, patients will be evaluated for up to four weeks. ■

For more information on how to take part in this trial, individuals can call 732-235-8675 or e-mail cinjclinicaltrials@cinj.rutgers.edu. For information on other clinical trials offered at Rutgers Cancer Institute of New Jersey, visit cinj.org/clinical-trials.

FAMILY
a journey to forever

Calm Courage
in a Storm of Cancer

The Stacy Goldstein Breast Cancer Center at Rutgers Cancer Institute of New Jersey is unique. But so are some of its patients. Meet one with extraordinary spirit and a calm bright center.

In breast cancer circles, courageous stories of inspiration are plentiful and precious. We love them. We need them. After all, about one in eight American women will develop invasive breast cancer and their journeys offer hope and courage. Every once in a while however, there is someone who stands out from the rest. At Rutgers Cancer Institute of New Jersey, this is the story of Kriss Fierro, a 34-year-old mother who was diagnosed in October 2014.

We arrange to meet in the Cancer Institute lobby and I arrive early. I watch nurses, security guards, front desk clerks and just about everyone interact with a pretty young woman who is also waiting for someone. There are hugs and sweet, soft-spoken interactions. They know her. She knows them. She's a regular here, but a regular inspiration – not just another visitor. As she takes off her coat, a necklace gets snagged and I help free her to a mutual chorus of laughter about how this happens to every woman. I have no idea I have just met the cancer patient I'm supposed to interview. We sit down and it dawns on me. This is Kriss Fierro.

BY MARYANN BRINLEY

PORTRAIT BY NICK ROMANENKO


Our Family
is a circle of love.
Together
we are unbreakable.
Family
is forever
You're
Messing
With the
Wrong
Woman

"Kriss Fierro is an inspiration with how she has fought her disease head-on with her positive outlook. Her attitude is simply extraordinary. She is truly an angel who has touched so many hearts," says Deborah L. Toppmeyer, MD, director of the Stacy Goldstein Breast Cancer Center and the LIFE (LPGA pros In the Fight to Eradicate breast cancer) Center at Rutgers Cancer Institute of New Jersey.

Aha. I should have known. Even Deborah L. Toppmeyer, MD, her oncologist, and director of the Stacy Goldstein Breast Cancer Center and chief medical officer at the Cancer Institute, recognized something special about this patient. "She is an inspiration with how she has fought her disease head-on with her positive outlook. Her attitude is simply extraordinary," Dr. Toppmeyer says. "She is truly an angel who has touched so many hearts."

"Kriss is a young woman with no significant risk factors for developing breast cancer. She did not inherit the breast cancer gene. This really came out of nowhere, like the majority of cases. We don't usually know why somebody develops breast cancer," Toppmeyer explains. "When I was examining her for the first time, I found a lymph node in her low anterior cervical area (the neck) that technically made her disease stage IV, not the initially diagnosed stage II. She cried."

Toppmeyer is treating Fierro aggressively with chemotherapy "because hers is a localized disease." She will go on to have surgery and then radiation followed by hormone therapy. At the Cancer Institute since 1995, Toppmeyer has helped countless patients navigate their journey through a comprehensive approach. Through the years I've been involved in the design and implementation of clinical trials that offer promising new therapies targeted to specific types of breast cancer." Unfortunately, Fierro didn't qualify for any current trials.

"I think cancer patients are unique in a lot of ways," Toppmeyer says. "Whenever they have an issue, you know it really is an issue. Oncology provides a very holistic approach to patient care and you deal not just with the cancer but with the whole person and their family. Patients develop all different complications and on that level it's challenging, but the flip side is that you are on the journey with them and become an important part of their lives. The oncologist and patient develop a unique bond. So far, Kriss' response to chemotherapy has been very encouraging."

Ups *and* Downs

Fierro recalls the roller coaster of her life last fall. She had been doing what is called "insanity" exercise drills when her arm

PHOTO BY: KIM SOKOLOFF

began to hurt more than it should have. The first doctor told her it was nothing to worry about but then she came down with appendicitis and ended up hospitalized. If it weren't for her appendix, she might not have received treatment soon enough. "God works in mysterious ways," she admits. Her advice to other women: "No matter what, if you feel something suspicious, push for a mammogram."

"In the beginning you go through so many emotions. I was diagnosed with primary breast and arm cancer on October 9 but from that moment in the doctor's office, my feelings were mixed. I cried but I knew that my mother and 4-year-old daughter Isabella were waiting outside for me. I felt peace inside and realized I needed to be strong and calm because it was going to be devastating for them," she recalls.

This was the first meeting with surgical oncologist, Laurie Kirstein, MD, FACS. "As a breast surgeon, I am often the first member of the team to meet a patient and my personal philosophy is to make sure each patient is educated about her disease and her treatment options," Dr. Kirstein says. "This often makes a scary process a bit easier." "It makes a huge difference when you are battling for your life to have such an amazing, caring team battling with you," Fierro says. "I keep all of them, including those beautiful medical assistants and precious nurses, in my heart."

Fierro approached her scary diagnosis with a strong faith, optimism and a remarkable grace. "This cancer is not going to be the end of me," she insists. "There is a purpose for it. And for me, this battle, my battle, is about sharing love and kindness. If you give love and kindness to others, when you are in the worst battles, this is what you will receive back. It's been amazing to feel the love of so many people. My beautiful mom is a worrier but I told her, 'Everything is going to be okay.' We are all united together in love. She cried a lot and so did my husband Danny who was devastated. It wasn't easy for him because he couldn't understand why it happened to me. But we shared the news with our family here and far away in Mexico, Spain, the Dominican Republic, Japan, Virginia, Michigan, Los Angeles and New York, as well as with friends and co-workers here in New Jersey. I asked them all to stand strong for me. I was going to stay strong," she says. "Danny's heart is calm now because I have such an amazing medical team and he has seen my strength. I've chosen to be honest with everyone, to share with them and to push hard. I truly believe this is my purpose, to touch hearts with positive love."

A *Positive* Force

While we are talking, she pulls a gorgeous bright pink T-shirt from her bag which proclaims: "Cancer messed with the wrong woman! Fighting with strong Faith and Positive attitude is the only option!" She designed it herself and also one for supporters – and there are hundreds of them – her "army," she announces. Out from her bag comes a black T-shirt with another line: "Supporting our Warrior Kriss." A key word here is "warrior," which is how she defines herself.

