

Forward

Broadening the Conversation About Cancer

FALL/WINTER 2015

CUSTOMIZING CANCER TREATMENT

Through Precision
Medicine, Doctors
Can Identify the
Most Effective
Treatment
for Individual
Patients



ALSO

DAN'S VOICE PROVIDES
SUPPORT TO PATIENTS

VOLUNTEERS PLAY IMPORTANT
ROLE AT THE CENTER

LUNG SCREENING PROGRAM
CONTINUES TO THRIVE

 **FOX CHASE**
CANCER CENTER

TEMPLE HEALTH

LOOKING AHEAD

Discovering new advances that will most effectively treat a patient's cancer requires a sophisticated level of focus. This idea helps form the basis of what we know as precision medicine.

In a broad sense, precision medicine is the understanding that physicians can no longer diagnose and treat patients based on broad definitions of diseases, but instead must examine an individual's unique genetic make-up to offer the most effective treatment.

In this issue's cover story, we discuss the future of cancer care and how precision medicine represents a shift in how we think about treatment. This approach builds on Fox Chase Cancer Center's already rich history of innovative research, which includes discoveries like the Philadelphia Chromosome — the first genetic abnormality linked to cancer, which led to the creation of the drug Gleevec for patients with chronic myeloid leukemia. That same drug is now helping others like Barry Dixon (on page 8) to overcome neuroendocrine cancer.

This year, we established an expert panel of clinicians and scientists — the Precision Medicine Steering Committee — to define and carry out the vision for our efforts in this rapidly evolving field. We have unique technologies, significant grants, and leaders of national clinical trials, as well as key research projects underway to support this pursuit.

Also in 2015, Fox Chase was designated a center of excellence in precision medicine by Caris Life Sciences®, an innovative biotechnology company — paving the way for even more collaborations and discoveries among our faculty and through our relationships with investigators both in industry and academia. The goal is to move the field forward by engaging in these exciting new opportunities.

On page 3, you'll learn how advances in identifying genetic mutations linked to Lynch syndrome — an inherited condition predisposing some to a greater risk of colorectal cancer — may help clinicians determine which patients need more frequent screenings.



Fox Chase researchers are also tracking clues as to why some people respond to certain therapies while others do not — despite being diagnosed with a seemingly incurable cancer. This article on “super responders,” found on page 4, explores the research focused on this remarkable subset of patients.

The exciting impact of precision medicine is already being felt, yet more work remains — work that holds great potential for us all.

Richard I. Fisher, MD
PRESIDENT AND CEO

Forward FALL/WINTER 2015

FORWARD magazine is published twice a year for friends of Fox Chase Cancer Center by the communications department of Fox Chase. One of the leading cancer research and treatment centers in the United States, Fox Chase was founded in 1904 as one of the nation's first cancer hospitals, and was among the first institutions to be designated a National Cancer Institute Comprehensive Cancer Center in 1974. Fox Chase joined Temple University Health System in 2012.

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Forward

FALL/WINTER 2015

MENU

FEATURES

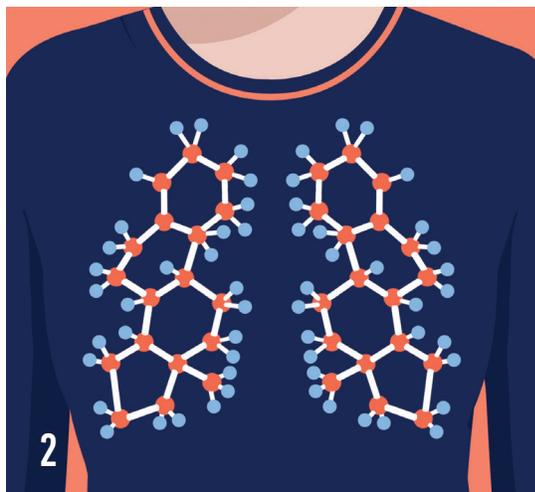
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Precision medicine presents a new way of approaching various diseases, including cancer. Doctors are beginning to treat patients based on individual genetic makeup rather than location of the tumor.
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Launched in 2011 to help discover lung cancer at an earlier and more treatable stage, the lung screening program continues to expand while servicing the Philadelphia community.



ESTROGEN MAY INCREASE LUNG CANCER RISK IN WOMEN

Recent data pointed to estrogen as a potential culprit behind lung cancer in women, and researchers at Fox Chase Cancer Center are working to find out why that is. Margie Clapper, professor and co-leader of the Cancer Prevention and Control Program, said that her research began when a clinical colleague noted a larger number

of women required surgery for the disease.

“We wanted to figure out why women seemed to be more susceptible,” says Clapper. “Aside from smoke exposure, there were also many non-smoking women who were affected, and no one understood why.”

Clapper and her team demonstrated that the human lung can

“We wanted to figure out why women seemed to be more susceptible [to lung cancer].”

— MARGIE CLAPPER,
CO-LEADER, CANCER
PREVENTION AND CONTROL
PROGRAM



metabolize estrogen, a female hormone produced naturally by the body, and convert it into a cancer-causing substance. They also found that the levels of “bad” estrogen were higher in women than in men, and its production was accelerated by tobacco smoke.

In collaboration with Grace Ma, director of the Center for Asian Health at Temple University, Clapper also found that Chinese women produced twice the amount of “bad” estrogen as Caucasian women of the same age. “Based on the elevated risk for lung cancer among Asian women, it is critical to determine the role of this estrogen product in lung cancer susceptibility,” explains Clapper.

The goal is to identify women at highest risk for lung cancer because of their capacity to metabolize estrogen and to further explore what other substances in the environment can enhance estrogen metabolism and potentially increase a woman’s risk for lung cancer.

DOES FAMILY HISTORY LEAVE YOU AT A GREATER RISK FOR COLORECTAL CANCER?

Lynch syndrome is one of the most common forms of inherited predisposition for cancer, particularly colorectal. It is caused by mutations in one of several genes that help cells copy DNA correctly. Roland Dunbrack, professor and director of the Molecular Modeling Facility at Fox Chase Cancer Center, and his team strive to make mutations that are linked to Lynch syndrome more easily identifiable. As a result, patients will know if they are at a greater risk for developing colorectal cancer.

“[Researchers] can make more accurate predictions and hopefully inform clinicians on their patients’ level of risk.”

— ROLAND DUNBRACK,
DIRECTOR OF MOLECULAR
MODELING FACILITY

“The challenge is that there are mutations in these genes that are completely benign: they do not affect the function of the genes,” says Dunbrack. “People who are diagnosed with colorectal cancer in their thirties, forties, or fifties are typically evaluated for Lynch syndrome mutations. However, when we sequence the person’s DNA and see a mutation, we don’t immediately know whether this mutation is linked to Lynch syndrome.”



Dunbrack and his team are developing a program to predict Lynch syndrome genes from a large set of mutations found only in the Lynch-associated genes. When new mutations are found in patients, the program compares the properties of the mutation with those in the training data set and makes a prediction on whether the new mutation is harmful or benign.

Their predictor focuses on how mutations affect the structure and function of proteins within the Lynch genes and how the proteins interact with each other as they perform DNA repair. “With these data, we can make more accurate predictions and hopefully inform clinicians on their patients’ level of risk,” Dunbrack says.

CANCER “SUPER RESPONDERS” THRIVE FAR BEYOND EXPECTATIONS

A group of “miracle” cancer patients, known as “super responders,” may hold valuable clues as to why some patients respond exceptionally well to treatment while others do not.

According to Marijo Bilusic, a Fox Chase Cancer Center medical oncologist, a super responder is a patient with incurable disease

were treated at Fox Chase in the hope of identifying genes that may have played a role in their extremely positive responses. “We want to learn about biomarkers that can predict why some patients respond to therapy better than their peers, even when it’s the same cancer under the microscope,” says Bilusic.

