

The MSK Campaign

Leading Science. Changing Lives.

Transforming Breast Cancer Care and Research

Prepared for: Think Pink Rocks

After skin cancer, breast cancer is the most commonly diagnosed cancer in the United States, with more than 310,000 new diagnoses estimated in 2024. Memorial Sloan Kettering Cancer Center (MSK) is internationally recognized for pioneering new ways to care for people with breast cancer. Every day, our physicians and scientists work to better understand the disease and provide the most effective treatment with the fewest side effects. At MSK's Evelyn H. Lauder Breast Center, more than 80 physicians work with nurses and other healthcare professionals to care for people with all types of breast disease. This team-based model has become the standard for medical centers across the globe.

Through MSK's vigorous breast cancer research program, investigators lead studies aimed at matching patients with the best therapies, outwitting treatment resistance, enhancing the power of the immune system, reducing the risk of cancer spread (metastasis), understanding differences in how breast cancer affects people from certain age and socioeconomic groups, and improving survivors' quality of life.

Although breast cancer is increasingly detected early, in its most curable stages, more than 42,000 people die of the disease each year. Philanthropic support is essential for our physicians and scientists to continue making headway against this disease. We are pleased to present some examples of our progress and areas of hope.

Specialized Breast Cancer Programs

Breast cancer diagnosis and treatment can differ among people depending on their age, background, and biology of the disease. These differences can influence how well someone responds to treatment and how they are able to handle the experience of breast cancer in their lives. With this in mind, MSK has established specialized programs to personalize care and achieve the best outcomes possible for every patient.

Young Adults With Breast Cancer

Finishing educations. Embarking on careers. Starting families. These are often the milestones of a young adult's life. So a diagnosis of breast cancer during this time can be especially disruptive. About 1 in 10 women with breast cancer are under age 45. To meet their needs and address their challenges, MSK created the Young Women With Breast Cancer program. Led by breast medical oncologist **Shari Goldfarb, MD**, the multidisciplinary program brings together comprehensive care, research, and education, with a focus on long-term health and quality of life.



Memorial Sloan Kettering
Cancer Center

GIVING

The program's dedicated staff provide seamless coordination of appointments and referrals for genetic counseling, breast imaging, fertility preservation, gynecologic oncology, sexual healthcare, pregnancy-associated breast cancer, social work services, and resources to promote survivor wellness. Whenever possible, staff consolidate multiple appointments in one day so a patient can take off less time from work or spend more time with family.

The team reviews each person's preferences and customizes a care plan that meets their individual needs. In fall 2023, Dr. Goldfarb and her colleagues created and distributed an engagement survey to young adults with breast cancer that asked them about topics such as their wishes to speak with a social worker, concerns around sexuality and intimacy, desire to have children and preserve their fertility, and body image. The survey had a 90% completion rate, and 4 out of 5 respondents requested one or more referrals for the ancillary services offered by the program. A dedicated social worker hired for the program — whom many patients say they would like to meet early in the course of their care — now helps patients with needs such as speaking with employers, family, and friends about their diagnosis; obtaining childcare to attend medical appointments; and getting counseling regarding mental and sexual health changes.

Dr. Goldfarb and her team are planning to increase fertility counseling and minimize the time it takes to receive an initial consultation by hiring a fertility consultant. This staff member would have contacts with all major New York City hospitals and could link patients with a consultation in as little as two days, rather than the typical wait time of six weeks. Support for this consultant would enormously help MSK meet the demand for fertility counseling among the nearly 2,500 young patients with breast cancer we see each year.

Toward a Better Understanding of Sexual Health

Cancer and its treatment may affect sexual and reproductive health. MSK investigators are conducting a study to evaluate sexual and reproductive health over several years among adults age 50 and younger newly diagnosed with breast cancer. They will evaluate the severity, time course, and predictors of sexual dysfunction, as well as the effects of cancer therapy on sexuality and pregnancy. Information from the study will help healthcare professionals learn which patients are most likely to experience early menopause, develop sexual problems during cancer therapy, or have difficulty getting pregnant after cancer treatment.