"I told cancer, 'Don't think you are going to scare me.' Don't give cancer the time to think it is winning. When I lost my hair, I said, 'This is not going to make me lose my self-esteem. My beauty is beyond what is on the outside.'" She had warned her daughter that Mommy's hair was going to fall out, but Bella, like her mother, was unfazed, "Mommy, your hair is going to grow back." In fact, Bella helped with the makeup for her new hair-free look and was soon heard ordering family members, "Tell Mommy she looks beautiful."

PHOTO BY: NICK ROMANENKO

"Cancer is not just a physical thing. It's mental. I insisted that it was not going to be so awful." Even pain was just part of the battle. "It didn't matter what stage the cancer was. I was only going to push that much harder. I dance and sing, 'I'm feeling great. I'm so strong,'" She also adopted Alicia Keys' song, "Superwoman" to fight her way through symptoms. "Don't let your body tell your brain it is sick," she adds. "Tell your body to heal."

At the Cancer Institute, she shares her warrior mentality anywhere and with anyone who may need it. The lobby is not off limits. She met a fellow cancer patient in the reception area. Though surrounded by family, this patient was not coping well emotionally. "Her family was trying to comfort her but I felt her heart was devastated." Watching from nearby, Fierro felt compelled to go to her. "I told her I was going to be there at her first chemo and I've been standing by her since. I keep my promises. She was not alone in this battle. We are invincible warriors together. And as I left the Cancer Institute that day, I told my husband, 'This is my God-given purpose.'"

Last Christmas season, Fierro even dressed as Mrs. Claus and accompanied by Danny, family and friends, joyfully delivered 120 toys to pediatric cancer patients at the Cancer Institute – toys which were purchased with funds raised by her supporters. "We also helped five needy families. Real kindness," she believes, "is to give when you are also in need." She has now started the Kriss Fierro Fund to bring smiles, kindness and love to other warriors.

Always a Fighter

On the day we meet, she is near the end of five months of weekly chemotherapy and absolutely elated because "the tumors are gone." That slogan on her pink t-shirt comes instantly to mind: "Cancer messed with the wrong woman." She's praying for a lumpectomy, not a mastectomy.

Fierro was born in Mexico City and came to the U.S. when she was 15 on a scholarship to learn English. When she developed pneumonia, her mother and 8-year-old-brother Lenin joined her. "I was so sick," she recalls. They stayed but life was not easy. Always a hard worker, Fierro found a job on the night shift at Barnes and Noble as a packer from midnight to 7 a.m. so she could attend school during the day. Working her way up, she is now an operations supervisor, managing a team of more than 75. She only recently took time off. "I was not going to lie down in bed," she insists.

"Warrior" Kriss Fierro with her army of supporters… her family.

She does yoga daily and has become a vegetarian, eating only organic foods. "I drink lots of juices and eat salads, but you lose your taste buds during chemotherapy." Even when she developed mouth sores, she forced herself to eat. "Your mind controls so much about your body." For months, she'd get chemotherapy on Thursdays and, no matter what, be back at work on Saturdays.

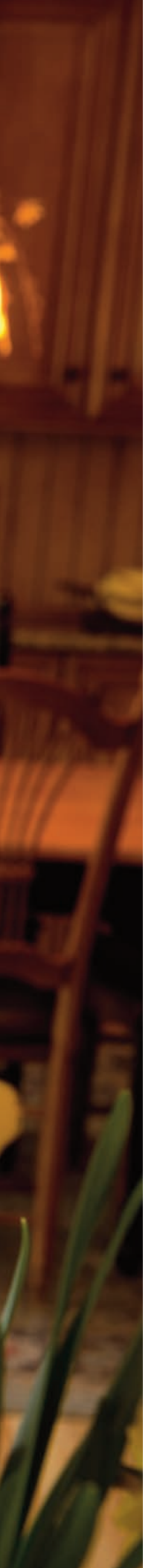
In 2012, Barnes and Noble featured Fierro in the "Career Path" series of their newsletter, Bookseller Profiles. "I grew up in the company and it's more than a job for me," she says. "It's a second home.

In my 15 years there, I've had the most amazing opportunities and been blessed with meeting honest, kind people who open their hearts to me. No matter what, they are there. I shared my news about cancer with all of them, not giving space for anyone to be negative or destructive."

This "army" of special people has been raising money with Fierro's special T-shirts, participating in walks, lunches, events and simply being there physically and emotionally for her. Even people who have moved away over the years are back in touch. Her cancer has actually brought distant families closer. As proof, she opens her pocketbook and pulls out handfuls of holy cards, notes, medals, bracelets, charms, gems and very personal pieces representing all kinds of religions, some sent from as far away as India – all meant to help in her fight for life. We both marvel over this amazing assortment with so much meaning behind each piece. "My battle is connected to people united all over the world. It's incredible." I have to agree.

"I am so blessed." ■

PHOTO BY: NICK ROMANENKO



BY MARY ANN LITTELL

Girl vs. Cancer

With college behind her, Kelsey Flanigan was ready to take the world by storm. The slim, strikingly attractive 23-year-old had graduated from Rutgers in 2013, where she majored in journalism, sang a capella, and was a member of a student sketch comedy club. She loved films and writing. Her plan was to head to Los Angeles and get a job in filmmaking, or maybe become a writer for "Saturday Night Live." Perhaps she'd try acting or stand-up comedy. No dream was too big.

But in early 2014, Flanigan had to put her dreams on hold. This young woman who'd never been sick a day in her life, who exercised, kickboxed, practiced yoga, and ate a vegan diet to stay healthy, was diagnosed with a brain tumor: a grade III astrocytoma. This rare tumor involves astrocytes—star-shaped cells with 'arms' that penetrate into many areas of the brain. In the world of brain tumors, all are worrisome; it's just a matter of degree. An astrocytoma is a serious and insidious tumor that requires aggressive therapy.

She underwent treatment at Rutgers Cancer Institute of New Jersey, and at Robert Wood Johnson University Hospital (RWJ), the flagship hospital for the Cancer Institute. It included removal of the tumor by neurosurgeon Shabbar Danish, MD. It was a grueling process, though you'd never guess it by looking at her now. Flanigan says she's in "recovery mode." Only instead of polishing her comedy routine or loading her car for the trip to California, she's having chemotherapy to maintain her current state of health, which she describes as "stable."

