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BREAST MATTERS

Why We Fight for Prevention

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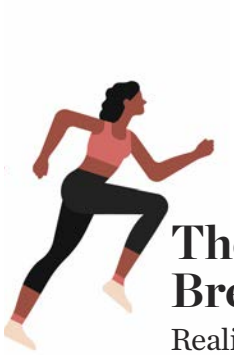
BREAST MATTERS

THE NEWSMAGAZINE OF THE BREAST CANCER PROGRAM



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The John Fetting Fund for Breast Cancer Prevention
Realizing the Power of Prevention

International Study Speeds Diagnosis, Guides Treatment
Accurately Distinguishing Benign Breast Tumors from Breast Cancers

Advances
- Helping Survivors Live Better and Longer
- Progress Against Endocrine Resistance
- Guiding the Best Care

Neoadapt Study
Optimizing Therapy for Early-Stage Triple Negative Breast Cancer

Fighting for Two
One Young Mother's Heroic Battle with Breast Cancer During Pregnancy

Noteworthy
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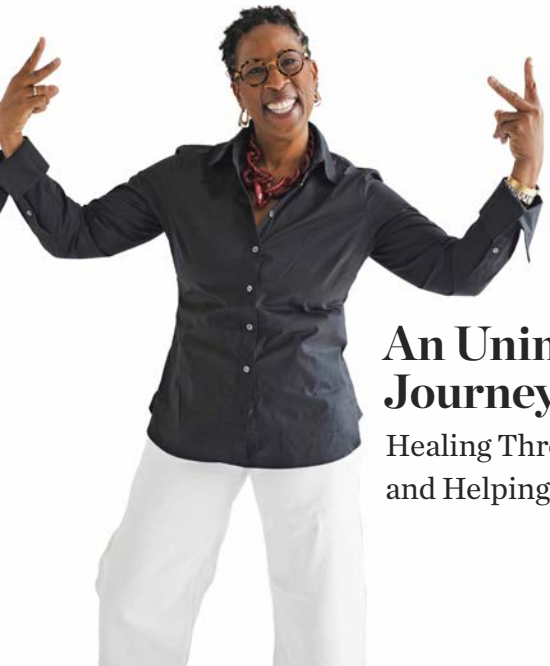

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[The John Fetting Fund for Breast Cancer Prevention]

REALIZING THE POWER OF PREVENTION

JOHN FETTING, M.D., has treated women with breast cancer for more than four decades.(See page 11.) He has seen firsthand, through his patients, the physical and emotional scars that breast cancer treatment can cause. Here, he discusses the inspiration for the John Fetting Fund for Breast Cancer Prevention, shares the accomplishments already made and explains the long-term goals of the Fetting Fund.

What is the Fetting Fund?
The Fetting Fund for Breast Cancer Prevention advocates for breast cancer prevention research raising money from private philanthropists and other generous donors to support breast cancer prevention research conducted by the faculty of the Kimmel Cancer Center's Breast and Gynecologic Malignancies Group

How did it get started?
It got started with the recognition that the effort to cure breast cancer was making progress but not enough or fast enough. Too many women were still dying of breast cancer. For those diagnosed, the road to cure was hard and filled with uncertainty. We were also motivated by the fact that the number of women being diagnosed by breast cancer each year was not going down.

In 2011, Leslie Ries, one of my patients, and her husband, Tom, made a substantial gift to the Kimmel Cancer Center to express thanks for the care Leslie received. After much thought and discussion, we decided that their gift would establish a fund to support breast cancer prevention research.

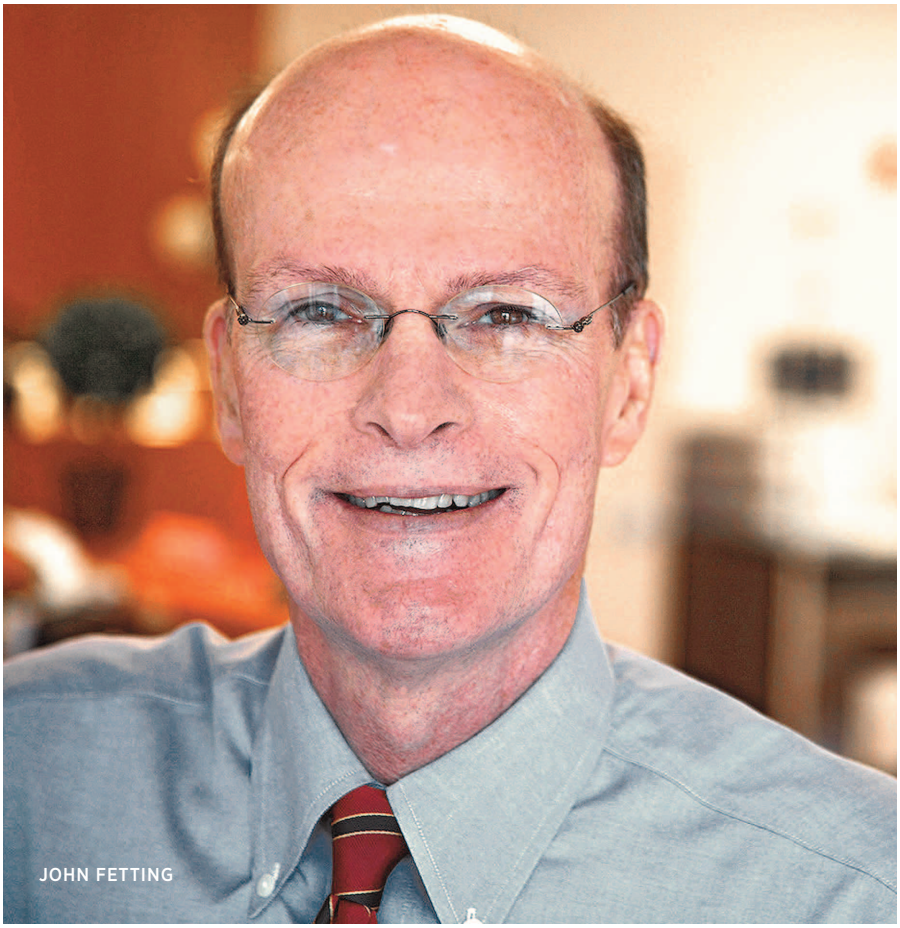
Why prevention?
Leslie's experience with breast cancer has been very hard. Leslie has remained free of cancer but has lived with the fear of cancer recurrence ever since. She wanted to do anything she could to prevent other women from going through what she and her family went through. Preventing breast cancer became her mission.

