Research advances, novel surgeries, and personalized, next-level care foster health and hope for cancer patients at UTSW.

THE FUTURE OF CANCER CARE, TODAY
FALL 2018
In cancer medicine, patients’ fates don’t always pivot on dramatic breakthroughs — but commonly rely on a stream of small victories. This is a war being won step by step, with one research finding leading to another, a new technology building on a previous one, and constant attention to fundamentals such as screening and early detection, innovation and discovery, clinical trials, patient education, and evidence-based care.

Any one of these factors might give a cancer patient an edge on survival. Together, they can help turn the tide.

In this issue of The Vanguard, our centerpiece (page 8) focuses on Felicia Whisenhunt, whose journey to survival had many steps. It began with knowing how important regular checkups were. Once breast cancer was discovered, she carefully chose where to seek the many treatments she needed. Informed by genetic testing, she pursued further surgery to prevent future cancers. And she relied on a highly proficient team to perform a complex, multipronged operation that included a state-of-the-art breast reconstruction.

Many other facets of what UTSW Simmons Comprehensive Cancer Center offers can likewise improve patient outcomes. Here, we highlight a few:

- A cutting-edge device that better detects bladder malignancies (page 5)
- A program that identifies, evaluates, and treats people at high risk for pancreatic cancer (page 12)
- Research that could reveal secrets to boosting innate immunity to keep patients healthier, or even to battle cancer cells (page 14)

Furthermore, helping individuals not just survive, but thrive, is core to our mission. In these pages, we describe a program offering free makeup and hair consultations (page 4), and we provide dietary information (page 6) to support patients in treatment. We also announce the new director of our Richardson/Plano cancer clinic (page 4), a location that allows nearby patients to receive state-of-the-art care more conveniently, freeing time and energy for other life pursuits.

As a Comprehensive Cancer Center, we address the host of challenges that cancer might pose. Every battle can help win the war.

Sincerely,

CARLOS L. ARTEAGA, M.D.
Director, Harold C. Simmons Comprehensive Cancer Center
Loss & Recovery
After months of treatment and a double mastectomy, Felicia Whisenhunt benefited from an innovative breast reconstruction procedure.

Can Pancreatic Cancer Be Prevented?
How researchers are staying a step ahead of this dangerous disease.
The treatments you need to fight cancer sometimes take a toll on your appearance. Now, a new partnership can help. UT Southwestern Medical Center’s Harold C. Simmons Comprehensive Cancer Center, together with the nonprofit Suite HOPE (Helping Oncology Patients Esthetically), is offering free makeup and hair consultations for the Center’s patients.

People battling cancer can make appointments at the Simmons Comprehensive Cancer Center clinics in Dallas and at Richardson/Plano (214-702-8696), where a certified oncology esthetician offers:

- Help with selecting wigs
- Advice on skin care
- Individual makeup tutorials that focus on restoring the appearance of eyebrows and eyelashes

Suzanne Cole, M.D., is a medical oncologist at UT Southwestern and the Director of the University Hospital Simmons Cancer Clinic at UT Southwestern Medical Center at Richardson/Plano.

Dr. Cole earned her medical degree at UT Southwestern, where she also completed her residency in internal medicine. She received advanced training in hematology and medical oncology through a fellowship at the University of Texas MD Anderson Cancer Center in Houston. She is board-certified in hematology and oncology.

Dr. Cole spent eight years caring for patients in their local communities before she joined the UT Southwestern faculty in 2018.
A BETTER WAY TO SPOT BLADDER CANCER

When Mansfield physician Dr. Robert McMichael was diagnosed with bladder cancer in 2017, he read everything he could about the disease. He learned that the best care included exams conducted with a not-yet-approved medical device called a blue-light flexible cystoscope.

Dr. McMichael told his doctors at UT Southwestern that he wanted his bladder exams performed with the blue-light scope. Fortunately, researchers at UT Southwestern had been testing this new technology, so when the Food and Drug Administration cleared the device for use, UT Southwestern was one of just four institutions in the country to offer the blue-light scope for outpatient use. Dr. McMichael became patient No. 1.