Flanigan knows an astrocytoma is nothing to take lightly. In the fight of her young life, she is working hard to keep negative thoughts at bay. "On my worst days I've felt an inner strength pushing me," she says. "It's a strength I'll try to never let go of."

PHOTO BY: NICK ROMANENKO

Out *of the* Blue

Her ordeal began in the fall of 2013. She was getting ready to begin her job search in earnest, but wanted to do some traveling first. In late November she and a friend went to Thailand, a country she had always wanted to visit. Staying in hostels, they island-hopped by boat, visiting some of the world's most beautiful beaches.

Two days before they were to return home, the young women boarded a boat for a final island trip. Suddenly, Flanigan slumped to the deck. She awakened a few minutes later, bruised and bloody, with a swollen tongue. Her friend stood worriedly over her. "You had a seizure," she said.

Feeling weak and disoriented, Flanigan sat for a few minutes to clear her head. The two then left the boat and went to a local clinic, a visit that proved frustrating. "They didn't take me seriously," Flanigan says. "They thought I was just another delusional American backpacker and sent me away with anxiety medication and a powder for dehydration."

Their appetite for sightseeing gone, they stayed at the hostel until their return flight two days later. "I wasn't really afraid," Flanigan recalls. "I couldn't believe anything was seriously wrong. But the seizure was terrifying. What if it happened again?" Her mind wandered to the severe headache she'd had the day before. She had dismissed it, thinking it was a migraine or some other minor 'bug' she'd picked up somewhere. But now she was not so sure.

Arriving home in Pittstown, New Jersey, Flanigan was so tired that she waited until the following day to tell her parents what happened. Her mother took her to a physician right away and Flanigan had an MRI. The physician called the mother and daughter into his office. Pointing to a large, dark shadow on the MRI, he said, "That's a tumor, a big one. You need to see a neurosurgeon right away—like today." He recommended Dr. Shabbar Danish, saying he was "one of the best around." In shock, they went straight to his office, her father rushing from work to meet them there.

Course *of* Action

Dr. Danish, the chief of neurosurgical oncology at the Cancer Institute, specializes in hard-to-treat cancers, including primary brain and spine tumors as well as secondary tumors that begin in the breast, lung, or prostate and spread to other parts of the body. He specializes in minimally and non-invasive solutions to treat brain and spine cancer, and has research interests and publications in both fields. His multidisciplinary team includes neuro-oncologists, radiation oncologists, neurosurgeons, nurses, social workers, and other specialists.

After assessing Flanigan's tumor, which involved most of the right frontal lobe, an area of the brain that controls key neurological functions, the neurosurgeon told Flanigan she needed surgery to remove it. The next step would be radiation and chemotherapy. "The idea of having a tumor was bad enough," Flanigan recalls. But someone cutting it out of my brain was even more terrifying."

One memory of that day stands out vividly: Danish offering words of comfort, calmly giving Flanigan and her mother time to compose themselves. "He was very caring and patient," she continues. "He let me cry. When I was done, he explained what we had to do."

On January 30, 2014, Flanigan underwent a craniotomy at RWJ. In the five-hour procedure, Danish first made an incision in the scalp, then drilled a series of small holes in the skull and connected them to remove a section of bone.

"We excised the most malignant part of the tumor but could not get it all without affecting neurological function," says the neurosurgeon. "There are many risks with this type of surgery—including the possibility of neurological deficit, stroke, hemorrhage, or infection. She came through really well." Danish was there when Flanigan regained consciousness in the recovery room, and she recalls him playfully giving her a fist bump.

Danish, well-known for his rapport with patients, has fellowship training in high-tech procedures to fight cancer. An assistant professor of neurosurgery at Rutgers Robert Wood Johnson Medical School, he is the director of the Stereotactic and Functional Neurosurgery Program at RWJ. This tool is designed to treat lesions and tumors in the brain and upper spinal cord without harming healthy surrounding tissue. Unfortunately, Flanigan's tumor was too large for this type of procedure.

To plan her next phase of treatment, Flanigan and her parents researched and visited major cancer centers across the country, including Duke and the University of Pennsylvania. But in the end, she opted to return to Rutgers Cancer Institute. "I felt comfortable here and was confident I was getting the best care," she says. "Dr. Danish is great. No matter how many questions we have, he's never too busy to answer them. He's always there for us, whenever we call or email him. There's a connection I've never had with any other doctor."

PHOTO BY: JOHN EMERSON

Shabbar Danish, MD, is well-known for his rapport with patients, specializing in minimally and non-invasive solutions to tackle "hard-to-treat" cancers, including primary brain and spine tumors as well as secondary tumors that begin in the breast, lung, or prostate and spread to other parts of the body. He is chief of neurosurgical oncology at the Cancer Institute, an assistant professor of neurosurgery at Rutgers Robert Wood Johnson Medical School, and directs the GammaKnife program at Robert Wood Johnson University Hospital.

Stronger Day by Day

On May 14, 2014, Flanigan had a second craniotomy at RWJ to remove remaining traces of the tumor. She came through the procedure well. Afterward she rested at home, napping and going outside for short walks. In addition to her yoga she took up reiki, a Japanese technique for stress reduction that is believed to promote healing. "Reiki is tied in to mental health," she comments. "It made my mind feel strong and I believe that helped me recover physically."

At home, her mother cooked nutritious meals for her, and as Flanigan began to feel better, the two cooked together. Her father, an airline pilot, took her out to lunch and on a short trip to Seattle. "Recovering from the surgeries was hard—for me, my parents and my brother and sister," Flanigan admits. "My family all sacrificed a lot of their time to be with me during my recovery. They've been amazing, my support system. Without them, I don't know what I would have done."

During this period of recovery she spent hours in bed, feeling like her life was on hold. "I needed to do something to help pass the time," she says. Throughout her treatment she'd been keeping a journal, which ended up as a regular blog feature on The Huffington Post, huffingtonpost.com/kelsey-flanigan/. "I've always loved to write and the blog has been a great way of expressing how I feel," she says.

Fighting Spirit

During the summer of 2014 Flanigan underwent radiation, five days a week for six and a half weeks. She was treated with temozolomide, an oral chemotherapy drug for malignant brain tumors. Once that was finished, she took a four-week hiatus, then began maintenance chemotherapy with the same drug, five days a month for six months.