Bilusic and colleagues identified

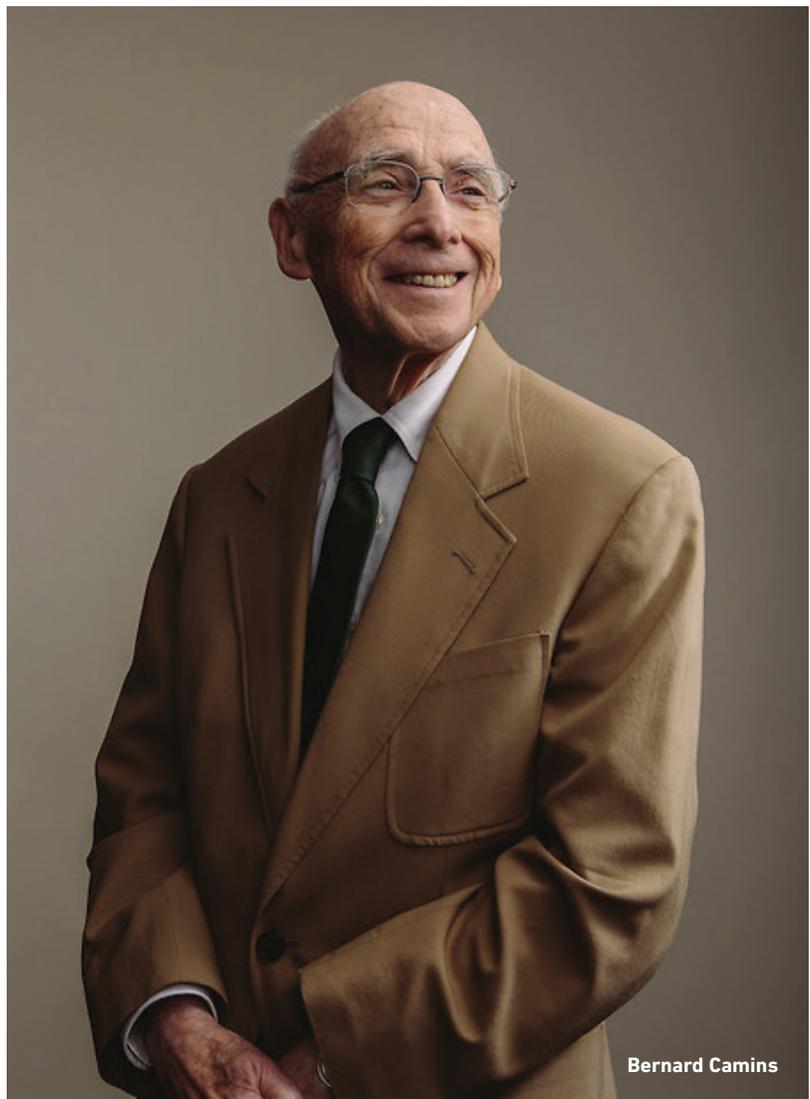
37 patients from Fox Chase for their study, and at the time of publication, the patients’ tissue samples were undergoing genomic analysis. “If you ask any oncologist, there are patients they remember immediately because of their exceptional response,” says Bilusic. “These are patients who were told they have one year to live, and they live several years. There have been

“I continue my normal activities and still work. ... I’m in pretty good health and have been all along.”

— BERNARD CAMINS,
CANCER SUPER RESPONDER

who has a complete response or remission for more than one year after treatment, or someone who has stable disease — no tumor growth — for at least three years. This unique group may also help clinicians and researchers revolutionize the treatment of patients across all cancer types.

Last year, the National Cancer Institute (NCI) launched a study to analyze tissue samples from super responders to find possible molecular reasons for the exceptional response. Now, Bilusic’s team will be launching their own study at Fox Chase — one of 45 NCI-designated Comprehensive Cancer Centers in the country. The researchers are evaluating a group of super responders who



Bernard Camins

COLIN LENTON

“Why did I respond so well? Maybe because I had excellent care and maybe because of divine intervention.”

— MARCELLE SHAPIRO,
CANCER SUPER RESPONDER

some people who live 20 to 30 years with metastatic disease, which is really extraordinary.”

One of Bilusic’s notable super responders is Bernard Camins. In 2009, Camins developed bladder cancer but was successfully treated with robotic surgery. However, in 2013, he developed a 2-centimeter mass on his right scrotal skin, which was confirmed to be metastatic bladder cancer. It spread quickly through his scrotal and groin skin. “Skin metastases from urologic cancers are very uncommon and usually associated with widespread metastatic disease and a poor prognosis,” Bilusic explains.

After one cycle of chemotherapy, the treatment was discontinued due to adverse side effects. Camins then started chemotherapy again. After four cycles, he completed treatment in September 2013 and has been in remission since. “I continue my normal activities and still work,” he says. “I have a computed tomography (CT) scan and see Dr. Bilusic every four months, but I’m in pretty good health and have been all along.”

Sometimes super responders inform future research and trials based upon their responses to treatment. Another super responder is Marcelle Shapiro. In 2010, she was diagnosed with acute myelogenous leukemia (AML). It was

secondary AML resulting from previous treatment with adriamycin, a chemotherapy drug used to treat breast cancer. After six weeks of intense chemotherapy for the AML while in a medically induced coma, Shapiro was in remission. Her family, including her husband and two daughters, were amazed by her recovery. However, that was not the end. “The chances of me maintaining a long-term remission were limited because of my exposure to adriamycin,” says Shapiro, an interventional radiologist.

Patricia Kropf, assistant director of the Fox Chase Cancer Center—Temple University Hospital Bone Marrow Transplant Program, says that Shapiro had an aggressive leukemia that typically has a fairly low chance for a cure. Shapiro received

an intense regimen of induction chemotherapy, consolidation therapy, and a stem cell transplant.

“Response to chemotherapy and transplant ranges across a spectrum,” says Kropf. “Not only has Marcelle been cured of her leukemia, but she tolerated the transplant very well, without significant complications.” She was told she had a 50/50 chance of long-term survival. In 2015, she marked five years being cancer free. Her follow-up includes bloodwork every three months and an annual bone marrow biopsy.

“Why did I respond so well? Maybe because I had excellent care and maybe because of divine intervention,” Shapiro says. “I live moment to moment. I don’t ask questions for which I have no answers.”



Marcelle Shapiro

C U S T O M I Z I N G
C A N C E R
T R E A T M E N T

Through Precision
Medicine, Doctors Can
Identify the Most
Effective Treatment
for Individual Patients.

BY COLLEEN OWENS
PHOTOGRAPHY BY CLINT BLOWERS



In September 2009

while living in South Carolina, Barry Dixon was diagnosed with a rare form of metastatic neuroendocrine cancer — which begins in hormone-producing cells — that had spread to his liver. His oncologist immediately ordered the standard treatment regimen: chemotherapy. However, it soon became clear that the treatment was doing little to combat Dixon's cancer and was instead making him even sicker.

"The type of chemotherapy I had wasn't helping my cancer at all," says Dixon, a 51-year-old father of four. "It was just eating away at the insides of my body because it was so strong." Realizing that the South Carolina facility could not provide the level of care he required, Dixon and his family packed their bags and returned to his hometown of Trenton, New Jersey.

In November 2009, Dixon arrived at Fox Chase Cancer Center to meet with medical oncologist Igor Astsaturov. Astsaturov started Dixon on chemotherapy, but Dixon's progressive, metastatic cancer was not responsive. It was evident that he needed a treatment that targeted his cancer in a different way.

Dixon's medical team needed to rely on precision medicine.

A GROWING HEALTH CARE PARADIGM

Precision medicine represents a new model in health care: the understanding that physicians can no longer diagnose and treat patients based on broad definitions of illness. Instead, cancer is treated based on a person's genes, rather than by specific location in the body, such as the breast or colon. Treatment decisions must take into account the unique biological and molecular profile of each patient's disease.

"So far, precision medicine has had the most impactful effect in oncology, where many of our diseases are life-threatening and for which we have struggled to find effective medications over the last few decades," says Anthony J. Olszanski, director of Early Clinical Drug Development and co-director of the Melanoma Program at Fox Chase.

The tremendous growth of precision medicine has been fueled by the mapping of the cancer genome. Launched in 2006 by the National Cancer Institute (NCI) and the National Human Genome Research

Institute, The Cancer Genome Atlas has now mapped samples from more than 30 different tumor types, according to the National Institutes of Health (NIH). "That discovery has allowed us to identify the root cause of many malignancies, and we now recognize that a number of cancers are driven by specific changes in the DNA of patients," Olszanski says.

Fox Chase has remained at the vanguard of the precision medicine movement, ever since the first genetic abnormality linked to cancer — the Philadelphia Chromosome, found in chronic myeloid leukemia — was discovered there in 1959 and helped paved the way for the creation of the targeted drug, Gleevec. Recently, Fox Chase was designated a national center of excellence in precision medicine by Caris Life Sciences®, a biotechnology company from Dallas-Fort Worth, Texas. The Center continues to expand boundaries with its molecular tumor profiling and innovative genomics research.

In Dixon's case, gene sequencing identified a mutation in the *KIT* cancer gene that was responsible for turning on the cancer in his body, causing it to grow and spread.

Precision medicine and the increased genomic knowledge that goes along with it have led to new and better treatment options in the form of medications "that precisely target those changes in DNA," Olszanski says.

These so-called targeted therapies are the bedrock of precision medicine.