Rare Breast Cancer

Breast surgeon **Giacomo Montagna, MD, MPH**, and breast medical oncologist **Nour Abuhadra, MD**, lead MSK's Rare Breast Cancer Program. This initiative is expanding our understanding of tumor biology, with the goal of improving treatment response and making MSK an international referral center for people with rare breast cancers. The program's multidisciplinary teams personalize a care plan for each person based on their tumor's histological subtype, biological characteristics, and stage, as well as the patient's age and lifestyle.

The program also supports leading-edge cancer research. Dr. Abuhadra's team is studying a rare, aggressive breast cancer called metaplastic triple-negative breast cancer. These tumors lack receptors for estrogen, progesterone, and a protein called HER2. While triple-negative breast cancer can be treated with

immunotherapy, not all patients respond, and among those who do, the duration of the benefit is modest. Some studies suggest that the effect of immunotherapy may be blunted by immune cells called tumor-associated macrophages. Dr. Abuhadra's team was the first to assess the role of these macrophages in shaping the immune system's response to presurgical immunotherapy in people with triple-negative breast cancer. They are now identifying predictors of this response in early-stage metaplastic triple-negative breast cancer as well as studying how preoperative immunotherapy influences other immune cells around a tumor.

Dr. Montagna, Dr. Abuhadra, and their team are now establishing a tissue bank containing samples of rare breast tumors and looking at gene expression in these tissue specimens. They want to see how that expression correlates with patients' response to treatment and how it differs from that of patients with more common infiltrating ductal breast cancers. Additional funding is needed to expand this tissue repository and support its maintenance.

Specialty Care for Inflammatory Breast Cancer

Only 1% to 5% of breast cancers are inflammatory breast cancer, one of the most aggressive types of the disease. This cancer more often starts with a swollen, engorged breast, caused by tiny clumps of cancer cells blocking lymphatic fluid from properly draining. There is usually no lump. Symptoms may also include breast pain, itchiness, nipple discharge, or a rash. Healthcare providers do not often think of breast cancer when they see these symptoms, giving the cancer time to spread. There is a great need, therefore, for people with inflammatory breast cancer to receive multidisciplinary care as soon as possible after diagnosis to achieve a good outcome.

At MSK, a team co-led by breast surgeon **Audree Tadros, MD, MPH**, Jeanne A. Petrek Junior Faculty Chair; breast medical oncologist **Jacqueline Bromberg, MD, PhD**; and radiation oncologist **Amy Xu, MD, PhD**, assesses people newly diagnosed with inflammatory breast cancer to customize a care plan, offering access to clinical trials when appropriate.

Dr. Tadros is now leading a clinical trial to assess a change in the sequence of treatments for people with inflammatory breast cancer. Doctors normally treat this disease with chemotherapy followed by mastectomy and removal of underarm (axillary) lymph nodes. After mastectomy, patients normally receive radiation therapy and then have breast reconstruction surgery (if desired) many months to years after completing radiotherapy. With the alternative treatment approach being evaluated in this study, patients who received chemotherapy would have radiation therapy *before* mastectomy, and then reconstruction surgery, using a patient's own tissue, immediately after mastectomy. Researchers think this sequence of therapies may be more effective for shrinking tumors than the standard treatment. It may cause fewer side effects and would enable patients to finish their treatment more quickly.

Male Breast Cancer

MSK has been one of the leading centers in an international effort to study breast cancer in men, which accounts for less than 1% of all cases of breast cancer (about 2,700 people in the United States every year). Therapies for these patients are largely based on what doctors have learned from treating the disease in women. Breast medical oncologist **Ayca Guzalp, MD**, and breast surgeon **Mahmoud El-Tamer, MD**, are leading a comprehensive research program at MSK focusing on male breast cancer. The research team is working to design clinical trials specifically for men with this disease, as well as to include more of these patients in existing breast cancer studies.