Once Flanigan began radiation she lost her hair. Buying a wig was an experience she never thought she'd have, but it turned out to have a plus side, connecting her with another caring community: the stylists at Splitenz Studio. The salon in Clinton, New Jersey, has its own wig specialist, Zee Entrabartolo. Flanigan calls her the 'wig guru.' "Her foundation, Hair to Share, raises money each year to make wigs more affordable for women with cancer," says Flanigan. "It's such a great cause, something I'd like to get involved with one day."

Flanigan finished her maintenance therapy in late March of this year. Research does not show any added benefit from this therapy beyond six months, says Danish. She'll be monitored closely, with frequent MRIs and blood work every few weeks. "The tumor will always be there," explains Danish. "It could return. We don't know when—it may take many years. Right now she's stable and doing well. If Kelsey needs us, we'll be here for her."

As Flanigan continues her recovery, she still dreams of going to Los Angeles and finding a career in film or comedy. But right now she takes things day by day. "Sure, sometimes I ask, 'Why me?'" she says. "But I'm so thankful to have come this far and to have connected with such a caring network of people, from my surgeon on down."

Her blog is smart and spunky and reflects her fighting spirit. "My 'mellow vegan, yet aggressive kickboxing lifestyle' seems to be working for me," she writes. "Because sometimes you just need to punch something." ■

PHOTOS BY: NICK ROMANENKO

Planning her treatment, Kelsey Flanigan and her parents researched and visited major cancer centers across the country. But in the end, she opted to return to Rutgers Cancer Institute. "I felt comfortable here and was confident I was getting the best care," she says.


MintCraft
PROFESSIONAL

BY MARY ANN LITTELL

New 'Tools' in Fighting Colorectal Cancer

Frederick (Rick) Eyerman hadn't missed a day of work because of sickness in 27 years, a record he's quite proud of. "Though maybe my employees wish I had!" he says with a laugh. Silver-haired, outgoing, and upbeat, he's 71 but looks several years younger. He enjoys his work as the owner of Coast Hardware in Long Branch, New Jersey, despite the stresses of running a small business and competing with the 'big box' stores.

"I always wanted to be in business for myself," he states. "I worked in the financial community for many years, put away some money, and bought the store 20 years ago from a good friend's father. When we were kids we used to hang out here."

Home is a small horse farm in Howell, New Jersey, where he lives with his wife Cathy Murray-Eyerman, a horse lover. They have five acres, a barn, a John Deere tractor, a German shepherd named Sara, a cat named Giggles…and of course, two horses, Laddy and Blue. "My wife rides; I do not," he says firmly. "If I want to go somewhere, I take the car." He and his wife, an assistant vice president and branch manager at Investors Bank in Colts Neck, found each other later in life and have been married for nearly 12 years. "Cathy was my banker before she was my wife," he says fondly.

PHOTO BY: NICK ROMANENKO

Eyerman has a sense of humor and the farm is great fodder for his jokes. "My most important job here is picking up after the horses," he'll say. But clearly, he enjoys the view from his tractor.

Life was good until he went for a colonoscopy in the spring of 2011. He'd had the tests routinely through the years to monitor some small polyps. They had never given him trouble and he felt as healthy and strong as his horses. This time, however, the physician brought him into his office after the procedure. "Let's get your wife in here too," the doctor said.

"I knew that wasn't a good sign," says Eyerman. The colonoscopy identified a large mass in the colon. In shock, the couple just looked at each other. He'd had no symptoms—no weight loss, fatigue, or rectal bleeding. There is no history of cancer in his family, though many years ago his father died of a brain tumor that was possibly malignant. His mother, a "health food nut," lived to be 101.

The biopsy confirmed the diagnosis and the couple began seeking out the best specialists for treatment. Eyerman's wife learned about Rutgers Cancer Institute of New Jersey from a colleague, Edward McKenna. An attorney and former mayor of Red Bank, he's a member of the advisory boards of both the Cancer Institute and Investors Bank. "That's where we're going," she told her husband. "I've heard great things about them."

In May, Eyerman saw Darren Carpizo, MD, PhD, FACS, a surgical oncologist in the Liver Cancer and Bile Duct Cancer Care Program. Carpizo specializes in treating these difficult cancers with a multidisciplinary team of medical, radiation, and surgical oncologists; interven-

PHOTO BY: NICK ROMANENKO

A natural-born optimist, Eyerman admits the treatment has been difficult….In spite of it all, he's alive and glad to be here. "I'm very thankful for the great care I received at the Cancer Institute," he says. "They've kept me going. I enjoy every day. When my friends see me they're surprised at how healthy I look."

tional radiologists; gastroenterologists; pathologists; and other specialists.

"Rick Eyerman's situation was unfortunately no different from many patients I see," says Dr. Carpizo, who is also an assistant professor of surgery at Rutgers Robert Wood Johnson Medical School. "They approach retirement, start thinking about winding down and enjoying life without the pressures of work. And then cancer hits. It's unfair."

Eyerman had a rectosigmoid tumor, located where the lower part of the colon, the sigmoid colon, meets the rectum. This type of cancer can spread to the liver, lungs, and lymph nodes. A CAT scan showed two large lesions on the right lobe of Eyerman's liver and four small nodules in the lungs. Because of the extensive spread, his cancer was evaluated as stage IV.

Making Progress

According to the American Cancer Society, nearly 133,000 new cases of colorectal cancer will be diagnosed in the U.S. by year's end, with 4,200 new cases in New Jersey. More than half of those diagnosed are at an advanced stage. "It's a tough cancer to treat, but we've made progress," says Carpizo. "We've come to realize that not all stage IV patients are the same depending on the location of their metastases and the volume of their disease. Over time we have come to learn that some patients benefit from having their metastases removed surgically." The surgeon explains that this idea was not accepted decades ago when the only treatment these patients were offered was systemic chemotherapy. Over time, however, as liver surgery became safer, many surgeons challenged that notion. In the 1980s and 90s, the five-year survival rate with surgery was 20 to 25 percent (Carpizo, D'Angelica, *Annals of Surgical Oncology*, 2009). As experience with liver surgery grew, as did improvements in systemic chemotherapy, today, 45 to 50 percent of these patients are surviving five years.