Why not treatment research?
Over the 40-year course of my career, breast cancer specialists have been trying to cure breast cancer. We diagnose it as early as possible with the help of mammography. We remove it. We administer radiation therapy to eradicate microscopic cancer in the breast and nearby lymph nodes. We administer drug therapies to kill cancer cells, which may have left the breast and spread elsewhere in the body before the cancer was detected. We hope that we have gotten it all, but we are never sure of that. We all live with a fear of recurrence, which never completely goes away.

Make no mistake, we have made substantial progress with treatment. The risk of dying of breast cancer has decreased by 40% since 1989, and we must continue to reduce the risk of dying. We can't let up. We must make sure that our pipeline continues to produce novel treatments. However, the number of women dying of breast cancer in the U.S. has held stubbornly at about 40,000 per year. Why isn't it dropping? One of the reasons is that the number of women being diagnosed with breast cancer annually is 300,000, and it is not going down. If anything, it continues to go up slightly each year.

We are not alone in thinking that we cannot continue to bet that we are going to cure our way out of our breast cancer problem, especially when one considers how hard and uncertain it is to try to cure breast cancer. We need to open a second front in this war. We need to invest more substantially in prevention.

"One woman in eight develops breast cancer in her lifetime. This works out to be 12.5%. Who is "the one?" Currently, we don't know who she is until she has developed breast cancer."


JOHN FETTING

What is prevention?
When it comes to breast cancer, prevention can mean a variety of things. It can mean preventing breast cancer from ever developing, known as primary prevention. It can also mean preventing breast cancer from causing health problems. This is sometimes referred to as secondary prevention. The current model for diagnosing breast cancer as early as possible and treating it with surgery, radiation therapy and drug therapies is a type of secondary prevention because it is trying to prevent spread of the cancer and death.

What does the Fetting Fund support in terms of breast cancer prevention?
The Fetting Fund embraces both primary and secondary prevention. Primary prevention, meaning preventing breast cancer from ever developing, is the holy grail, but very early diagnosis, when risk of spread is minimal and patients do not need or benefit from difficult therapies, is a very valuable goal. In the short term, it is likely a more attainable goal than primary prevention. This type of prevention may detect breast cancer sooner than the current model of early diagnosis, which relies on mammography.

What are the prospects for preventing breast cancer?
The prospects for preventing breast cancer are good, but it will take time. We have spent the past 50 years trying to cure breast cancer. However, very importantly, in the effort to cure breast cancer we have learned an enormous amount about what makes breast cancer tick. What we have learned has and will continue to inform prevention science. The effort to cure has jumpstarted our effort to prevent.

What is the importance of risk and risk factors in thinking about breast cancer prevention?
One woman in eight develops breast cancer in her lifetime. This works out to be 12.5%. Who is "the one?" Currently, we don't know who she is until she has developed breast cancer.

Nothing speaks to how little we know about this one in eight more clearly than our current mammography screening practice. We recommend that all women over 40 have regular mammography screening. We don't know enough about who is at risk, so we screen everyone. A top priority in breast cancer prevention research is to identify women who are at the highest risk for developing breast cancer. Imagine how much more effective primary or early secondary prevention might be if we were focusing on the at-risk population of women. Imagine how much more efficient primary and early secondary prevention programs might be if we were able to spare women screening mammography because their risk was one in 800.

What are risk factors?
Risk factors are biological or biologically related characteristics that increase the risk of breast cancer in those who have them. They include gender, age, family history, genetic mutations, reproductive history, breast density, previous radiation therapy, weight, alcohol intake, physical activity, hormone replacement therapy, and a history of breast conditions such as abnormal lesions — called atypical hyperplasia — detected on breast biopsy.