“Blue light works better than white light because we instill a photosensitizing agent into the bladder that’s taken up by cancer cells and not by normal cells. Subsequently, when you shine a blue light on it, the cancer cells look pink and normal cells don’t, so there’s a big contrast,” says Dr. Yair Lotan, Helen J. and Robert S. Strauss Professor of Urology and a member of Simmons Comprehensive Cancer Center. “We know that we can miss anywhere from 10 to 20 percent of cancers when we look with white light.”

Standard treatment for early-stage bladder cancer consists of surgically removing the cancer lesions, along with immunotherapy. People then return for regular cystoscopy exams to check for signs of new cancer lesions.

Blue-light cystoscopy had previously been available at UT Southwestern and other institutions for use in the operating room, but it wasn’t available in a flexible scope that could be used in an outpatient setting until now. The rigid cystoscope used in the OR would be too uncomfortable for patients who were awake.

Dr. Lotan says UT Southwestern is one of just a handful of institutions in the country and the first in Texas to offer blue-light flexible cystoscopy. “We’re detecting cancer that does not look very different from the normal lining, but it’s really there, and we’ve been missing it for a long time.”

UT Southwestern Again Tops U.S. News & World Report List

U.S. News & World Report again ranked UT Southwestern as the leading hospital in Dallas-Fort Worth and the No. 2 hospital in Texas. Also, seven clinical specialty areas at UT Southwestern are ranked among the top 50 programs in the country:

- Geriatrics
- Neurology and neurosurgery
- Diabetes and endocrinology
- Nephrology
- Urology
- Pulmonology
- Orthopedics

According to a Dartmouth Institute Study, one-year cancer deaths are 25 percent lower for patients with the four most common types of cancer who receive care at National Cancer Institute-designated centers like Simmons Comprehensive Cancer Center.
Eating With CANCER

From sugar to supplements, our experts weigh in on what to eat and what to avoid.
When you’re fighting cancer, you’ll find all kinds of information about how what you eat might affect your treatment and recovery. How can you sort out the facts from the hype? Here, our registered dietitians—who all specialize in cancer care—answer the questions they’re most often asked.

Q. What foods can help people with cancer best maintain their health, strength, and energy?

It depends on each person’s diagnosis and treatment plan and any side effects he or she is experiencing. Not getting enough calories or protein can lead to slower recovery times and delays in treatment, so most people need to make sure they are getting enough protein and consuming a variety of foods. In general, a more plant-based diet is often appropriate during therapy. The American Institute for Cancer Research (AICR) recommends:

- A diet rich in whole grains, vegetables, fruits, and beans
- Limiting foods high in fat, refined starches, or added sugars
- Limiting processed meat, and restricting red meat to 12 to 18 ounces per week
- Choosing water and unsweetened beverages
- Limiting alcohol consumption. For cancer prevention, it’s best not to drink alcohol.

Q. Are there supplements you recommend that people with cancer either add or avoid?

We do not recommend supplements unless we know or suspect a deficiency, which might happen with vitamin D, calcium, or vitamin B-12. Supplement manufacturers do not have to prove that their products are effective, pure, or safe. Some supplements can interfere with chemotherapy or radiation treatments and might increase cancer risk. If you do take vitamins or herbal supplements, let your medical team know.

Q. Does sugar “feed” cancer?

Sugar does not “feed” cancer cells any more than it feeds the other cells in your body. When you eat a lot of sugar, your body produces more insulin, and increased insulin levels are associated with higher cancer risk.

We do not recommend limiting natural sugars in whole foods such as fruit and starchy vegetables, or complex carbohydrates in whole grains and beans. The American Heart Association recommends keeping added sugar below 100 calories per day (about six teaspoons) for women or 150 calories per day (about nine teaspoons) for men.

Q. How much alcohol is OK?

Even small amounts of alcohol pose some cancer risk. The AICR recommends no more than one drink per day for women or two drinks per day for men. Alcohol can increase estrogen levels, so women with hormone-sensitive cancers should consider cutting back to one to two servings per week or less. If you don’t drink, don’t start, and if you do, keep it in moderation.