"Today we know that we can cure a small fraction of patients with this disease, roughly 17 to 20 percent, with a combination of systemic chemotherapy and surgery," Carpizo continues. "This may not sound very high but when compared to zero percent in the 1980s and 1990s, it is significant. One of the biggest issues we face in managing these patients today is recurrence. Unfortunately, the majority

Physician Scientist with a Mission

As a physician scientist at Rutgers Cancer Institute, **Darren Carpizo, MD, PhD, FACS** *(below),* dedicates a large portion of of his time to laboratory research. This work is designed to provide him with the additional scientific training he needs to become an independent investigator. When asked to name his most exciting research, he says, "Without a doubt, it's the work we are doing to develop a new class of drugs, zinc metallochaperones, to treat cancer, targeting p53, the most commonly mutated gene in cancer."

Dr. Carpizo says cancer at its basis is mutations in DNA that allow cells to continuously proliferate. Turning off these mutations will stop the cancer from developing. He explains that approximately 10 percent of proteins made by a cell require binding of zinc in order for them to have proper structure and function; p53 is one of these proteins. An important function of p53 is to prevent tumors from forming. "That's the reason why so many cancers require disabling of p53 in order to progress," he says. Carpizo's laboratory has found that zinc metallochaperones can restore the normal structure of p53 proteins. Restoring the tumor suppressor function of p53 in a cancer cell causes cancer cells to die.

"People ask me why I, as a surgeon, spend so much time doing research on drug development," he says. "It's because the most significant problem we face in surgical oncology is recurrence of cancer, which is not a problem that can be fixed with more or better surgery."

Carpizo is collaborating with two other laboratories for this research: one at SUNY Upstate Medical University in Syracuse, New York, the other in the Department of Medicinal Chemistry at Rutgers. ■

The work is supported in part by the National Cancer Institute (K08CA172676-0108), Sidney Kimmel Foundation for Cancer Research, AACR-Pancreatic Cancer Action Network, Harrington Discovery Institute and Breast Cancer Research Foundation.

PHOTO BY: JODY SOMERS

of the patients we operate on for this disease suffer a recurrence, or relapse, of their disease. For this reason, patients are given systemic chemotherapy in association with surgery to try to prevent that from happening. In some patients, their liver metastases are too large or too numerous for us to resect. In those situations, systemic chemotherapy is useful in shrinking those tumors and allowing for us to resect them. Research indicates that if we can shrink their tumors to a point where they can undergo resection, those patients have longer survival times."

Game Plan

Eyerman began chemotherapy under the supervision of Cancer Institute medical oncologist Rebecca Moss, MD. He learned he'd be part of a clinical trial, a great benefit of care at the Cancer Institute, where patients have access to promising therapies not available at other facilities. The standard chemotherapy regimen for colorectal cancer, called "capOX," combines the drugs capecitabine and oxaliplatin, and is given in conjunction with bevacizumab, a biologic agent which acts on the tumor blood vessels. The clinical trial is evaluating the addition of hydroxychloroquine, a common drug for malaria, to this regimen. The study is based on research done at Rutgers Cancer Institute indicating that drugs such as hydroxychloroquine may prevent cancer cells from surviving during treatment with chemotherapy or with drugs such as bevacizumab.

After responding well to the chemotherapy, the next step for Eyerman was surgery to remove the liver tumor. Carpizo performed a staged liver resection at Robert Wood Johnson University Hospital, the flagship hospital of the Cancer Institute. "We expected to remove the entire right half of his liver," says the surgeon. "But the chemotherapy had shrunk the tumor, so we only had to remove a third of the liver." After another round of chemotherapy Eyerman underwent removal of the rectosigmoid tumor. Approximately 60 percent of the rectum was also removed.

He recuperated well, with little pain. Eyerman wasn't able to work every day but tried to get to the store a few times a week. He did well for a blissful six months. Then in January 2013 his liver tumor recurred. As discouraging as this was, he tried to stay positive. "We're keeping people alive longer with this disease but unfortunately not curing more of them," says Carpizo. "More than 75 percent of patients who have surgery will experience a recurrence." Carpizo is involved in research to try and improve the odds for colorectal cancer patients *(see page 21)*.

After another round of chemotherapy, the recurrent liver tumor was removed in April 2013. During the procedure Carpizo implanted a hepatic artery infusion pump in Eyerman's abdomen. This pump, the size of a hockey puck, delivers a high dose of chemotherapy through a catheter directly to the liver. The chemotherapy stays in the liver, sparing the rest of the body from side effects. The pump delivers such high doses of medication that it requires close oversight and constant modifications by a medical oncologist. Therefore, it is used primarily in large medical centers with strong cancer programs, such as Rutgers Cancer Institute.

One Day at a Time

Eyerman is on an even keel now and says he feels pretty good. He has a few small tumors in his lungs, but they are stable. "He's done well with chemotherapy and we're keeping a close watch on him," says Dr. Moss. He is in another clinical trial, this time taking TAS-102, an oral medication for patients with refractory colorectal cancer. Studies show this drug may reduce the risk of progression and extend survival.

A natural-born optimist, Eyerman admits the treatment has been difficult. He's had side effects from the chemotherapy. One concern is his memory. "I forget things," he says. "All the treatment I've had—it's just a blur. I've read that chemotherapy can affect your memory, so maybe that's the cause." While chemotherapy has been linked to memory problems, Moss says there is no way of knowing if it has contributed to Eyerman's forgetfulness. He is seeing a neurologist and memory specialist for further treatment.

Full-time work is a thing of the past and he's considering selling the business. The couple's horses are also temporarily boarding at a stable because Eyerman cannot participate in their care. "I've never needed to go to the gym," He says. "Caring for the farm and the animals was my exercise, but not anymore. This illness changes your lifestyle."

In spite of it all, he's alive and glad to be here. "I'm very thankful for the great care I received at the Cancer Institute," he says. "They've kept me going. I enjoy every day. When my friends see me they're surprised at how healthy I look."

For now, he takes things one day at a time. These longtime New Jerseyans also contemplate relocating to a warmer climate: a place with lower taxes and of course, a large yard. "Someplace where Cathy can have her horses," Eyerman says with a smile. "That's non-negotiable." ■

Making A *Difference*

A Mile in their Shoes

Reprimanded as a young mother for not having health insurance, Rutgers Cancer Institute of New Jersey breast surgical fellow Tara Balija, MD, is working to stem health care disparities and is fighting for better patient outcomes.