Risk factors vary according to their strength. Some risk factors are strong, meaning carriers of these risk factors have a substantially higher risk of developing breast cancer than non-carriers. An example of a strong risk factor is a BRCA mutation. Most breast cancer risk factors increase risk mildly. Examples of weak risk factors are those associated with reproductive history, such as age at onset of menstruation and age at first pregnancy.

Some risk factors can be reduced or eliminated, including alcohol intake, dietary fat, weight and exercise. Others cannot, and they include early age of first menstrual period, late age of first pregnancy, certain genetic mutations and breast density.

What are risk models and what role do they play?
A top priority in breast cancer prevention research is the development of risk models. Risk models combine all known risk factors with the goal of identifying women at higher risk than what is conveyed by individual risk factors. Women who score higher on risk models are targeted for more aggressive screening programs. Women who score lower may not need to be screened as aggressively.

With few exceptions, we do not know how these risk factors affect the DNA in breast cells and encourage the development of cancer. The Fetting Fund supports research that identifies changes in breast tissue resulting from risk factors, with the goal of identifying women with changes in breast tissue that are likely to become breast cancer.

Does the Fetting Fund have a focus for the type of research it supports?
The Fetting Fund prioritizes research aimed at identifying biological changes in breast tissue associated with risk factors and with the subsequent development of breast cancer. For example, changes or mutations in the genetic material or DNA in breast cells. This type of research is often referred to as translational research. These types of biological changes in breast cells, which are associated with the subsequent development of breast cancer, are referred to as biomarkers.

We have made progress in breast cancer caused by inherited genetic mutations, such as BRCA mutations. In carriers of these mutations, the risk of developing breast cancer is very high, up to 40% to 80% in their lifetime. These women feel very much at risk and are willing to consider drastic steps, like prophylactic mastectomies. They may also be willing to take medications used to treat breast cancer in an effort to prevent cancer.

However, these inherited mutations account for just 5% to 10% of breast cancers. The remainder, 90% to 95% of breast cancers, result from DNA changes in the breast acquired over their lifetime. We have not been able to identify the changes that are the biomarkers of breast cancer risk for acquired breast cancer. The Fetting Fund supports research to identify biomarkers of risk for inherited and acquired breast cancer.

How does the Fetting Fund support research?
Since the Fetting Fund was initiated in 2010, over $5 million has been raised. Half of this has supported research in the form of pilot studies, and the other half funds an endowment that produces income that can be used for research and other priorities of the Fetting Fund, such as the Fetting Scholar.

What is the Fetting Scholar Program?
The Fetting Fund for Breast Cancer Prevention provides partial salary support for one year to a faculty investigator of the Breast Cancer Program to support their breast cancer prevention research. Findings from this research can then be leveraged by the researcher to earn additional grant funding.

Is there a role for patients?
We have found that people with breast cancer are compelling advocates for prevention and our most effective fundraisers. Two patients with metastatic disease, Erin Yale and Brenda Cho, spoke at the annual thank-you reception for our donors. No speakers were more convincing or compelling. Sadly, they later died of breast cancer, but not before giving their all to support prevention research. We continue this fight in their memory.

On the Web: Read their stories on the Fetting Fund website *https://bit.ly/4eCAuLc*

What else would you like people to know?
We want those who have made donations to know how grateful we are. We cannot make progress in prevention without these donations, and our team wants our generous donors to see the connection between their gifts and the research supported by the Fetting Fund. Please visit our website: *www.fettingfund.org* to learn more about the pilot studies currently being supported by the Fetting Fund.

To join the fight or to learn more about giving to the Fetting Fund for Breast Cancer Prevention, contact Liz Raymond at ***lizraymond@jhmi.edu****.*

ON THE WEB:

Fetting Fund Podcast
https://bit.ly/3YgSeWJ

Fetting Fund website
https://bit.ly/4eCAuLc

Fetting Fund Investigators
https://bit.ly/4gSNkXv

“The Fetting Fund supports research that identifies changes in breast tissue resulting from risk factors, with the goal of identifying women with changes in breast tissue that are likely to become breast cancer.”

ADVANCES

Helping Survivors Live Better and Longer

HEART DISEASE, diabetes, and obesity are the most common issues women face as they age. **Jenni Sheng**, M.D., noticed that she was frequently seeing these health issues among her breast cancer patients.

In 2022, with generous support from donor Mary Meyer to the Women's Wellness and Healthy Aging Program, Sheng established the Cardiometabolic Screening Program for Breast Cancer Survivors.

"We know that after women are diagnosed with breast cancer and complete treatment, they often struggle with the transition of care from medical oncology back to primary care. This can result in delays in screening for diabetes and heart disease," says Sheng.

She also points out that heart disease—not breast cancer—remains the number one killer of women, noting that it is a women's health issue she and her colleagues believe is a survivorship wellness issue among the patients they treat.

Sheng uses a formalized screening program to direct patients who may benefit and are interested in a one-year program aimed at heart disease prevention, pre-diabetes and diabetes screening and management, and weight management.