Q. Do soy foods increase breast cancer risk?

Research has found that one to two servings per day of whole soy foods such as edamame, tofu, or soy milk do not increase breast cancer risk. Whole soy foods are a complete protein source and can be part of a more plant-based diet.

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Felicia Whisenhunt was 40 when diagnosed with late-stage breast cancer. She relied on a variety of specialists at UTSW for her complex care.
As a teacher, Felicia Whisenhunt usually schedules her routine medical checkups for summer break. In 2015, however, she didn’t. The mother of two and wife had been caring for her father with Alzheimer’s disease and had forgotten. That September, after school had started, she realized she needed to schedule her well-woman exam.

She’s lucky she remembered. Two days before her appointment, Mrs. Whisenhunt thought she felt a lump while in the shower, but she dismissed it, not even thinking to tell her doctor in the exam room that day.

“He noticed it,” she says. “I saw his face, and it was concerning.”

Her doctor wanted her to get an ultrasound. Mrs. Whisenhunt scheduled it immediately.

“I could tell by everyone’s expressions that it was bad,” she recalls.

The next day, a breast biopsy confirmed her worst fears: advanced-stage breast cancer. She was 40.

Immediately after her diagnosis, Mrs. Whisenhunt started chemotherapy, which involves drugs designed to stop the cancer’s growth and shrink the tumor.

About five months later, in February 2016, she had a double mastectomy – surgery to remove both breasts. She didn’t want to take the risk of the cancer coming back in the second breast.

“Then, when I was healed from that, I started
radiation through the end of the school year,” she recalls. The purpose of the radiation on her right side was to make sure no cancer remained. Throughout all of this, she continued to teach kindergarten, and the teachers and parents at her school provided a loving support network.

“My youngest had just turned 4. My oldest was going into first grade,” she says, adding that the year was a blur. “I survived because I had amazing friends and family.”

**INNOVATIVE APPROACH TO BREAST RECONSTRUCTION**

After successful cancer treatment, Mrs. Whisenhunt was ready to consider breast reconstruction. For patients who have had partial or total mastectomies, breast reconstruction is a process to help women regain the shape and appearance of their breasts – and for many, their confidence.

Mrs. Whisenhunt’s team included Sumeet Teotia, M.D., Director of the Breast Reconstruction Program and Associate Professor of Plastic Surgery at UT Southwestern, and Nicholas Haddock, M.D., Associate Professor of Plastic Surgery and Orthopaedic Surgery.

Drs. Teotia and Haddock focus their plastic surgery practice 100 percent on breast reconstruction. They are also two of the most experienced surgeons in the world at an innovative technique called a four-flap breast reconstruction. This technique involves taking fat and skin from the back of each thigh and from two areas on the stomach (four spots total) to reconstruct the breast.

Some surgeons use only the stomach tissue, called the DIEP flap. While that’s the first choice, some women, like Mrs. Whisenhunt, don’t have enough tissue there; other women have had abdominal surgeries in the past that make it difficult to use. When taking tissue from the thigh area alone, it’s known as the profunda artery perforator (PAP) flap procedure.

Very few surgeons have mastered using both areas in the same procedure. And of the post-mastectomy breast reconstruction surgeries done in the U.S., Dr. Teotia says 70 to 80 percent are implant-based; the rest are flap-based. Due to their expertise and unique practice, for Drs. Teotia and Haddock it’s 50-50.

The flap, or microsurgical, procedures offer great aesthetic benefits and softness as well as less skin tightness than implants, particularly in patients who’ve had radiation, the surgeons say. But, they note, every woman’s situation is different, so they work with their patients and their oncologists to make sure they select the right procedure for each individual.

The four-flap procedure is typically best for younger women who otherwise have no significant medical problems, Dr. Teotia says, and for women who’ve had radiation.

If a young patient has an implant-based procedure, there’s a higher likelihood of having to do a follow-up reconstruction surgery, Dr. Teotia says. There are risks for leak, rupture, or intolerance to implants long term, and they don’t age the way the body does, so they can stretch the skin and feel heavy.

“We tend to believe a younger, healthier patient would do better implant-free,” he adds. “Felicia will never have to have another breast reconstruction in her life. And her breasts will age and mature the way her body normally would.”