Tara Balija, MD, will never forget taking her son to a Manhattan hospital 15 years ago and being told by the emergency department physician who treated him for pneumonia that she should never come back because she had no health insurance.

"I was in shock," said Dr. Balija, a single mother of three who is completing a coveted yearlong breast surgery fellowship at Rutgers Cancer Institute of New Jersey and Rutgers Robert Wood Johnson Medical School. "I wanted to yell at her and say, hey I'm going to Columbia (University) and someday I am going to be a doctor just like you."

Balija, who was barely out of her teens and living in the Bronx, knew, even then, that she never wanted to follow in this doctor's footsteps. "Everybody should be treated with respect," says Balija "It shouldn't matter where you live or how much money you make. No patient should feel that indignity."

Now that Balija is midway through her fellowship which is funded by the Breast Cancer Alliance and is providing her with advanced training to care for patients with breast disease, she says she looks forward to working as a breast surgical oncologist, mentoring other female physicians and giving back to the others less fortunate.

"I have always wanted to make a difference in a patient's life," says Balija who at 6 years old decided she wanted to become a doctor because she loved her pediatrician and wanted to help people. "Helping underserved populations and mentoring those just starting out, in addition to being a breast surgeon, will allow me to do this."

NICK ROMANENKO

Tara Balija, MD, performs a follow-up exam with Maritza Mashanski.

The mother of three children, a 17-year-old son and two daughters, 15 and 12, has been investigating health care disparities – from evaluating triage systems in pediatric clinics in New York City to assessing psychological dysfunction and its effect on body mass among pediatric Latino patients in East Harlem — since her days as an undergraduate.

Before beginning her current fellowship at the Cancer Institute of New Jersey, Balija's research included evaluating the differences in three-year survival rates between African-American and Caucasian women based on how widespread the cancer was at the time of diagnosis. She believes that by exposing disparities, improvements can be made in health care delivery that will lead to better outcomes.

"My strong belief in advocacy lends itself to what I will be doing as a breast cancer surgeon," says Balija, who lives in Montclair with her children. "I'll be there fighting for them in what could become a battle for their life."

Although she might not have thought it at the time she became pregnant and decided to take a break from her undergraduate studies almost two decades ago, motherhood at the tender age of 19 gave Balija a better understanding of economic and emotional hardships and provided her with a greater ability to empathize with her patients.

She was lucky to have the support of her mother who stood by her side and helped with her children. Still, Balija says, she had to learn to juggle her personal and professional life and put the needs of her kids above her own. Now, she thinks, she might not get as rattled as her younger colleagues who don't have these same family commitments.

"I was willing to do what I had to do to have a family and still become a doctor," says the 37-year-old Balija, who graduated from Mount Sinai School of Medicine where she was a research fellow prior to serving as chief surgical resident at Rutgers Robert Wood Johnson Medical School. "If it meant living in an apartment with no furniture or filing lots of paperwork to get Medicaid for my child, I just did it." ■

– By Robin Lally

Reprinted courtesy of Rutgers Today

Making A Difference

Bet your Bottom Dollar$

When Dunellen High School senior **Calvin Nemeckay** landed the lead role of Oliver "Daddy" Warbucks in the school's spring musical production of "Annie," he decided to go for broke – and shave his head to really become the iconic shiny-headed character. "I was looking for something crazy to do in my senior year, and this fit the bill," he says.

Calvin Nemeckay had seen the devastating toll cancer takes on people and families. . . . "I decided to do something positive for others with cancer by using my decision to shave my head as a way to raise money for cancer research," he says.

He decided to weigh his decision for a few weeks, and during that time he began to understand something that people with cancer undergoing chemotherapy face: They lose their hair, and they lose a sense of who they are.

Nemeckay had seen the devastating toll cancer takes on people and families. The month before, his long-time neighbor lost her battle with bile duct cancer. "It was sad to see her fight so hard," he says. "I decided to do something positive for others with cancer by using my decision to shave my head as a way to raise money for cancer research."

He contacted Rutgers Cancer Institute of New Jersey and set up a fundraising website called "Going Bald for Cancer Research," which he is promoting in his school and community. His goal is to raise $1,000.

The 17-year-old who has been acting since he was 8 and plans to study theater in college is as known for his spontaneous nature and his good heart. He is also known for his good "guy hair."

When Nemeckay told friends and family that he was going to shave his head to play a role, they were hesitant. "They were really attached to my hair," he says. "They didn't want me to change the way I looked, but when they found out that I was raising money for cancer research, they were all on board."

"We applaud Calvin's efforts to support scientific research at Rutgers Cancer Institute of New Jersey. His initiative and creativity in raising funds to support others are admirable. We are hopeful Calvin's unique approach to philanthropy and awareness inspires others to do the same," says Cancer Institute of New Jersey Chief Development Officer **Joan Russo**. ■

– By Patti Verbanas
Reprinted courtesy of Rutgers Today

Everyday Community Heroes

A special thanks to schools, community-based organizations and friends throughout the state whose dedicated fundraising efforts have supported cancer research, patient care, community outreach and patient and family services.

Gifts up to $250,000

- **Century for the Cure**, *Warren*
- **Val Skinner Foundation**, *LIFE golf event, Bay Head*

Gifts up to $10,000

- **Joshua's Closet**, *Helck and Johnson Families, North Plainfield*

Gifts up to $5,000

- **Kier's Kidz**, *Highland Park*

Gifts up to $2,000

- **Women's Club at Westlake**, *Jackson*

Gifts Up to $1,000

- **New Brunswick Lions Club** *New Brunswick*

'Pitching' in

When his grandmother lost her battle with cancer in March 2013, Wayne Valley High School baseball pitcher **Sean (Lewie) Lewandoski** decided to 'step up to the plate' in more ways than one. In order to raise cancer awareness, Lewandoski tapped into his love of baseball and created the Strikes for a Cure initiative. The effort began in his 2014 sophomore season, where Lewandoski sought out individuals and corporate sponsors willing to donate money for each strikeout he recorded. After achieving 36 strikeouts in 39 innings pitched, Lewandoski collected $2,300 to support efforts at Rutgers Cancer Institute of New Jersey. As final fundraising totals are being tabulated for strikeouts achieved in his junior season, Lewandoski is looking forward to continuing such charitable efforts in his senior year and beyond. ■

A Decade of Dedication

Century for the Cure ride founder, **Scott Glickman**, celebrated a decade of supporting research at Rutgers Cancer Institute of New Jersey by presenting a check for $230,000 to Dr. Roger Strair, the man he credits with saving his life 16 years ago. This best-ever fundraising effort from the charity bike ride brings the ten year total to more than $1.4 million.