"The program is not for everyone, but it addresses the issues our patients prioritize," says Sheng. "Many of our patients deal with being overweight and have said they would like to have a management strategy. It has helped us identify women with elevated cholesterol who warrant evaluation with cardiology or re-evaluation or reestablishment of a primary care doctor."

A variety of resources are offered through the program. Sheng works in collaboration with Johns Hopkins programs, including the Women's Wellness and Healthy Aging Program, the Healthful Eating, Activity & Weight Program, and the department of Endocrinology, and guides women to other resources, including clinical trials, aimed at improving their overall health.

For more information on the Cardiometabolic Screening Program: https://bit.ly/3YPLMGI

Progress Against Endocrine Resistance

ESTROGEN RECEPTOR positive (ER+) breast cancer is the most common type of breast cancer, and treatment-resistance, particularly in metastatic cancers, is a major issue, says **Eneda Toska**, Ph.D., M.S, an expert in the molecular makeup of breast cancers.

The hormone estrogen fuels the growth of ER+ breast cancers, so a mainstay of therapy are drugs that block estrogen from getting to cancer cells or destroy receptors on cancer cells that receive the hormone. These drugs keep the breast cancer in check, improving the quality of life for patients and extending survival.

This treatment, known as endocrine therapy, works well, but cancers may eventually grow resistant, says Toska.

Working with her Breast and Gynecologic Malignancies Group colleagues, including **Jessica Tao**, M.D., **Jenna Canzoniero**, M.D., M.S., and **Antonio Wolff**, M.D., and researchers at other cancer centers throughout the U.S., Toska is working to identify the most common alterations in ER+ breast cancer and which ones contribute to endocrine resistance.

Toska and team are studying 10,000 tumor samples, comparing primary tumors samples with metastatic samples to look for key changes, such as alterations that do not appear until the cancer begins to spread.

Canzoniero and Toska are using patients' tumor samples to test a drug's ability to resensitize a cancer to therapy.

The research is funded by a Partner of Choice award with AstraZeneca, the National Cancer Institute, and the Jayne Koskinas Ted Giovanis Foundation.

Guiding the Best Care

Antonio Wolff, M.D., interim director of the Breast and Gynecologic Malignancies Group, was selected to serve on the National Comprehensive Cancer Network (NCCN) Guideline Steering Committee. The NCCN is a not-for-profit alliance of 33 leading cancer centers devoted to patient care, research and education. NCCN is dedicated to improving and facilitating quality, effective, equitable and accessible cancer care so all patients can live better lives.

Dr. Wolff was also elected Co-Chair of the National Cancer Institute Breast Cancer Steering Committee and appointed to the international steering committee of the Oxford Overview Collaborative. Both positions are aimed at advancing clinical trials for breast cancer.

FIGHTING FOR TWO

One Young Mother's Heroic Battle with Breast Cancer During Pregnancy

AMANDA WASN'T concerned about the series of lumps she found in her breast. In fact, she was becoming frustrated. With each lump, there was a biopsy, and each time, the results showed that they were harmless, benign lumps. Eager to grow her family, Amanda turned her thoughts to planning for a new addition.

Then, in June 2023, just a month after learning the wonderful news that she was expecting her second child, Amanda felt a new lump. This one felt like a pea, not large like the one from the year before.

"I was irate," she recalls, wondering why she was developing these lumps. She says she brushed it off.

"I was tired of biopsies," says Amanda, so she told herself the new lump was benign just like the others.

Lisa Jacobs, M.D., the Kimmel Cancer Center surgeon who did

Amanda's earlier biopsies, wanted to continue following her. A few months later, at Amanda's regular appointment, Jacobs felt the lump and ordered an ultrasound and biopsy.

Despite convincing herself over the past few months that it was another benign lump, Amanda's gut was now telling her something else.

"It was weird. I suddenly had a feeling it was going to be a different outcome this time," she says.

Still, she remained focused on her pregnancy.

In an Instant

Sept. 5, 2023, started out wonderfully for Amanda. She was finishing up her first trimester of pregnancy. Her appointment with her obstetrician confirmed that everything was going well. Amanda was filled with joy.

However, in an instant, everything changed, as she read a new MyChart message with the results of her biopsy. The words "invasive ductal carcinoma" jumped off the screen.

"I knew what that meant. I had breast cancer," says Amanda. "I was a basket case, wondering what this meant for my pregnancy."

Jacobs was away at a conference, but she called Amanda right away,

and had an appointment scheduled for her the next day with medical oncologist and breast cancer expert **Danijela Jelovac**, M.D.

The diagnosis was triple-positive breast cancer, a type of breast cancer fueled by the hormones progesterone and estrogen and a protein called HER2. The next months were a roller coaster ride of ups and downs.

The Plan

Amanda wanted to protect her unborn baby, so Jelovac had to devise a treatment strategy that could attack the cancer without harming the baby. Standard therapy for triple-positive breast cancer involved treatment that blocked hormones feeding the cancer, but these same hormones were critical to Amanda's developing baby. To save both mom and baby, Jelovac started Amanda on two cancer drugs — Adriamycin and Cytoxan — that were safe to take while pregnant.