Over the past six years of working together, Drs. Teotia and Haddock estimate they’ve completed about 1,200 microsurgery/flap breast reconstruction surgeries.

“And we’ve done close to 50 procedures with the four-flap technique,” Dr. Teotia says. “It’s a very creative and powerful tool when used in selected patients appropriately.”

**A TEAM FOCUS**

Both accomplished surgeons, Drs. Teotia and Haddock believe that a big part of their success comes from their ability to work as a cohesive team.

Their team approach, Dr. Haddock says, helps both inside and outside the operating room. In the clinic, they have their own patients but consult with each other regularly on the same day.

“Inside the OR, there’s no question there’s a benefit – we’ve shown this with science. Having both of us in there reduces surgery time. We both can do the procedure very well, but put both of us together and it’s compounded.”

Getting out of surgery in four to six hours versus eight to 10 hours, Dr. Haddock notes, translates into real benefits for their patients – less anesthesia and less swelling, and they go home sooner and get back to their normal activities more quickly.

And while there are rarely issues during surgery, Dr.
Haddock says, having another surgeon in the room is a huge benefit in troubleshooting, especially in complex microsurgical decisions.

“Having an equally minded, focused, and creative colleague in the OR is essential for the success of these flaps and allows flexibility in innovation,” adds Dr. Teotia.

And it’s not just the surgeons. “Our entire team plays a role,” he adds. That includes nurses, anesthesiologists, residents, and fellow assistants. “We physically could not do this at most places. It requires a well-oiled and efficient machine.”

A COMPLEX CASE
For Mrs. Whisenhunt, breast reconstruction surgery wasn’t simple. After her diagnosis, she learned she had the BRCA2 gene mutation, which increases a woman’s risk of both breast cancer and ovarian cancer, as well as other cancers.

Because of that mutation and the risk of ovarian cancer, she and her doctors agreed that a hysterectomy – to remove the ovaries, fallopian tubes, and uterus – was advisable.

Complicating matters, she had a very large omental hernia (where the fatty covering of the stomach and intestines pushes through an abdominal defect, an opening in the layer of abdomen that keeps intestines inside) that needed repair.

However, surgeons faced a dilemma: The hernia repair would involve mesh, which could cause challenges for a future hysterectomy. And abdominal surgeries would damage a key area where Drs. Teotia and Haddock needed to pull tissue for the reconstruction. Hence, the hernia repair had to be done after the flap procedure. Together, Drs. Teotia and Haddock worked with gynecologic and general surgeons and an entire operating room team to stage the surgery, allowing experts in each specialty to do their work effectively and efficiently in a coordinated fashion.

As Drs. Teotia and Haddock worked on the breast reconstruction, the hysterectomy was completed, followed by the hernia repair, in an approximately 12-hour procedure.

Whether it’s a rare, intricate case like Mrs. Whisenhunt’s or another, comparably more straightforward flap procedure, microsurgery requires deep skill and expertise, with the surgeons working on 1- to 2-millimeter-wide blood vessels and regularly making complex decisions.

“These are very safe procedures, and our success rate is in the 99 percent range,” Dr. Teotia says. “The four-flap procedure is an uncommon option, but fortunately, we have a high level of expertise, experience, and success.”

THE ROAD TO RECOVERY
After Mrs. Whisenhunt’s big surgery, she spent a few days in the ICU. Her friends worried about her home recovery.

“I had some take-control mom friends who helped,” she says. Those friends set her up at a rental house for two weeks where she could recover. “People came to take care of me, and my husband brought the kids to see me.”

The reconstruction process involved additional follow-up surgeries. But today, she’s back to enjoying life with her husband and her two sons, who are now 9 and 7.

She’s also educating herself on cancer and engaging in any activities that might help prevent it in the future. She’s even participating in a clinical trial about the effects of exercise.

The experience has changed her life and her perspective. “You don’t take life for granted, and you try to not let little things bother you,” she says. “Stress is terrible for cancer patients, and my husband has been a huge advocate of me avoiding stress.” Mrs. Whisenhunt adds she’s grateful for her team at UT Southwestern.