There are two basic types: small-molecule drugs, which are tiny chemical agents that attack targets within cancer cells, and monoclonal antibodies — man-made versions of antibodies, which seek targets on the outside of cells.

Atsaturov applied Gleevec, which blocks the activity of the *KIT* mutation. Dixon had an almost immediate response. Within a few weeks, his pain level was reduced and his cancer biomarker levels dropped significantly. A follow-up CAT scan conducted one month after Dixon started Gleevec revealed "massive regression, massive shrinkage of the tumor," Astsaturov says. "His situation is very unique because he is the only case that is known to respond to Gleevec by targeting a mutant *KIT* protein in neuroendocrine cancer."

This breakthrough lasted for around two years. About a year ago, one of Dixon's liver tumors began to grow. A repeat biopsy revealed a new, acquired mutation.



"Precision medicine has had the most impactful effect in oncology... for which we have struggled to find effective medications over the last few decades."

— ANTHONY J. OLSZANSKI,
DIRECTOR, EARLY CLINICAL DRUG
DEVELOPMENT AND CO-DIRECTOR,
MELANOMA PROGRAM



Todd Jackman

Dixon is undergoing a new treatment regimen, this one combining the drug Sutent and tumor embolization. This therapy seems to be shrinking Dixon's tumors again. "It really illustrates the point that once you find the target, you have to continually monitor the response and find ways to outsmart the tumor," Astsaturov says. "It's a race, where the cancer tries to outsmart you by developing new mutations that will circumvent the effect of the drug."

Dixon is grateful to be alive after five years on the treatment. "Doc Igor has been a godsend, working hard and keeping ahead of this type of cancer for us," Dixon says. "He literally saved my life. When they diagnosed me with stage IV cancer in South Carolina back in 2009, they said I wouldn't see 2010. Thank God we met Doc Igor. He was able to find something that works."

The benefits of precision medicine are obvious. To start, the treatments are more honed than traditional cancer therapies with fewer adverse effects.

"The chemotherapy that I learned to use and treat patients with 25, 30 years ago is more like a weed killer that we put down on the lawn," says Paul Engstrom, acting chairman of the hematology/oncology department at Fox Chase. "We spray everything with the hope of killing the weed, but you can affect the grass and the other plants growing near the lawn." In contrast, the targeted therapies focus on the defective cancer cell. "Hopefully then the toxicity will be less and better controlled, and you can treat the cancer to the degree necessary to rid it from the body," Engstrom says.

Precision medicine can make the diagnosis less physically traumatic for patients. For instance, liquid biopsies — which can identify mutated cancer DNA in a patient's blood — are less invasive than traditional biopsies while still offering accurate information.

"You can get a lot of information from a blood sample these days," says Wafik El-Deiry, deputy Cancer Center Director for Translational Research and the co-program leader of Molecular Therapeutics at Fox Chase. "You can find mutations in genes that are released by the tumor so you don't have to necessarily get a biopsy. But more importantly, you can follow the level of these mutated genes over time with therapy." A liquid biopsy can also detect the emergence of evolving resistance to existing therapy.

GENE SEQUENCING: NO LONGER SCIENCE FICTION

With precision medicine becoming mainstream, the cost for its principal tool, gene sequencing, has dropped dramatically, making it more accessible to a wider number of patients. Todd Jackman, an evolutionary biologist and professor at Villanova University in Pennsylvania, was diagnosed with rectal cancer in 2014 when a colonoscopy revealed a large tumor. In his laboratory, Jackman studies the evolutionary biology and genomics of lizards like geckos and skinks, so his curiosity led him to sequence the DNA from his own tumor.

Jackman is part of a precision medicine clinical trial led by his radiation oncologist Joshua E. Meyer that is evaluating which patients with rectal cancer benefit from chemoradiation. For the trial, Meyer and his colleagues take biopsies of patients with rectal cancer before and after radiation treatment.

"We're looking at the genetics of these cancers and trying to determine if there are certain molecular signatures that can predict response or lack of response," says Meyer.

During his biopsy, Jackman asked for samples from his tumor. "I extracted the DNA from my tumor in the lab," he says. He also took samples from his cheek cells. Analyzing his genome has been educational, according to Jackman. "I feel like I have a better understanding of what happened to me," he says. The biggest lesson? "There is still a lot we don't know about the genetics of cancer."

Jackman worked with El-Deiry, his medical oncologist, and Fox Chase cancer genetics expert Michael Hall and bioinformatics expert Eric Ross to understand the limitations and issues with his normal and cancer genome DNA sequence. "It's an evolving area in precision medicine without clear national guidelines at this point," says El-Deiry. "There may be sensitive information in the normal and cancer DNA about risk that pertains to susceptibility to other diseases, and there may be information about risk to family members. There may or may not be a way to prevent or treat those diseases."

Next-generation gene sequencing is now standard for many patients at Fox Chase. “All patients with advanced-stage lung cancer, melanoma, and colon cancer, as well as some others, routinely receive gene sequencing,” Olszanski says. “A number of other cancers, such as breast and some of the germ cell tumors, may undergo other technologies to identify targets of importance.”

Despite its promise, precision medicine has some potential downsides. For example, patients can have adverse effects with targeted therapies. “Precision medicine often times targets problems in our DNA, but those problems are very similar to normal DNA as well, so adverse side effects can happen,” Olszanski says. These effects are usually different from those seen in traditional chemotherapy. “This has allowed oncologists to develop new ways of supporting patients on these particular therapies,” Olszanski says.

Overall, targeted therapies are better tolerated than traditional chemotherapy. “When feasible, they can be combined with chemotherapy, and that might allow us to lower doses of both the chemotherapy and the precision medicine to minimize toxicity while maintaining effectiveness,” Olszanski adds.

Although the cancer genome has been mapped, many questions remain. “One is we don’t know enough about what many of the gene mutations really mean. For most of the mutations studied for years, we don’t have drugs to target them,” El-Deiry says.

Christine Whitebread of New Jersey knows this only too well. In 2005, Whitebread was diagnosed with a carcinoid tumor near her rectum. The cancer later spread to her liver. Despite genetic sequencing done on her tumor as part of a Fox Chase clinical trial, her doctors have been unable to identify the mutation specific to her cancer. Although Whitebread has had some success being treated with Affinitor — the drug stunted tumor growth for four years — her physicians have not been able to match her with another targeted therapy. “Unfortunately, they haven’t had a lot of options for me lately,” Whitebread says.

Still, Whitebread is grateful the expanded options provided by precision medicine exist. “I figure it’s good to try something like that,” she says. “They might have found something for me. They might also learn something that will help others.”



Barry Dixon

The Precision Medicine Initiative that President Obama created as part of the 2016 NCI budget could help spur more and new research. As part of the budget, Obama has pledged \$215 million to the initiative, which he hopes will revolutionize medicine. As part of the program, the NIH will receive \$130 million to establish a national research cohort that will include at least 1 million volunteers. The NCI will receive \$70 million to increase its research on the genetic mutations linked to cancer.

RETHINKING CLINICAL TRIALS

The size and shape of clinical trials, however, will likely be altered by precision medicine.

“There used to be huge multicenter studies where researchers would enroll hundreds — sometimes thousands — of patients to prove or disprove a hypothesis for a certain indication that a medication may be safe or effective,” says Jean M. Gatewood, vice president of Clinical Research Operations at Fox Chase. However, this is changing.

Researching treatments based on genetic biomarkers, which occur in smaller numbers of patients, quite naturally lend themselves to smaller clinical trials that include only 30, 40, or 50 patients.

There are several precision medicine trials under way at Fox Chase. One trial, led by Engstrom, is studying patients with neuroendocrine tumors, like Dixon’s. “These are very rare tumors, and we know very little about how they grow, why they grow, and what causes them,” Engstrom says.

Last year, Engstrom's team began to work on molecularly characterizing 90 patients with neuroendocrine tumors. "We're about two-thirds through the study, and we have found that for the more aggressive forms of this tumor, there are specific molecular defects or lesions that are contributing to the growth of these cancers," Engstrom says. Now, the researchers are trying to find therapies that will target these defects.

Fox Chase is also collaborating with Caris Life Sciences® on three precision medicine studies to evaluate new targeted and immune therapies for molecular subtypes of colorectal cancer.

PUTTING ALL MUTATIONS INTO ONE BASKET

In a traditional trial, researchers enroll a large group of patients with a specific type of cancer, give them a certain treatment, and then track how many patients respond versus how many do not, according to El-Deiry.

"We've now realized that any type of cancer that people are aware of — colon cancer, breast cancer, or lung cancer — actually represents many subgroups or subtypes," El-Deiry says. "Molecular subtypes are very different in terms of what mutations are involved and how they would need to be treated with targeted chemotherapy agents."