Having been successfully treated at the Cancer Institute of New Jersey, Glickman wanted to make resources available that would further unlock the mysteries of cancer. "Treatments I had were the result of research advances made in prior years, and the research being conducted today will result in the treatments of tomorrow," said Glickman. "In the past few years alone, my wife Aileen and I have seen firsthand that monies raised through the ride are having a positive impact on patients' lives. We are proud that Century for the Cure continues to make a difference."

Century for the Cure in part supports innovative clinical trials led by **Roger Strair, MD, PhD**, chief of Hematologic Malignancies/Hematopoietic Stem Cell Transplantation at the Cancer Institute. Dr. Strair, who was Glickman's oncologist, says such support is critical. "Funds from Century for the Cure have helped us conduct unique early-stage studies in leukemia, lymphomas and kidney cancer. We have been able to leverage that support to receive additional resources to take some of these trials to the next level. Thanks to the continued efforts of Scott and Aileen Glickman, we are able to further our research," noted Strair, who is also a professor of medicine at Rutgers Robert Wood Johnson Medical School. More recently, Century for the Cure has made it possible for grants to be awarded to scientific investigators to further explore varied blood cancers.

Century for the Cure offers a 62 mile 'metric century' course along with the traditional 100-mile and 40-mile treks. The event sees more than a hundred riders, dozens of volunteers and numerous "virtual participants"– those who choose to support the event through online giving. ■

To register for this year's Century for the Cure that takes place in Warren Township, New Jersey, or to learn how you can help, visit centuryforthecure.com.

Rutgers Cancer Institute of New Jersey

Network Spotlight

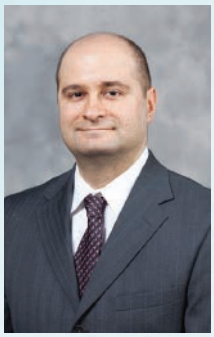
The Rutgers Cancer Institute of New Jersey Network of hospitals spans the state. Network hospitals offer their patients access to the latest cutting-edge cancer therapies and state-of-the-art cancer care available only at NCI-designated Cancer Centers and their networks, while helping patients remain close to home. For more information, visit cinj.org/network.

A New Approach to Brain Tumor Surgery

Yaron Moshel, MD, PhD *(below)*, is a recent addition to Overlook Medical Center's neurosurgical team and its Brain Tumor Center. He specializes in removing deep-seated brain tumors using technology that includes computer-guided navigation, awake intraoperative brain mapping, endoscopy, and microsurgery. One of the most unique and beneficial aspects of this surgical approach is that it's often done while the patient is awake – from beginning to end.

"Traditionally, neurosurgeons would only discover whether their patient's brain function was intact following surgery when he or she wakes from anesthesia…at which point it is too late to undo the operation," explains Dr. Moshel. "Recent advancements in anesthesia, as well as imaging, allow us to keep some patients awake and engaged throughout the entire surgery,

RWJ Hamilton Welcomes Breast Surgical Oncologist



RWJ Hamilton and **Rutgers Cancer Institute of New Jersey** are pleased to welcome breast surgical oncologist **Firas Eladoumikdachi, MD** *(right)*, to its breast cancer care team.

Dr. Eladoumikdachi comes to RWJ Hamilton and the Cancer Institute from Ohio where he previously served as the director of the breast program at Genesis Health Care System and vice chair of Ohio Integrated Care Providers. He completed his fellowship in breast surgery at the Lynn Sage Comprehensive Breast Center at Northwestern University in Chicago and his residency in general surgery at Baylor College of Medicine in Houston.

Eladoumikdachi specializes in the treatment of benign and malignant tumors of the breast with a focus on breast conserving surgical techniques along with minimally invasive breast biopsy and sentinel node biopsy. Working with colleagues from plastic surgery, he performs immediate breast reconstruction when more extensive surgery is needed. He also evaluates patients at increased risk for the development of breast cancer due to family history or atypical findings at breast biopsy.

"When it comes to cancer treatment, continuity of care is very important for our patients," said Eladoumikdachi. "The Cancer Institute of New Jersey shares my desire to provide our patients all the services they need in one convenient setting, allowing them to place all their focus on their treatment and recovery. I look forward to working with this passionate team."

The arrival of Eladoumikdachi follows an accreditation for RWJ Hamilton by the National Accreditation Program for Breast Centers (NAPBC), a program administered by the American College of Surgeons. Centers accredited by the NAPBC undergo a rigorous evaluation of their performance in the areas of: clinical management, research, community outreach, professional education, leadership and quality improvement.

*The accreditation was coordinated by **Thomas Kearney, MD, FACS**, chief of the Breast Surgery Section at Rutgers Cancer Institute and an associate professor of surgery at Rutgers Robert Wood Johnson Medical School, who is part of the breast team at RWJ Hamilton; and by **Pauline Lerma MD**, medical oncologist at Rutgers Cancer Institute and assistant professor of medicine at Robert Wood Johnson Medical School, who is the medical director of the RWJ Hamilton breast consultation program.* ■

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which allows us to monitor their function continuously. This yields much better outcomes for these otherwise inoperable brain tumors."

Critical data obtained in a functional MRI scan prior to surgery helps Moshel determine whether to keep patients awake or asleep during delicate neurosurgical procedures. The MRI images are transmitted to the operating room where they are used during surgery via a GPS-like tracking system for the brain, allowing electrical mapping of important regions of the brain throughout surgery (regardless of whether the person is awake or asleep). When language function is impacted, Moshel often opts to keep patients awake, as he notes it's the best way to directly monitor higher level cognitive functions.