The drugs are powerful anticancer drugs, but they also have the side effect of harming other rapidly dividing cells, such as gut cells. Amanda had just gotten beyond the morning sickness that came with her pregnancy, and now the chemotherapy was causing her to feel nauseous.

The plan was for four rounds of chemotherapy — every three weeks — followed by a mastectomy, and then the birth of her baby.

Treatment was not going as planned. The chemotherapy did not appear to be working.

"I felt like the tumor was getting bigger," says Amanda. "I looked like I had a breast implant."

With the tumor growing larger instead of smaller, Jelovac decided they could not wait any longer to do the mastectomy. A week before Christmas, Amanda, now 28 weeks pregnant, had surgery to remove the breast.

The tumor that was the size of a pea when Amanda first felt it had grown beyond the size of a grapefruit at the time of surgery, and worse yet, the cancer had spread to her lymph nodes.

Unimaginable

"It was unimaginable," says Amanda. "The cancer was overshadowing the happiness of my pregnancy."

Amanda knew it was a fast-growing tumor. She had seen that with her own eyes, as her breast grew larger despite the chemotherapy. She was concerned the cancer was continuing to spread. She began to wonder if she would survive the cancer and was filled with worry for her growing baby and her young son, now 4 years old.

"I wouldn't wish this on anyone," says Amanda.

Jelovac collaborated with Amanda's obstetrician, and they agreed to move up the delivery of the baby to 34 weeks so she could begin the standard treatment regimen, called TCHP, and combat the growing cancer. Amanda hoped, for her children's sake, it would come in time to save her life.

On Feb. 2, 2024, Amanda delivered Aubri Hope, a strong and healthy baby girl.

Amanda was now even more determined to beat the cancer.

A month after her baby was born, Amanda began four months of treatment with the TCHP drug combination, followed by six weeks of radiation therapy. As of her last imaging report, there are no signs of cancer. For the next year, Amanda will receive an injection of targeted HER2 antibodies every three weeks. The therapy disarms the HER2 protein that helps fuel the breast cancer and is aimed at keeping her cancer from coming back by thwarting any remaining microscopic cancer cells.

Maddie

It is not lost on Amanda how differently things could have gone. After her diagnosis, she joined Pregnant with Cancer, a Facebook support group of moms-to-be battling cancer.

She connected with Maddie, who was battling stage 4 triple-negative breast cancer. Maddie had already had her baby when she connected with Amanda, and seeing Maddie's healthy baby gave Amanda the hope and comfort she needed as she waited nervously to deliver her own baby.

"Maddie was an angel on earth. We talked every day," says Amanda, adding that Maddie sent her supplies to help her through her treatment, baby gifts and meals. "She went above and beyond, and she had her own stuff going on. She was amazing."

They had planned to meet in person, but they never got the chance. Maddie messaged her that her cancer had spread to her liver, and two days before Amanda delivered her baby, she received the news that Maddie had died. She was just 30 years old.

"It was one of the hardest things I've ever had to hear. We created an amazing connection. I'm a totally different person because of her," says Amanda. "I had never experienced that level of kindness. My life's purpose is to pay it forward."

Because of her early delivery, Amanda's daughter was being cared for on the neonatal intensive care unit. When Amanda came to the unit to hold her daughter for the first time, she learned that Maddie was also the name of the nurse assigned to her daughter.

Inspired by her friend Maddie, Amanda is bringing the same help and comfort to a young mother of a 2-year-old daughter, who at just 25 years old, was also diagnosed with triple-positive breast cancer.

The two recently met in person. "I didn't get the chance to meet Maddie. I don't take time for granted anymore," says Amanda.

A Mother's Day Gift

Amanda's patient navigator, **Jill Mull**, herself a survivor of breast cancer, thought Amanda also deserved some special care. Mull recommended her for Justin's Beach House, a Bethany Beach respite for people battling cancer.

After more than a year of fighting against cancer for her life and the life of her unborn baby, Amanda spent Mother's Day relaxing on the beach with her husband and children.

AN UNIMAGINABLE JOURNEY

Healing Through Expert Care and Helping Others

IT WAS JUST a few days before Thanksgiving 2019 when Michelle rolled over in her bed and felt something in her breast.

As a former radiation therapist and Johns Hopkins Kimmel Cancer Center radiation oncology administrator, Michelle knew right away what this suspicious lump could mean.

"It can't be what I think it is," thought Michelle, hoping she was mistaken about what she felt.

She simply could not imagine another tragic event in her life. Michelle was still grieving the death of her husband, lost to suicide a year earlier.

She could feel the anxiousness quelling up throughout her body as her mind raced. To gain clarity, she turned to the determination that had gotten her through the past year and her skill as a cancer center administrator.

Michelle remembered a friend who became ill during a visit to her home in the Maryland suburbs near Washington, D.C. Michelle took her friend to the Johns Hopkins Sibley Memorial Hospital emergency room.

"I was so impressed with the care she received in the ER that I said, 'If anything ever happens to me, I'm going there,'" Michelle recalled, never imagining how soon she would have to put her words into action. She made an appointment at Sibley that day.