This new way of thinking about cancer and its treatment is leading to new types of clinical trials. One type that is growing in popularity is called a "basket trial," in which patients are grouped by their mutation rather than their cancer type. "Basket trials allow us to run clinical trials more efficiently," says Raneeh Mehra, chief of head and neck hematology and oncology at Fox Chase.

A nationwide basket trial is now open for enrollment. In the NCI-Molecular Analysis for Therapy Choice Program (NCI-MATCH) trial, a large-scale, 10-arm trial, researchers will assess more than 20 drugs or drug combinations, each of which targets a different mutation. This study is somewhat of an expansion of the typical basket study design, says Mehra, who is the co-investigator of one arm of the MATCH study.

"There are different arms with several treatment groups," she says. "Everyone is not getting the same treatment. What makes the MATCH trial such a good example of precision medicine is that the treatment

is not based on a histology but whatever molecular alterations are in a specific tumor," Mehra continues.

The NCI is sponsoring other precision medicine trials, such as the Adjuvant Lung Cancer Enrichment Marker Identification and Sequencing Trial (ALCHEMIST); Lung Cancer Master Protocol (Lung-MAP); and the NCI's Molecular Profiling-Based Assignment of Cancer Therapy (NCI-IMPACT), all of which will attempt to match participants' genomic features with targeted therapies. In the Exceptional Responders study, researchers will study patients who had an extraordinary response to a cancer therapy in the hopes of finding molecular features that may predict that type of response.

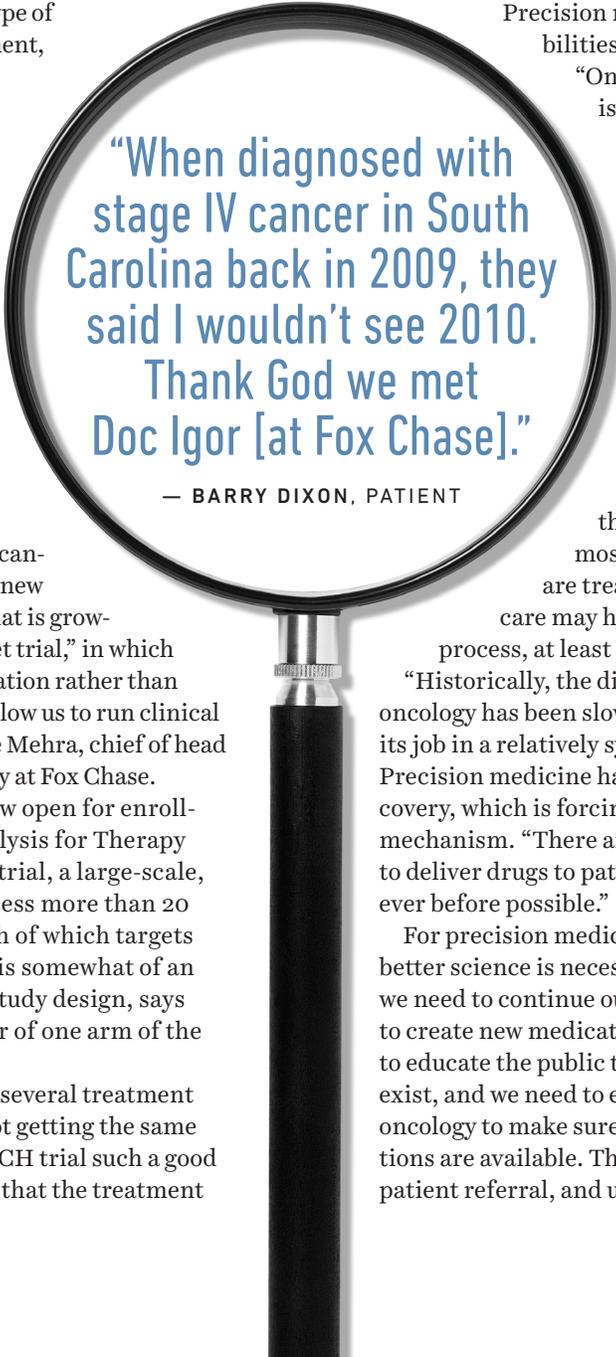
LONG-RANGE EFFECTS

Precision medicine offers many possibilities for the future of cancer care.

"One of the most exciting prospects is the possibility that based on a patient's tumor analysis — which is like a fingerprint — a match in a database may reveal that this tumor is likely to respond to a new treatment that is available as part of a clinical trial or even as a standard treatment," El-Deiry says. "The MATCH trial is trying to do that on a small scale with a few of the known genes, but in the future, this may become the way that most patients with advanced cancer are treated." In the long run, precision care may help accelerate the drug approval process, at least for oncology.

"Historically, the discovery of medications in oncology has been slow, and the FDA was able to do its job in a relatively systematic way," Olszanski says. Precision medicine has hit the gas pedal on drug discovery, which is forcing the FDA to change the current mechanism. "There are a number of new avenues now to deliver drugs to patients at an earlier point than was ever before possible."

For precision medicine to be a success, more and better science is necessary. "To make it more available, we need to continue our research to find new targets to create new medications," Olszanski says. "We need to educate the public that these medications actually exist, and we need to educate our colleagues outside of oncology to make sure they recognize these medications are available. This will ultimately lead to faster patient referral, and ultimately, better treatment." ♦



"When diagnosed with stage IV cancer in South Carolina back in 2009, they said I wouldn't see 2010. Thank God we met Doc Igor [at Fox Chase]."

— BARRY DIXON, PATIENT

Through Dan's Voice, Brenda Rich is helping head and neck cancer patients at



Fox Chase Cancer Center, where her husband was treated for throat cancer.

By Tina DiMarcantonio
Photos by Cardoni

A90

IEC TYPE II
HIGH (CrO₂) POSITION

DAN RICH USED HIS VOICE IN MANY ASPECTS OF HIS LIFE: as a husband, father, entrepreneur, coach, musician, and friend. He was someone who was passionate and vocal about his beliefs. In 2008, he was diagnosed with an aggressive stage IV throat cancer arising in his tonsil. He underwent chemotherapy, radiation, neck dissection surgery, and lymph node removal. However, the cancer returned in 2011 and this time had spread to his voice box, requiring its removal. Surgeons reconstructed his pharynx so that he could eat, and he had to breathe through a hole in his neck. However, the most difficult part for Dan was losing his voice.

Dan's wife Brenda was by his side through each step of the cancer journey. During Dan's treatment, Brenda joined the Fox Chase Board of Associates, a group of volunteer fundraisers who support patient care and cancer research through the work of member organizations. Later she would start Dan's Voice, a chapter of the Board of Associates, to help other head and neck cancer patients and their families by raising funds for diagnostic tools and patient care.

"Fox Chase made Dan and me feel whole again," Brenda says. "My husband was not looked upon as a man with disabilities. He was looked upon as a family man, a good husband — overall a good person. They treated him well. That's why I felt I needed to give back."

Brenda experienced cancer secondhand earlier in her life when her mother passed away from breast cancer at a young age. "Because of that insight and empathy, I wanted to make a difference to someone who needed a kind word or compassion," Brenda says. "I wanted to make an impact in a way that would be significant."

The Loss of Dan's Voice

In 2011, Dan and Brenda met Miriam Lango, a surgical oncologist at Fox Chase. They had consulted with a physician at another institution and knew that Dan's cancer had returned, but they were not yet aware of the extent of the recurrence.

After reviewing Dan's history and evaluating his scans, Lango confirmed that his cancer had returned. Then



Dan Rich is best remembered as a husband, father, and musician

"Fox Chase made Dan and me feel whole again. ... They treated him well. That's why I felt I needed to give back."

— BRENDA RICH, FOUNDER OF DAN'S VOICE

came the unexpected news: Dan's cancer was also in his voice box. Lango informed him that he would need to consider a more extensive procedure. "Dan previously had radiation so his options were limited, and nothing was potentially curative," Lango says. "We tried chemotherapy, but when cancers come back, they're always more aggressive. We tried to shrink it with chemotherapy and then operated."

Before the procedure, Lango discussed Dan's wishes with him. "He came to the decision to have the laryngectomy only after careful consideration," she says. "He had to weigh the potential of curative surgery and spending more time with his family against preservation of the voice box."

Lango also informed Dan that this type of surgery is never a "sure thing," especially in a recurrent cancer setting. "Sometimes the tumor, despite everything, might be bigger than it looks on scans," she says. "Tissue at the time of the surgery may reveal cancer under the microscope that is not obvious to the eye or on radiology scans. Surgeons can keep removing additional tissue in an attempt to eliminate all of the cancer, but the surgery may be extensive. I need to know what a patient will consent to before surgery."