“Every doctor has been just what I needed,” she says. “I’ve been really lucky.”

She encourages women to do self-checks and get their well-woman exams and mammograms.

“Statistically, every woman needs to be checking,” she says. “I tell my girlfriends that it is 1 in 8 of us, so feel your boobies and take care of yourself!”

Drs. Sumeet Teotia and Nicholas Haddock performed four-flap breast reconstruction surgery on Mrs. Whisenhunt, who is back teaching kindergarten again.
Can Pancreatic Cancer Be Prevented?

How researchers are staying a step ahead of this dangerous disease.

Pancreatic cancer is aggressive and tough to beat. “We don’t have good treatments, and the prognosis is dismal,” says Nisa Kubiliun, M.D., Clinical Chief of the Division of Digestive and Liver Diseases and Director of Endoscopy at UT Southwestern. While researchers are working to improve treatments, heading off pancreatic cancer before it strikes is crucial. By identifying, evaluating, and treating people at high risk for pancreatic cancer, the team at UT Southwestern’s Pancreatic Cancer Prevention Program is doing just that.

Finding Those at Risk

Unlike mammograms for breast cancer or colonoscopies for colon cancer, there are no recommended screenings for people at average risk for pancreatic cancer. But the prevention program can help those who are at higher risk of developing this cancer, including:

- People who have a first-degree relative with pancreatic cancer.
- People with a genetic mutation that puts them at higher risk. The BRCA genes that are linked with higher breast cancer
If you have a first- or second-degree relative (parent, sibling, child; grandparent, aunt/uncle, niece/nephew, grandchild) who was diagnosed with pancreatic cancer, consider talking to a genetic counselor. He or she can explain the benefits of evaluating your genetic risk. Dr. Kubiliun says that most people considering genetic screening worry about two things – cost and future insurability. But she says a test that screens for a large panel of genes costs about $250 if insurance does not cover the testing, and federal law (the Genetic Information Nondiscrimination Act, enacted in 2009) covers most people, so they don’t have to be concerned about ability to get medical insurance in the future.

**Developing the Best Plan**
To address the complex factors that accompany pancreatic cancer prevention, a multidisciplinary team of experts meets to review every case. The team includes:

- Interventional gastroenterologists, who can evaluate and test pancreatic cysts
- Surgical oncologists, who can remove some or all of the pancreas
- Cancer genetic counselors, who can evaluate genes that might increase pancreatic cancer risk
- Radiologists, who can review and evaluate scans for changes or other concerns

Together, these specialists assess each patient’s risk and recommend a detailed, customized plan of action.

The team might review the scans of someone with a cyst, determine that the risk is low, and recommend annual scans to watch for changes. Surveillance is often the best course of action.

On the other hand, based on the characteristics of the cyst or the person’s family history, team members might decide the cyst needs further evaluation. In those cases, doctors will use endoscopic ultrasound guidance and a fine needle to remove fluid from the cyst for examination.

For the small number of patients at highest risk, the team might recommend removing some or all of the pancreas. “Our goal is to get to that pathology before it’s cancer – not to let it turn into a tumor,” Dr. Kubiliun says. “We can remove large parts of the pancreas – even the entire pancreas sometimes – and patients can have excellent outcomes.”

**COLLECTING DATA FOR FUTURE STUDIES**
Research is a big part of the Pancreatic Cancer Prevention Program. The team collects pancreatic cyst fluid specimens, blood samples, and patients’ detailed family and personal histories. “We want to capture all significant data points,” Dr. Kubiliun says. In the future, if one person develops cancer and another doesn’t, the team can use the data to look for markers that might identify risk and help guide patient care.

UT Southwestern’s physicians and scientists also collaborate with peers at other academic medical centers to improve the early identification of pancreatic cancer through a large, constantly updated database. This research gives patients access to the latest approaches in fighting pancreatic disease.
Research in Boosting IMMUNITY

Studies could lead to new treatments for cancer and autoimmune diseases.