Triple-Negative Breast Cancer

In early December 2019, just before Michelle's 52nd birthday, biopsy results confirmed that the lump she had felt a few weeks earlier was triple-negative breast cancer.

This type of breast cancer is named for its lack of hormone receptors, meaning the cancer cells are not fueled by hormones, as is the case in most other types of breast cancer. As a result, triple-negative breast cancer can be challenging to treat. Therapies aimed at cutting off cancers from the hormones that feed them do not work against triple-negative breast cancer.

Having worked in the Kimmel Cancer Center in the early 2000s, Michelle was familiar with the challenges associated with triple-negative breast cancer. Further, she had received the concerning news that the cancer had

already begun to spread to her lymph nodes.

Her expert team of surgeon **Maureen O'Donnell-DeBritz**, M.D., medical oncologist **Cesar Santa-Maria**, M.D., and radiation oncologist **Jean Wright**, M.D., gave Michelle hope.

"I was very confident in Johns Hopkins cancer care," she says. "I wasn't sure of the outcome, but I had total confidence in my treatment regimen and cancer team."

This confidence, she says, was borne from Johns Hopkins' reputation and her time working there alongside who she considers some of the most brilliant minds in breast cancer medicine.

Her treatment plan included chemotherapy, followed by a lumpectomy to remove the 4.3-centimeter tumor, and then radiation therapy.

COVID Strikes

Just when Michelle thought she had a handle on the path forward, the unimaginable happened once again. As she began her first round of chemotherapy in January 2020, the COVID-19 pandemic hit the U.S.

Kimmel Cancer Center experts quickly adapted, putting new procedures in place to care for patients while protecting them from exposure to the coronavirus that causes COVID-19. However, to keep from contracting the virus, Michelle could not be around her family members and friends, the people who were helping and supporting her through the loss of her husband and her cancer diagnosis.

"I was isolated. It was the first time I had been alone in 25 years. It was a very dark and difficult time," recalls Michelle.

There was good news, however. The chemotherapy regimen — called ACT for Adriamycin, Cytoxan and Taxol — worked. After months of treatment, Santa-Maria shared with Michelle the results of her imaging studies, showing there was no visible cancer remaining. That was confirmed soon after, in June 2020, when O'Donnell-Britz performed the lumpectomy and found that the golf-ball sized tumor was gone. During the same surgery, she removed the lymph node where the cancer had begun to spread. After healing from the surgery, Michelle saw Wright for radiation therapy.

"I can admit that I don't have control over most things in life except how I respond. That is where my power is most useful."

A New Purpose

Michelle's cancer remains in remission, but she knows many women, particularly other African American women, have not been so fortunate. Triple-negative breast cancer disproportionately affects African American women, and they are twice as likely to be diagnosed with this cancer and more likely to die from it than their white counterparts.

Wracked with worry about her cancer returning, Michelle decided she needed a change of scenery and a new purpose.

She relocated from Maryland to New York City and became a professional speaker, educating women about breast cancer and advocating for better access to preventive and diagnostic care for women of color.

"Survival rates are dismal, and access to care, including mammograms, contributes to the dismal mortality rates," says Michelle. "We have to do better for these women. We have to show up in the community and have open and honest discussions and be willing to hear the tough stuff."

When Michelle speaks to women, she often talks about clinical trials. Michelle participated in a breast cancer vaccine study with Santa-Maria, but she recognizes that many African American women are fearful of research treatments.

She understands that their lack of trust is born of real experiences passed down from generation to generation, and she speaks out about the need for nurse navigators of color and support groups for women of color to address and work through these issues, so women will seek and receive lifesaving preventive care and treatment.

"Fear keeps us from doing," she says, "and if we don't participate in clinical trials, we won't know if they work, preventing a future treatment for our children and grandchildren."

Michelle recognizes that her experience working in a cancer center gave her an edge that other women do not have. She already had knowledge about cancer and knew what questions to ask. Now, she wants to give a voice to other women.

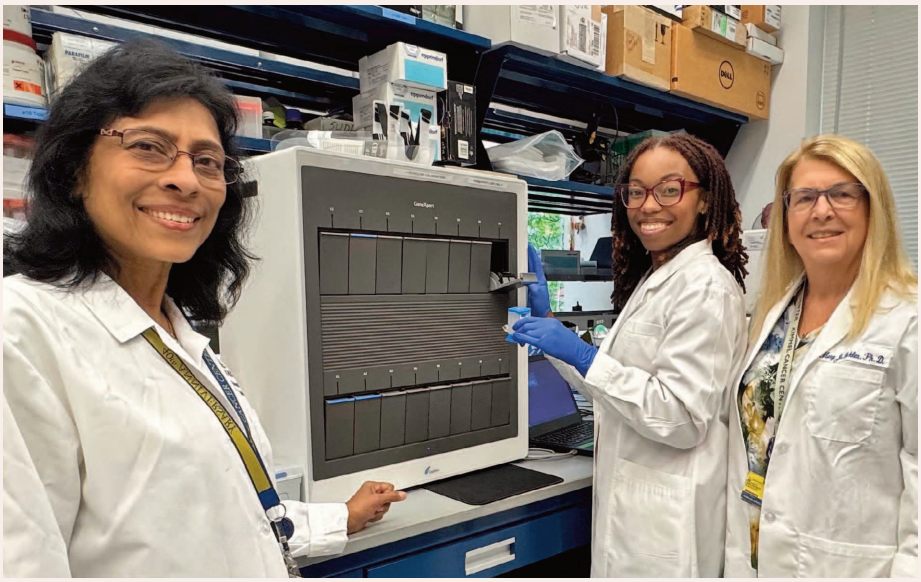
She says, "We have to ask ourselves, 'Are we doing everything we can?'"