In Dan's case, he agreed to removal of the voice box but not his esophagus if the cancer had spread to that area because he didn't want to lose the ability to eat. "When we performed the surgery, we found that the cancer extended along his esophagus into his chest," Lango explains. "I removed all visible cancer, but under the microscope, some cancer was left behind. I knew that I could not remove the esophagus to get all the cancer out because that was against Dan's wishes."

After the laryngectomy, Dan underwent more chemotherapy. He was able to eat by mouth rather than a feeding tube, but he had to communicate by writing on a white board. "We extended Dan's life, but ultimately, he died from his cancer," Lango says.

After his five-year battle with cancer, Dan died on July 3, 2013. After his death, Brenda spoke with Lango about a way to give back to head and neck cancer patients in Dan's name through Dan's Voice. Lango suggested they raise funds to purchase a video endoscope for the clinic to detect cancer recurrence earlier than other methods, and to help other patients possibly avoid a laryngectomy.

FAMILY PHOTOS COURTESY OF BRENDA RICH



Brenda Rich in her home

Giving Dan a Voice Again

In 2014, Brenda officially started Dan's Voice, and her immediate goal became to raise funds to purchase a high-definition video endoscope.

"On this particular video endoscope, the camera is situated at the very end of the scope, so in the clinic, you can see the voice box with great clarity," Lango says. "There's also a side arm, so you can perform a biopsy in the clinic, which is helpful to patients because otherwise you would have to put them to sleep."

With funds raised so far, Dan's Voice is more than halfway to its goal of \$50,000 for the endoscope, and they have also provided warm fleece blankets for patients in the hospital.

Brenda's long-term goal for Dan's Voice is threefold: to fund research, to purchase advanced diagnostic tools, and to provide comfort items for patient care. In addition, she hopes to establish a fund for head and neck cancer patients to be used to offset medical bills or to help ease the financial strain that can be caused by the cost of cancer treatment.

In 2014, Brenda met Paul Reitano, a tonsil cancer survivor who was interested in volunteering at Fox Chase. "After I successfully completed treatment and was feeling better, I wanted to be involved in whatever capacity I could be," says Reitano, also a patient of Lango's. "There

is a certain comfort in being on the Fox Chase campus or in the hospital."

Reitano was invited to a meeting of the Board of Associates and was introduced to Brenda. The two quickly became friends. "She and I just hit it off," he says. "We had a strong connection. Dan had the same cancer I did, but it was caught later, and unfortunately he wasn't as lucky."

When the two met, Brenda was already in the process of organizing a community fundraiser for Dan's Voice at the Horsham Pub, a local restaurant in her neighborhood, where they offered raffle baskets and silent auctions, and the community donated goods and services. With Reitano's help, Dan's Voice held a second event, the Dan's Voice Loud and Clear Music Festival: a concert to benefit Dan's Voice.

"Dan Rich was a musician, and in the spirit of the name 'Dan's Voice,' I thought, what better way to honor him than to get some unique voices and play loud and from the heart," Reitano says. "The idea of getting some great bands together to play in a show was really honoring the spirit of the man, and it tied the event to the name."

Reitano, who is now vice president of Dan's Voice, and Brenda enlisted the talents of "three of the best local, original acts of the last 25 years to perform," Reitano says. "It was really amazing. We had the support of the Ardmore Music Hall and from the bands, and everyone was very generous."

Reitano and Brenda plan to hold both events again, along with a Quizzo fundraiser. In addition to Brenda's long-term goals, Reitano is looking forward to providing education through Dan's Voice. "One thing that really resonates with me is the root of this type of cancer — human papillomavirus," he says. "There's an HPV vaccine that's incredibly safe and effective. It gets a lot of negative press, and not nearly as many people get the vaccine for all the wrong reasons."

Many of the patients who have undergone a laryngectomy at Fox Chase attend the Dan's Voice events, according to Lango. Brenda also volunteers her time once a week in Karen's Korner gift shop at Fox Chase, where she says many patients and their families can find a diversion from treatment.

"My son asked me, 'Why do you want to give back, Mom? You have such painful memories; why would you want to be around people who have cancer?'" Brenda says. "The answer is, as soon as you walk into that hospital, you're being treated with great care and respect, and you are made to feel there is hope. Fox Chase was good to all of us." ♦

A DAY (OR TWO) IN THE LIFE OF SURGICAL ONCOLOGIST JEFFREY FARMA

Precision, compassion, patience, determination, and dedication — these are key traits of any good surgeon. Luckily for his patients at Fox Chase Cancer Center, Jeffrey Farma possesses all of these traits. Also like any good surgeon, Farma never slows down. He is on the go from the moment he wakes up with his children — helping his wife Daria get them ready for the day — to the time he leaves the hospital some 13 hours later. Regardless of his busy schedule, it's clear that he always has time for his patients, just like all of the doctors on the surgical oncology team.

Fox Chase surgical oncologists split their time between seeing patients in the clinic and performing life-saving surgeries in the operating room, offering minimally invasive procedures when possible. Many, like Farma, are also heavily involved in charity work, research, clinical trials, and the mentoring of medical students, residents, and fellows.

However, Farma's not too busy to answer a phone call from a patient's mom, personally sort out why a pharmacy is scrimping on his patient's pain medication, reminisce with a patient about Tampa, Florida, where he completed his fellowship, or humbly accept a gift of pasta — all things that happened during a two-day observation of him in the clinic and the operating room.

A THURSDAY AT FOX CHASE:

CLINIC

(6:00 a.m.)

Helping the kids get ready for summer camp

It's a special day because Farma has the chance to help his wife Daria make breakfast for their three children, Olivia, 5, Ethan, 8, and Max, 10. He'll try to fit in exercise, if there's time. His drive is only about seven to 10 minutes, and during this time he often listens to music or NPR.

(7:00 – 8:00 a.m.)

Research meeting

As associate professor of surgical oncology, part of his job is to train up-and-coming surgical oncologists. This morning, he meets with three new fellows and three second-year fellows, helping them plan their research projects.

(8:30 a.m.)

Clinic starts in the Center's Young Pavilion

Farma usually meets with patients twice a week on Tuesdays and Thursdays and performs surgeries on Mondays, Wednesdays, and Fridays. He sees 25 to 30 patients in a full day at the clinic with five to seven new patients each day who are diagnosed with

sarcoma, gastric cancer, melanoma, and colorectal cancer.

Today, he's working with ambulatory care clinic nurses Kimberly Gaier and Christina Griffith, as well as Joyce Au, a second-year surgical oncology fellow. Aaron Bennett, a Temple University surgical resident and third-year Temple medical student, is shadowing him.

(8:35 a.m.)

First patient appointment of the day: James Levens, 71

After a few minutes of catch-up, Farma speaks to Levens about how he'll need surgery to treat a tumor in the upper portion of his stomach. Farma then encounters a common concern among cancer patients: fear of the unknown.

"I've been fooling around online and scaring myself about what can happen," Levens says, and so Farma attempts to put him at ease.

"Stomach cancer is always concerning and there are risks to any surgery we do, but the good news is that we operate on patients like you all the time," Farma says. He adds, "Sometimes we use chemotherapy and radiation combined, but for your situation, we're going to do just chemotherapy and surgery."

Levens seems relieved. He's scheduled back in a few weeks to start chemotherapy.



“There is not one day that is routine. I learn something new about patients, life, and cancer on a daily basis.”

— JEFFREY FARMA, SURGICAL ONCOLOGIST

(10:45 a.m.)

Quick break to do office work

Farma takes a break from speaking to patients. He stops by to say hello to his wife Daria, a physician assistant in the anesthesia department. He then reviews X-rays, catches up on emails, and returns phone calls. He's easily accessible to patients and gives out his personal cell phone number and email address.

It comes in handy a few minutes later when he gets a call from the mother of one of his patients. She's confused about an aspect of her daughter's treatment, but he sorts it out before jumping back into clinical appointments.

(11:10 a.m.)

Appointment with Jon DiPippo, 67, for follow-up on surgery to treat Merkel cell carcinoma, a type of skin cancer

Farma asks DiPippo, his tenth patient of the day, how

he's feeling. He responds that "everything feels good." Farma suggests he start planning for radiation treatment and refers him to radiation oncologist Shelly Hayes. They part ways — but not before DiPippo's wife hands Farma a giant Tupperware container full of homemade penne pasta with meatballs as a "thank you" gift and plants a kiss on his cheek.

Nurse Gaier says Farma gets a lot of gifts like this one.

(11:45 a.m.)