"Every brain – just like every person – is unique and requires a customized approach to surgery," adds Moshel. "The brain is organized in multiple pathways on the surface, where most processing happens, and the deep tissue regions. When removing a tumor, the challenge is to remove it completely and without severing these important connections. New imaging technology and intraoperative brain mapping allow us to identify the safe boundaries of the tumor and remove it more precisely and in one sculpted piece. Most patients leave with a clean MRI. This makes a huge difference in survival and quality of life." ■

Survivors' CORNER

Paul Lienesch

Paul Lienesch (left) with Greg Carbone, owner of Carbone Training Systems – the 'home away from home' for Lienesch where he works out regularly. The facility last fall held a special fundraising event to support prostate cancer research and programs at Rutgers Cancer Institute of New Jersey

The definition of 'survivorship' varies depending on whom you ask. For 63-year-old **Paul Lienesch**, a retired marketing professional, he has been surviving and thriving every day since being diagnosed with an aggressive form of prostate cancer in 2007. Following surgery and radiation at facilities near his home, Lienesch was referred to Rutgers Cancer Institute of New Jersey in late 2008 to **Mark Stein, MD**, a medical oncologist in the Prostate Cancer Program. Under Dr. Stein's care, Lienesch continues to receive treatment every day.

Q: *You've been on half-a-dozen clinical trials over the past few years – being on the current one for the last two and having a favorable result. Some people may be nervous to try an investigational form of treatment. What would you tell them?*

A: Clinical trials put you on the leading edge of treatments than can benefit you and other people. There are medical breakthroughs that are discovered every day and the physicians at the Cancer Institute are aware of the trials that might be appropriate for you. Sometimes they work and other times they don't but I would always volunteer for a clinical trial due to my trust in my doctor. Trials also give me hope for an outcome that hopefully, limits my cancer to a chronic disease.

Q: *You take several pills a day and receive a shot every three months. Your cancer is being treated as if it were a chronic illness like heart disease or diabetes. What keeps you going day after day?*

A: I take 12 pills per day consisting of three separate prescriptions for prostate cancer. I also exercise five days per week and try to eat right as much as possible. My wife Susan is disabled due to a brain aneurysm she suffered in 2010. As her caregiver, we are always together and we walk three or four miles per day. She told me that she needs me around, so I can't let my disease get the best of me. Companionship with friends and family gives me the energy to maintain a positive attitude. I've also seen Dr. Stein every month for the past six years. I feel that he is both my doctor and my friend. I feel the same way about the people who support him – Chandrika Jeyamohan, Barbara Carney and Ruth Bauman.

Q: *The gym where you exercise each day recently gave a special donation to support prostate cancer efforts at the Cancer Institute. Your 'extended family' there continues to rally behind you. How is that kind of support important?*

A: I participate in a boot camp-like program at Carbone Training which focuses on strength and metabolic exercises. I feel pushed to my limits each day, but Greg as well as his trainers Ron and Sean know the health concerns of each individual and tailor exercises as needed. They are aware of my cancer and set a positive approach, thus allowing me to reap both physical and mental benefits. My daughter, Sarah introduced me to Carbone nearly two years ago and it is one of the best things I have done for my health. My son and daughter support me by focusing on the positive and I also have two dogs who I rely on for unconditional support.

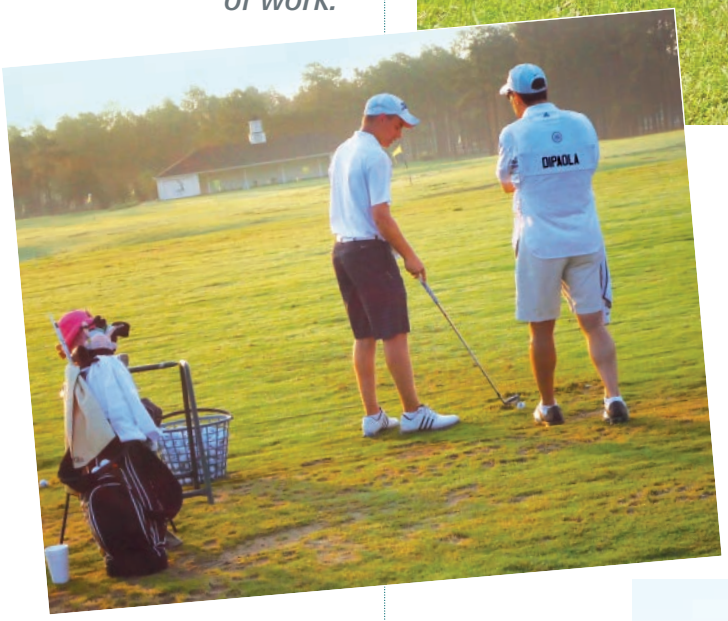
Q: *What is the best piece of advice you can give to others who might be on a similar journey as you?*

A: Make sure you have positive support from a variety of sources. It comes down to you as an individual to have the energy and attitude necessary to pull yourself through difficult periods in your treatment. I might not always have positive outcomes but I need to draw on the support I receive from everyone to believe I can survive.

Along with exercising, Lienesch enjoys playing golf, gardening and spending time with his two adult children Sarah, 23 and John, 26, and his wife of 31 years, Susan. ■

Homefront

A close up look at the lives of faculty and staff members at Rutgers Cancer Institute of New Jersey and what is important and of interest to them outside of work.



Summertime Fun

Whether it's piling into the family mini-van for a cross-country trek, a weekend at the shore or something a little more luxurious, summer vacation is a time for disconnecting from the office and reconnecting with loved ones. Check out how some of our doctors like to relax with their families.

▲ *Zip lining in Hawaii in 2013, Chief Medical Officer* **Deborah Toppmeyer, MD** *(far left), enjoyed some time with sons (from left) Greg and Eric and husband Robert Hilkert, MD.*

▲ *A favorite summertime respite for Director* **Robert DiPaola, MD** *(right), and son Blake was a game of golf at Pinehurst Resort in North Carolina in 2012.*

▶ *A jaunt around Mallet's Bay on Lake Champlain outside of Colchester, Vermont, was a favorite activity in 2012 for Breast Surgery Section Chief* **Thomas Kearney, MD, FACS** *(far right), and his children (from left) Glynnis, William and Michael.*

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Breaking a Leg *(…and Shaving his Head)* to Fight Cancer

Why did this teen shave his head? Turn to page 24 to learn how Calvin Nemeckay's spirited action is helping Rutgers Cancer Institute of New Jersey.