Michelle has faced more challenges in the past few years than most will face in a lifetime, including the recent loss of her sister and her father, but she remains hopeful and determined.

"I grieve. I still have feelings, but I'm not stuck in them. I get to choose what meaning I give to those circumstances, and that is a very powerful position," says Michelle. "I can admit that I don't have control over most things in life except how I respond. That is where my power is most useful."

For Michelle, one way she has responded to the unimaginable challenges of the past few years is to channel her remarkable and inspirational resiliency into helping other women.

International Study Speeds Diagnosis, Guides Treatment



LIQUN ZHANG

FROM LEFT: SARA SUKUMAR, MADISON PLEAS, MARY JO FACKLER

Breast cancer researcher, **Sara Sukumar**, Ph.D., and her colleagues have developed a unique platform that can quickly and accurately distinguish benign breast tumors from breast cancers.

A patient's needle aspiration sample of the lesion is loaded into cartridges and inserted in a machine that returns results within five hours. (Needle aspirations involve using a thin needle and a syringe to pull out cells, tissue and fluids from the lesion). Noting that the number of breast cancer cases is rising around the world, she believes this platform could shrink the time from diagnosis to treatment, which is particularly important for low- and middle-income countries, which may experience delays of up to 10 months for a treatment plan to take effect.

The test could be used in screening clinics to detect malignancies and assist in prioritizing patients who need accelerated pathological and clinical evaluation, while reducing the burden on overtaxed health systems. For example, a retrospective analysis from Malawi, a country in southeastern Africa, identified a median turnaround time of 43 days for pathological diagnosis of cancer specimens paid out-of-pocket, and 101 days for nonpaid specimens which rely on state funds.

Sukumar's test detects methylation, a type of chemical tag, in one or more of nine genes that are altered in breast cancers, but not in harmless benign tumors.

In collaboration with the Chris Hani Baragwanath Academic Hospital, its National Health Laboratory Services, the WITS Foundation in Johannesburg, South Africa, and the diagnostic company Cepheid, Sukumar is leading a clinical study of 700 women. The study, which is ongoing, will collect fine needle biopsies obtained from women with tumors of various sizes to confirm that the cartridge-based platform can accurately distinguish benign tumors from malignant cancers.

Sukumar, the Barbara B. Rubenstein Professor of Oncology, says "Diagnosis is a huge bottleneck to starting treatment, especially in countries that have a small number of pathologists available to review breast cancer biopsies and who serve a huge population. A test like ours could be especially useful in places with meager resources and where mortality rates from breast cancer are much higher compared to the developed world."

On the web: More on Dr. Sukumar's research. *https://cancer-matters.blogs.hopkinsmedicine.org/2024/11/25/international-study-speeds-diagnosis-guides-treatment/*

NEOADAPT STUDY

Optimizing Therapy for Early-Stage Triple Negative Breast Cancer

A new individualized treatment approach for women with early-stage (Stage 2 or 3) triple negative breast cancer at high risk of recurrence is being conducted by **Cesar Santa-Maria,** M.D., M.S.C.I., and colleagues.

Standard of care currently calls for a six-month course of a four-drug chemotherapy regimen and an immunotherapy drug, called pembrolizumab, that removes restraints cancer cells place on the immune system. The treatment is neoadjuvant, meaning it is given before surgery.

Research showed that adding immunotherapy to the chemotherapy regimen improved complete response rates, taking it from 55% with chemotherapy alone to 63% with the chemo/immunotherapy combination.

"The therapy is very effective," says Santa-Maria, "but it is also very toxic, with nearly 80% of patients suffering from serious side effects. We are likely overtreating some patients."

In this clinical trial, called NeoADAPT, he is using imaging with MRI and PET scans and liquid biopsy to help identify the women who may be able to avoid the full six-month treatment.

While this provides patients a personalized response-adapted treat-

ment approach now, Santa-Maria is also exploring if changes on PET scans after only three weeks of treatment can predict who will respond and who will not. In this trial, PET scan will not dictate therapy (the way MRI does), but these results will help develop future studies which can identify responders at an even earlier timepoint.

Santa-Maria explains that PET scans light up active tumor cells. The changes in the brightness of a tumor on PET can help doctors gauge the response of a breast cancer to treatment.

"If early on, we don't see a response on PET, maybe we need to change treatment," he says.