Appointment with Anthony DiBartolo, 68, who has both colon cancer and large cell lymphoma

DiBartolo experienced rectal bleeding, which is a signal for colon cancer. In addition, he had a lymph node in his stomach and a mediastinal mass. He's had two rectal surgeries in the past three years and chemotherapy to treat the two types of cancer he's coping with simultaneously.

DiBartolo's is one of the more complicated cases



Farma in the clinic

JOSEPH V. LABOLITO

he's treated, but Farma says these are the types of complex cases that the doctors at Fox Chase are experts in treating.

(12:00 p.m.)

Appointment with Jimmy Shepherd, 78, for stomach surgery follow-up

Shepherd's is another tough case in which Farma performed surgery to remove his entire stomach, and a few days later, Shepherd required open heart surgery. It's how Shepherd got his nickname from the nurses around Fox Chase and nearby Jeanes Hospital: "Iron Man."

The sprightly 78-year-old tells Farma he suffers from a little nausea; Farma says it's because he's eating meals that are too big.

"You've had your stomach removed. You have to eat five or six small meals a day," Farma says. "Graze like a sheep."

(12:30 p.m.)

Lunch

On the menu: his gift of penne and meatballs.

(1:00 – 4:00 p.m.)

More clinic appointments with patients

(4:00 – 5:00 p.m.)

Meeting with clinicians and basic scientists about implementing melanoma translational research projects

(5:00 – 6:00 p.m.)

Rounding on his patients in the hospital

(6:30 p.m.)

Drives home

A FRIDAY AT FOX CHASE:

OPERATING ROOM

(6:00 a.m.)

Rise and shine

(7:00 – 8:00 a.m.)

Pre-operation conference with surgical oncology fellows

(8:30 – 9:00 a.m.)

First operation of the day: Tara Davis, 42

In the operating room, Farma is once again flanked

by Au and Bennett, but today also enlists the help of nurse Monica Scanlan. Farma performs a surgery to completely remove a tumor on Davis' left lower abdomen that was previously biopsied. She has a dermatofibrosarcoma protuberans, a rare type of soft tissue sarcoma that develops in the deep layers of the skin.

He takes a resection of the tumor, surrounded by fat, carefully cutting 2 centimeters around the 1.8 millimeter sarcoma. Farma explains that if the margins surrounding the tumor come back negative, there's a very low chance of the cancer coming back.

The operation goes well. Davis will be awake in a few hours and released the same day.

(10:50 a.m.)

Second surgery begins: Karen Kolendorski, 30

Today, Kolendorski is having a total laparoscopic gastrectomy, or removal of her entire stomach. It's hard to believe you can live without your stomach, but Scanlan explains how. She says that during the operation, Farma will take out Kolendorski's stomach, then cut part of the small bowel and connect it to meet the esophagus.

"It's like cutting out the middle man," she says.

Kolendorski's operation is preventive. She has an inherited gene called *CDH1*, which puts her at a high risk of developing the gastric cancer that both her mother and sister developed.

Removing her stomach helps reduce the chances of developing cancer. Farma points to her X-ray. Kolendorski also has a large cyst on her spleen, which is blocking where he needs to operate, making the operation slightly more complicated. However, Farma isn't too worried.

He brings up his music playlist on his iPhone. A Smiths song fills the room, and he makes the first incision.

(5:00 p.m.)

Surgery complete

"It went well, a little longer than I expected," Farma says, sounding tired but pleased. He's got one more operation to perform today, an ileostomy reversal from 6:00–7:30 p.m.

(8:00 p.m.)

Last surgery finished

Farma wraps up his last surgery. After a 13-hour day, he heads home to welcome some friends over for a barbecue. He can relax with family and friends over the weekend so he is refreshed for Monday.

LIFE IN FULL BLOOM AFTER CANCER

BY LISA BROIDA BAILEY

Like many women in their early thirties, Brooke Fuller is a busy working mom. She is a floral designer at Tropic-Ardens, Inc., her family-owned/operated business in Quakertown, Pennsylvania. There, she specializes in designing floral bouquets for all occasions, such as weddings, funerals, birthdays, and anniversaries. She and husband, Scott, are parents to son Pierce, who turned four in 2015. However, in early 2014 at the age of 30, Fuller experienced unexplained weight loss and rectal bleeding. The last thing to cross her mind was cancer.

"I went to my family doctor because of my symptoms and was referred to a GI specialist who performed a colonoscopy. The test uncovered a tumor," recalls Fuller, who was very surprised to be diagnosed with stage II rectal cancer. Her gastroenterologist referred her to Jeffrey Farma, a surgical oncologist at Fox Chase Cancer Center.

"I was impressed during my first call," shares Fuller, who was connected to Debbie Scanlon, a

nurse navigator. "Debbie scheduled me for an appointment within a few days in the multidisciplinary clinic. She made me feel very secure in my decision to choose Fox Chase." Scanlon also arranged for Fuller to meet with medical oncologist Michael Hall, director of the GI Tumor Risk Assessment Program, and Eric Tetzlaff, a physician assistant. They referred her to a geneticist and a fertility specialist because of Fuller's possible interest in having more children. "They were cognizant of my young age and accommodated my unique needs as a cancer patient," Fuller says.

Next, gynecologic oncologist Stephanie A. King was brought in. King directs the minimally invasive gynecologic surgery program at Fox Chase. "Dr. King was fantastic. She explained that because I was going to have radiation on my abdomen, she could perform a preventive procedure to protect my fertility," says Fuller. Once Fuller recovered from the ovarian transposition, she began a five-and-a-half week course of



Brooke Fuller at her floral shop in Quakertown, Pennsylvania

chemotherapy and radiation, the latter overseen by radiation oncologist Joshua Meyer.

Her tumor responded to the treatment and she was deemed a surgical candidate. Farma performed a minimally invasive laparoscopic rectal resection, as well as an ileostomy, or an opening in the belly made during surgery in which the end of the ileum (the lowest part of the small intestine) is brought through the opening to form a stoma, usually on the lower right side

JARED CASTALDI



“[Members of the Fox Chase team] were cognizant of my young age and accommodated my unique needs as a cancer patient.”

— BROOKE FULLER, CANCER SURVIVOR

of the abdomen. Following surgery, Hall prescribed another four-and-a-half months of chemotherapy to prevent recurrence. When Fuller

was healthy enough for a third surgery, Farma was able to successfully perform a reversal of the ileostomy to restore function of the rectum.

As for her genetic testing, all results came back negative. Although Fuller had a few distant relatives who had rectal cancer, no definitive genetic links were found. Now with treatment behind her, Fuller enjoys her work and spending time with her son — activities that include playing with Legos and hunting for bugs. “I am forever grateful to Fox Chase for making that possible,” she says. “I will never forget my team of doctors and nurses.”



Patient Connie Seymour
with pet visitor, Rocky

A LABOR OF LOVE

Volunteers Provide Valuable Services at Fox Chase Cancer Center.

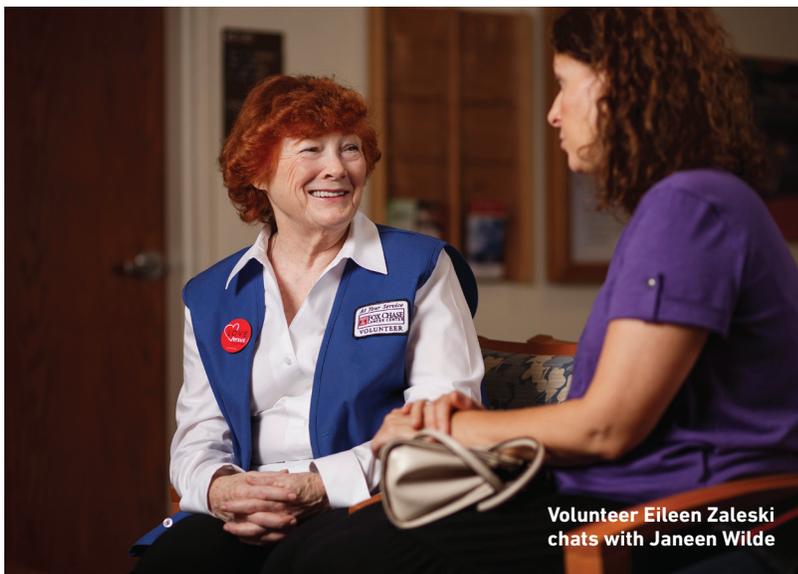
When Eileen Zaleski talks about her volunteer work at Fox Chase, people say it must be depressing. “I tell them, although it’s true that people sometimes get sad news, more often than not the report is very

encouraging.” Zaleski, a former nurse, wanted to give back to the medical community after her retirement. For 10 years, she has volunteered once a week in the Center’s family surgical waiting lounge, where loved ones can sit, sometimes for long hours, while

a patient is in surgery. During their wait, volunteers like Zaleski provide updates on each patient’s progress.