Professor of Molecular Biology Zhijian “James” Chen, Ph.D., and colleagues discovered a crucial enzyme called cyclic GMP-AMP synthase (cGAS) that launches the body’s immune defense.
UT Southwestern researchers are examining how an enzyme might someday be used to manipulate the body’s innate immunity – our first response to infection. It could work in different ways to fight different diseases. Ramping up the body’s immunity could help fight infections and potentially even boost the immune response against cancer cells. Dialing down immunity, on the other hand, could help treat a variety of autoimmune diseases, including lupus.

Researchers know that the DNA from viruses, bacteria, and parasites makes its way into the cytoplasm of our cells. They also know that certain infections, autoimmune diseases, and cancer all have a common thread – they show signs of DNA in the cells’ cytoplasm.

Back in 2012, UT Southwestern researchers discovered that an enzyme, called cyclic GMP-AMP synthase (cGAS), can bind to this DNA when it comes across it in the cytoplasm. When that happens, the enzyme produces a small molecule called cGAMP.

“This molecule triggers a powerful immune response,” explains Dr. Zhijian “James” Chen, Ph.D., Professor of Molecular Biology at UT Southwestern, a Howard Hughes Medical Institute Investigator, and senior author of the research. “It alerts the immune system to defend against infections from these pathogens.”

For his discovery of the cGAS enzyme, Dr. Chen was recently named winner of the prestigious 2019 Breakthrough Prize in Life Sciences.

New Study Expands on Research
Scientists wanted to figure out how this enzyme is regulated. They wanted to understand how the enzyme could trigger a strong response to foreign DNA from infections without causing a response against our own DNA.

That’s because if the enzyme comes into contact with our own DNA, it can trigger autoimmune diseases. “It’s a double-edged sword,” Dr. Chen says. “We need it to defend against infection, but if it’s improperly triggered by our own DNA it can cause these autoimmune and inflammatory diseases.”

The scientists designed a new study. In their research, they discovered something interesting – a tiny amount of either DNA or the enzyme fails to trigger a response. But when the enzyme and the DNA reach a certain concentration, the enzyme triggers the formation of special droplets.

“Within this concentrated droplet, the enzyme becomes activated,” Dr. Chen says. The droplet acts like a microreactor within the cell, accelerating the enzyme to trigger the immune response. “It speeds up the reactions that churn out the small molecule cGAMP, which activates the immune system.”

The study, published in Science in 2018, explains how there can be some DNA in the cells, but if it stays below a certain threshold, it doesn’t trigger activation of the enzyme or the creation of these droplets. When there’s enough DNA, as with a viral infection, the enzyme binds with it and these powerful droplets form.

A Pathway With Potential
“With a detailed understanding of this pathway, it will be possible to design and develop a variety of drugs for cancer and other diseases,” Dr. Chen says. Researchers could potentially identify and design molecules that will inhibit the enzyme and use them to treat a range of autoimmune diseases.

They could also potentially take the opposite approach to treat people with cancer – they would want to activate the enzyme, given that a lot of people with cancer don’t have adequate immunity. Also, they hope to someday use it to boost the immune response against tumor cells. “There is the hope of finding drugs that stimulate the cGAS pathway to boost the effects of cancer immunotherapy,” Dr. Chen says.

Dr. Chen is Director of the Center for Inflammation Research and a member of the Center for the Genetics of Host Defense. He holds the George L. MacGregor Distinguished Chair in Biomedical Science. The study’s lead author is graduate student Mingjian Du.
HOPE RUNS IN THE FAMILY.

People with cancer find hope in many ways. For Chuck Dandridge, it came in a way he couldn’t have imagined. Diagnosed with acute myeloid leukemia, Chuck chose UT Southwestern’s Harold C. Simmons Comprehensive Cancer Center for his care.

Here, Chuck would become the first adult in the U.S. to receive a newly modified stem cell transplant. This pioneering treatment uses genetically engineered blood cells from a family member. His son, Jon, was the donor. The transplant was a success and Chuck’s leukemia is now in remission.

UT Southwestern’s groundbreaking research has led to six Nobel Prizes and yielded revolutionary discoveries and pioneering advancements in medicine. This is where Chuck and his family found hope, help, and a brighter future.

To learn more about hope, visit utswmed.org/cancer