He is also studying the value of combining liquid biopsy, a blood test that detects cancer DNA, called ctDNA, circulating in the bloodstream, with PET scans to improve individualized treatment. The liquid biopsy would be unique to each patient, looking for specific mutations contained in the patient's specific breast cancer.

"We are looking for complete clearance of ctDNA early on to help identify patients who may require less treatment," says Santa-Maria.

Studies investigating the potential of less therapy are challenging to run. However, Santa-Maria received the Advanced Cancer Research Award from the American Society of Clinical Oncology's Conquer Cancer Foundation, which will help support this research. Other funders of this research include the Breast Cancer Research Foundation and Susan G. Komen for the Cure.

The NeoADAPT study is currently accruing patients at the Kimmel Cancer Center's East Baltimore and Sibley locations. The study has already garnered national attention, with the ECOG-ACRIN Research Group, a network of nearly 1,400 academic and community cancer centers and hospitals in the U.S. and around the world, on board to help Santa-Maria advance this research with additional studies.

NOTEWORTHY

Faculty Announcements

New Team Members

Susan Bahl, M.D., F.A.C.S., is a distinguished breast surgeon who recently joined Johns Hopkins, who will care for breast cancer patients at the Johns Hopkins Howard County Medical Center and Johns Hopkins Bayview Medical Center.

Wendy Chen, M.D., M.S., assistant professor of plastic and reconstructive surgery, has joined the breast cancer team at Johns Hopkins Sibley Memorial Hospital.

Takeo Fujii, M.D., is a new part-time member of the Breast and Gynecologic Malignancies Group. He is an investigator at the National Cancer Institute who will see patients for medical oncology second opinions in the Viragh Outpatient Cancer Building.

Marie K. Gurka, M.D., joined the Breast and Gynecologic Malignancies Group's radiation oncology program in the national capital region.

Margaret Houser, M.D., joined the Johns Hopkins breast imaging faculty.

Maitri Kalra, M.D., new Clinical Associate for the Breast and Gynecologic Malignancies Group, will see patients at the Kimmel Cancer Center's Greenspring Station location and Viragh Outpatient Cancer Building.

Nima Khavanin, M.D., assistant professor of plastic and reconstructive surgery, has joined the breast cancer team at Johns Hopkins Sibley Memorial Hospital. He was trained in cutting edge breast reconstruction, including prosthetic and flap based total breast reconstruction, partial breast reconstruction, and lymphedema prevention and management.

Annie White LaVigne, M.D., joined the Kimmel Cancer Center's Breast and Women's Gynecologic Cancer Disease Group in Radiation Oncology where she will care for patients in East Baltimore and launch the department's first dedicated palliative radiation service, PRISM (Palliative Radiation in Supportive Medicine).

Princess Mark-Adjeli, M.D., M.P.H., joined the Kimmel Cancer Center in the National Capital Region as a clinical associate in the Breast and Gynecologic Malignancies Disease Group at Johns Hopkins Sibley Memorial Hospital.

Jillian Simard, M.D., joined the Kimmel Cancer Center as a Clinical Associate in our Breast and Gynecologic Malignancies Group at Johns Hopkins Sibley Memorial Hospital.

Honors and Awards

Jenna Canzoniero, M.D., M.S., received the Breast Cancer Research Foundation Marion R. Wright Award for Scientific Excellence in support of an early investigator for her studies using liquid biopsies to guide the treatment and prevention of metastatic breast cancer.

John Fetting, M.D., is retiring at the end of 2024. He will become a professor emeritus and will continue to lead the John Fetting Fund for Breast Cancer Prevention.

MORE BREAST CANCER NEWS

The John Fetting Fund for Breast Cancer Prevention

One in eight women will develop breast cancer in her lifetime. Fetting Fund researchers at the Johns Hopkins Kimmel Cancer Center are working to identify the one in eight before she develops breast cancer so that she can receive intensified screening and prevention efforts. Learn more about the Fetting Fund:

Web Education for Breast Cancer Survivorship

Web Education for Breast Cancer Survivorship (WEBS) is a centralized, updated patient and caregiver web-based resource portal developed by the Johns Hopkins Breast and Gynecologic Malignancies Group. WEBS connects users to information about breast cancer awareness, treatment, and supportive resources, including symptom management and healthy lifestyle tips, and a video library. WEBS is free and open to everyone.

Create a WEBS account at *Hopkinswebs.org*

Help Us Make a Difference

Each contribution to the Johns Hopkins Kimmel Cancer Center makes a difference in the lives of cancer patients here at Johns Hopkins and around the world.

Our physician-scientists are leading the way on many of the scientific breakthroughs in cancer, and your donation will support patient care and innovative research that is translated to better, more effective treatments. We are also focusing on ways to prevent cancer and support survivors.

You may designate a gift to a specific faculty member.

To make your donation online

hopkinscancer.org and click *"Make A Gift"*

To mail your donation

Johns Hopkins Kimmel Cancer Center
750 E. Pratt St., Suite 1700
Baltimore, MD 21202

To contact our Development Office

Phone: 410-361-6391
Fax: 410-230-4262
Email: KimmelGiving@jhmi.edu

Visit us on the Web

hopkinscancer.org.

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