Sometimes a patient will have a large support system waiting for them. Other times, a spouse or child may be the only ones there.

GENE SMIRNOV



Volunteer Eileen Zaleski chats with Janeen Wilde

“The people waiting by themselves may need more words of encouragement from us so they don’t feel so alone,” Zaleski says. Regardless, she makes it her mission to provide comfort however she can. “It’s a privilege to be even just a small part of Fox Chase’s mission.”

“People at Fox Chase — from clinicians to researchers — are so dedicated to prevailing over cancer, you can’t help but be inspired to give back.”

— BOB NEUBERT, VOLUNTEER

Zaleski is just one of the roughly 360 active volunteers at Fox Chase; about half of those individuals came on board in 2015 alone. The volunteers range from high school and college students to retired individuals. Although many of the volunteers work directly with patients and their loved ones, others provide valuable assistance with research.

For father and son Bob and Ben Neubert, their decision to volunteer has personal roots. Bob, the

father, became a patient three years ago. During his recovery, he met Alana O’Reilly, a researcher and associate professor at the Center. As a former chemist and current entrepreneur, Bob felt compelled to help with research-related endeavors.

He became involved with the Immersion Science Program, a Fox Chase program where high school students have the opportunity to conduct hands-on lab research at the Center. “I was a disadvantaged youth, and there was a high school science teacher who changed my life’s trajectory by getting me involved in an immersion science-type program,” Bob says. “I wanted to help a similar program, and there is an incredible vehicle at Fox Chase.”

Bob has also been able to witness Ben partake in the very research he supports. “Volunteering in the lab has profoundly impacted my career path and given me opportunities I wouldn’t have had otherwise,” Ben says.

Ben’s research has encouraged him to major in biophysics or molecular biology when he goes to college next year. Meanwhile, Bob’s work has inspired him to become a full-time professor in entrepreneurship. “People at Fox Chase — from clinicians to researchers — are so dedicated to prevailing over cancer, you can’t help but be inspired to give back.”

FURRY HELPERS

Not all volunteers at Fox Chase are human — some have fur and four legs, such as the handful of registered pet visitation dogs.

Marley is an 8 ½-year-old Boxer, owned by Rusty and Lauri Osterstock. Once a week, the Osterstocks take Marley around the Center to visit with patients and staff members. “We’ve seen patients hug him and begin to cry,” says Lauri. “They’ll tell us they couldn’t have gotten through treatment without him. You can’t help but cry too.” Marley once impacted a patient so much that a donation was made to Fox Chase in his name. “I swear sometimes there’s a human being in there,” says Rusty. “He’s just a sweet soul.” Lauri adds, “We’ve had great dogs in our lives, but there is just something special about Marley.”



Marley with nurse Karen Lorek

Rocky is an 8-year-old chocolate Labrador retriever who volunteers once a week with Connie Mumper. “He lights up whenever someone approaches him,” Mumper says. She refers to Rocky’s tail as his “happy meter:” the faster it wags, the happier he is. Mumper recalls a time when a woman at Fox Chase pet Rocky for several minutes in silence. Once she was finished, she told Mumper, “I was having a really bad day, but now I feel a lot better thanks to him.” Mumper adds, “I wish I had a camera to capture everyone’s faces when they see him.”



Rocky with John and Patricia Freeberry



From left: Donors Frank and Suzanne Binswanger

SECOND ANNUAL IN VINO VITA

In April 2015, more than 400 donors, patients, physicians, staff, and friends descended on the Hyatt at the Bellevue in Philadelphia for the second annual In Vino Vita benefit and wine auction—Fox Chase Cancer Center’s signature fundraising event. They mingled, bid on silent and live auction lots, enjoyed dinner — and plenty of wine. When they emerged, Fox Chase had \$600,000 more to infuse directly into patient care and research.

The evening’s highlight occurred when close to 125 guests came together to raise close to \$300,000

for the special pledge: a full renovation of the Fox Chase family surgical waiting area. Notable donors included surgical oncologist John Daly and board members Tom Hofmann, Bill Federici, and Don Morel. Renovations of the space, which should be completed by spring 2016, will render it twice as large and with enhanced comfort, natural light, and amenities.

With twice as many guests and dollars raised, In Vino Vita 2015 set a tremendous precedent for next year’s affair, slated to take place on April 9, 2016 at Vie in Philadelphia.

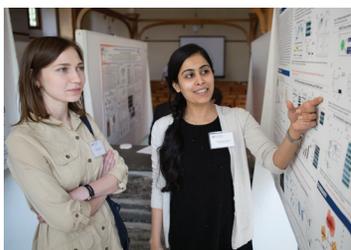
EARTHQUAKE AID IN NEPAL

Last spring, Fox Chase Cancer Center research associate Yuwaraj Kadariya traveled to several villages in the Federal Democratic Republic of Nepal to provide aid to the victims of the devastating earthquake that struck the country earlier this year. As the leader of the medical team, Kadariya helped set up a mobile medical camp for almost four weeks using medical supplies from Fox Chase, including intravenous solutions, infusion equipment, and antibiotics to treat the victims. Kadariya and his team also distributed relief materials (such as food and tents) and helped villagers rebuild temporary shelters. In all, Fox Chase donated more than \$6,000 toward the cause.



Yuwaraj Kadariya

20TH ANNIVERSARY OF RESEARCH SYMPOSIUM



Graduate students Oxana Dmitrieva and Nehal Solanki-Patel

In 2015, the Postdoctoral and Graduate Student Research Symposium marked its 20th anniversary. The conference provides Fox Chase Cancer Center’s trainee community with an opportunity to present their research as oral and poster presentations. To celebrate this milestone, the event was held at Knowlton Mansion, a local historic venue in Philadelphia. Three of the Center’s postdoctoral alums, Katrina Cooper, Caretha Creasy, and David Allman, served as keynote presenters. In response to a growing need to educate trainees about additional careers in science, Fox Chase invited five speakers (including four Fox Chase alums) to discuss their career paths: Josh Miller, Joy Little, Matt Hartman, Zachary Baquet, and Marie Maradeo.

IN VINO VITA: SCOTT SPITZER; KADARIYA: JOSEPH TESTA; SYMPOSIUM: JEFFREY RHOADES



President & CEO Richard I. Fisher (center) pictured with Flyers Wives

FLYERS WIVES SUPPORT WOMEN'S CANCERS

With a \$400,000 gift pledged to Fox Chase Cancer Center, the Philadelphia Flyers Wives are hoping to put an end to women's cancers. The organization, which has supported community initiatives in the region for nearly 40 years, designated their gift to several efforts at Fox Chase focused on breast cancer prevention and research.

"This natural partnership brings together two leading organizations committed to positively impacting the lives of people in the region," says Philadelphia Flyers chairman Ed Snider. "The Flyers Wives look forward to playing an integral role in the fight against cancer."

They will do so by supporting Fox Chase's mobile screening unit, a van equipped with state-of-the-art screening technology. The

only one of its kind in the region, the mobile screening unit provides convenient and potentially life-saving screening services to women in the community. Another initiative receiving generous support is a new technique using nuclear medicine with breast imaging to improve screening of dense breast tissue.

The Flyers Wives' funds will also bolster several areas of research being undertaken by Jose Russo, director of the Irma H. Russo, MD, Breast Cancer Research Laboratory. Russo's lab is attempting to mimic pregnancy hormones, which have been shown to protect women from developing breast cancer, with a natural hormone called human chorionic gonadotropin. They are also exploring how to control the invasion and metastasis of triple-negative breast cancer by studying novel therapeutics.

Fox Chase Cancer Center surgical oncologist **Elin Sigurdson** has been elected to the Executive Council of the Society of Surgical Oncology (SSO) for a three-year term. The council, which consists of 18 members, acts as the governing body and board of directors for the SSO, guiding the Society's strategic direction and managing its affairs. Founded in 1940 as the James Ewing Society, the SSO marks its 75th anniversary this year as the pre-



mier organization for surgeons and health care providers dedicated to advancing and promoting the science, education, and practice of cancer surgery worldwide.

The 2,800-member Society's focus on all solid-tumor disease sites is reflected in its Annual Cancer Symposium; monthly scientific journal, the *Annals of Surgical Oncology*; educational initiatives; and committee structure.

Fox Chase Cancer Center pathologist and Temple University Hospital alum **Tahseen I. Al-Saleem** has been recognized by the Iraqi Medical Sciences Association with its Lifetime Achievement Award for excellence in



medical sciences. In Iraq, Al-Saleem was a professor of pathology and taught students and fellows in the areas of medicine, pathology, and cancer research. He also

served as president of the Iraqi Board of Pathology and consulted with the World Health Organization to establish a cancer registry. He collaborated on the creation of kidney and prostate cancer databases at Fox Chase and works closely with the Center's lymphoma group. He also chairs the organizing committee of the Atlantic Regional Hematopathology Meeting, held yearly at Fox Chase.

U.S. NEWS & WORLD REPORT

Fox Chase has been ranked 21st among the nation's top 50 hospitals for cancer care in *U.S. News & World Report's* Best Hospitals 2015-2016 rankings. Fox Chase was also cited as high performing in the areas of urology; gynecology; and ear, nose, and throat. "Our remarkable standing in this year's *U.S. News & World Report* national ranking reflects not only the hard work and mission-driven mindset of everyone who works at Fox Chase, but illustrates the great strides our Center is making in cancer science and medicine," says Richard I. Fisher, president and CEO of Fox Chase.

ANNUAL CELEBRATION FOR SURVIVORS

On October 17, Fox Chase Cancer Center partnered with Temple University Athletics to host the 5th Annual Celebration for Survivors. Patients, caregivers, staff, faculty, volunteers, and friends celebrated survivorship by tackling cancer at the Temple Owls' home football game.

"We applaud Temple Athletics for expanding its annual breast cancer awareness game to include patients with all types of cancer this year," says Crystal Denlinger, a medical oncologist at Fox Chase who heads the survivorship program.

Fox Chase kicked off the festivities with a tailgate party. Then the Owls hosted the University of Central Florida Knights at 7:30 p.m. at Lincoln Financial Field in Philadelphia. Just before kick-off, more than 100 survivors took to

the field wearing shirts color-coded to represent their individual cancer types.

Six Fox Chase patients shared their individual journeys in brief videos that played during the game. "I am honored to be a part of this event to help celebrate can-

"This is a wonderful opportunity to help raise awareness for cancer survivorship."

— LAWRENCE JAMES,
CANCER SURVIVOR

cer survivorship," says Lawrence James, a cancer survivor who was treated at Fox Chase and was the recipient of the official game ball. "This is a wonderful opportunity to help raise awareness for cancer survivorship."



Cancer survivors Dick Millham (in white) and Julia Sefton (in pink)



Laurel Society dinner

GIVING THANKS TO LAUREL SOCIETY DONORS

On October 8, supporters of Fox Chase Cancer Center gathered in the tented courtyard for Rising Together, the annual Laurel Society Recognition Dinner, celebrating Fox Chase donors of \$1,000 or more in a year.

Both keynote speaker Betsy Plimack, a medical oncologist, and patient speaker, Tina McDonnell, expressed gratitude for the lessons they have learned from Fox Chase patients.

The continued health of friends and family treated at Fox Chase was the focus of the 2015 Laurel Society Awardee Tom Hofmann. A longtime Fox Chase board member and generous donor, Hofmann told his loved ones' stories "to illuminate the uniqueness of what we have at Fox Chase — the combination of world-class expertise with a personal commitment to every person who comes through the door."

Reflecting the evening's theme, McDonnell asked each person who makes Fox Chase's work possible to stand: donors, patients, clinicians, scientists, and staff. Guests shook hands with their neighbors and the words "thank you" echoed throughout the tent.

PAWS FOR THE CAUSE

On Sunday, October 18, about 400 dogs and their owners enjoyed the beautiful fall weather while raising money for cancer research at Fox Chase Cancer Center's 16th annual Paws for the Cause event. Participants enjoyed music, food, pet photos, contests, and prizes. Also in attendance were various local rescue organizations and pet-related vendors. The highlight of the annual event was the one-mile dog walk.

Prostate cancer survivor Arland Hotchkiss and his dog, Rafa, were this year's ambassadors. "I wanted to get involved with Paws for the Cause to honor the people I love who have been affected by cancer," says Hotchkiss, whose team, 90-mile-an-hour Lloyd, was named in memory of a close friend, Lloyd Vernon. "My rescue dog, Rafa, and I are both survivors, and our goal is to raise funds for cancer research that will benefit patients now and in the future."

Dawn Timmeney, Philadelphia's Fox 29 News anchor, and her dog, Bhodi returned as guest hosts for the event, which raised about \$35,000 toward pancreatic cancer research.

"We were honored to host this year's Paws for the Cause event



and help raise money for cancer research and prevention programs," says Timmeney. "This family-friendly event welcomes the entire Fox Chase community."

For more information on next year's Paws for the Cause, visit www.fox-chase.org/events/paws.

Clockwise from top: Dog walk participants; Julia Goplerud, Debra Sniger, Dawn Timmeney, and Judy Bernstein; President & CEO Richard Fisher with Bailey; Arland Hotchkiss and Rafa

PAWS FOR THE CAUSE: PAUL REITANO; SCHULER: JOSEPH HURLEY



MATTHEW SCHULER

In July, the Music Therapy Program at Fox Chase Cancer Center featured a live musical performance by Matthew Schuler, who appeared on the singing competition show, "The Voice." A native of Levittown, Pennsylvania, Schuler returned to the area fresh from the release of his debut single, "Invincible."

Schuler performed several songs for staff and patients who gathered in the cafeteria. Medical oncologist Crystal Denlinger presented Schuler with an award on behalf of the Cancer Survivorship Program for his dedication to survivors through the power of song. Schuler's visit also included stops around the Center to sing.

A BRIGHTER FUTURE FOR LUNG CANCER PATIENTS

Four Years in, the Lung Screening Program Continues Saving Lives.

BY KATHY HOLLIMAN

A large study sponsored by the National Cancer Institute (NCI) in 2011 had a major impact on lung cancer prevention at Fox Chase Cancer Center. The results showed that low-dose computed tomography (CT) screening can help identify people with lung cancer and that this early identification and treatment can reduce the overall risk of dying from the disease by 20 percent.

Fox Chase took swift action after the report was published and launched its own lung cancer screening service for people between the ages of 55 and 74 who have smoked a pack of cigarettes a day for at least 30 years. Now in its third full year, the program continues its commitment to presenting patients with fast results.

“Anyone who is screened through our program receives a comprehensive evaluation and good follow-up. Same-day results dramatically reduce anxiety because our patients don’t have to wait long for results,” says Rohit Kumar, a pulmonologist and leader of the lung cancer screening service.

Hossein Borghaei, chief of thoracic medical oncology and director of lung cancer risk assessment, helped organize the screening program with a multidisciplinary team of medical

oncologists, surgeons, and nurses. According to Borghaei, there were some challenges in the early days. Most importantly, Medicare and some insurance plans didn’t cover the cost of screening. Because Fox Chase physicians considered the preventive screening so important for people at high risk of lung cancer, they applied for a grant to cover the cost for people who couldn’t afford it. Fortunately in late 2014, Medicare changed its policy to cover screening.

not they met the criteria. If they did, we were able to offer them same-day service,” he says. “They met with a nurse practitioner, got a CT screen, and had the results immediately. Next, the patients would discuss the results with a nurse practitioner and knew their next steps before leaving Fox Chase.”

Dedication to seamless same-day results continues today, Kumar says. Patients referred for screening talk first with a nurse navigator

“Anyone who is screened through our program receives a comprehensive evaluation and good follow-up.”

— ROHIT KUMAR, PULMONOLOGIST

The early organizers also received a special grant from Fox Chase to collaborate with students from the Fox School of Business at Temple University on a business plan to set up the screening program. “After months of meetings and some very interesting conversations that involved us learning about each other’s end of the business, we were presented with a very detailed plan,” Borghaei says.

“We established a system where interested people were first told over the phone whether or

who discusses their eligibility for the program and schedules the screening. Then a nurse practitioner guides them through the process, discusses their results, and talks with them about any follow-up needed. Current smokers are then referred to the smoking cessation program at Fox Chase.

The program is growing, Kumar says. In fact, strong collaboration with colleagues at Temple University Hospital has resulted in a joint screening program that provides same day service on both campuses.

SOMATOM



Hossein Borghaei and Rohit Kumar peer through a CT lung screening machine



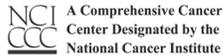
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10 years ago stage IV cancer made my world stop.

Fox Chase gave me my life back.

Jay Hyman, 50
Diagnosed with Stage IV Kidney Cancer

Jay was just 40-years-old when he was diagnosed, and Fox Chase Cancer Center was one of the few places that offered a new treatment through a clinical study. Ten years later, Jay is still on that same medication and he shows no sign of disease. Oncologists at Fox Chase are nationally recognized for their contributions in developing new treatment options for advanced cancer. Today, Jay is spending quality time with his sons and looking ahead to a bright future.

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