Hereditary Breast Cancer

About 5% to 10% of breast cancer diagnoses will be for hereditary disease. That means the cancer is associated with a mutation, or a change in the DNA of a cell, inherited from a parent. The most common mutations known to raise breast cancer risk are in the *BRCA1* and *BRCA2* genes, but several other risk-associated genetic mutations have been identified as well, including changes in the *CHEK2*, *ATM*, and *TP53* genes. Breast cancers associated with inherited genetic mutations often behave differently than other breast cancers, yet many individuals may receive care that does not take these factors into account.

At MSK, breast cancer specialists led by **Mark Robson, MD**, Chief of the Breast Medicine Service, and breast surgeon **Minna Lee, MD**, launched a dedicated multidisciplinary research program for people with hereditary breast cancer. Their goals are to improve our understanding of the disease, determine the most effective therapies for each patient, and connect them with clinical trials as well as MSK's support resources. After therapy is complete, the team monitors patients the same way as it does those treated for sporadic breast cancer, with surveillance every four to six months. As part of that follow-up, people with inherited breast cancer may also have liquid biopsies. These tests look for fragments of DNA shed by cancers into the bloodstream (circulating tumor DNA, or ctDNA) and may help detect the earliest signs of cancer recurrence.

A New Lobular Breast Cancer Program

Most breast cancers that contain receptors for estrogen and progesterone respond well to treatment. However, that is not the case for a subset of understudied tumors called lobular breast cancers, almost all of which are hormone receptor-positive. Unlike the 85% of breast cancers that begin in the milk ducts, lobular breast cancers develop in the milk-producing glands. They can be difficult to detect because they typically grow as single files of cells rather than a lump, making them more challenging to see on a mammogram and harder to feel during a physical breast exam.

Breast surgeon **Anita Mamtani, MD**, and breast medical oncologist **Sherry Shen, MD**, are putting together a program dedicated to raising awareness of lobular breast cancer and individualizing therapy for people with this disease. Among their initial projects are those evaluating vascular breast imaging techniques to improve cancer detection, the use of presurgical hormonal therapy to reduce the risk of positive margins (cells remaining in the breast around the tumor site after breast cancer surgery), and the assessment of novel medications for people with advanced disease.

Healthy Living During and After Breast Cancer Treatment

We created the MSK Healthy Living program to help people with breast cancer live their best possible lives during and after cancer treatment. Led by breast medical oncologist **Neil Iyengar, MD**, this evidence-based, personalized program supports patients by addressing every aspect of their cancer journeys. The team brings together resources related to nutrition and exercise; integrative medicine; sexual health; fertility and body image; sleep; financial health; and mental, emotional, and spiritual well-being, among other issues.

Each participant in the program completes a comprehensive self-assessment questionnaire that incorporates the latest research on improving outcomes and quality of life for people receiving cancer treatment. A dedicated team customizes a lifestyle plan addressing each patient's needs and concerns. The team helps participants choose the best resources, schedule appointments, keep their care teams updated, answer questions, and meet their goals. When treatment is finished, the MSK Healthy Living team facilitates the transition to survivorship care.

Advancing Breast Cancer Treatment

Progress in Drug Development

MSK investigators are developing new breast cancer drugs in the laboratory, and they are evaluating them, as well as novel drug combinations, in clinical trials. There is always a need for financial support to fund clinical trials started by our own researchers, or investigator-initiated clinical trials, which are unique to MSK and often assess treatments not available elsewhere.

During the past several years, MSK researchers spearheaded several projects that expanded the arsenal of therapies for breast cancer:

- In August 2022, the FDA approved trastuzumab deruxtecan (Enhertu®) as the first targeted therapy for patients with HER2-low breast cancer, based on a clinical trial led by MSK breast medical oncologist **Shanu Modi, MD**. Treatments that target HER2 have been a game changer for patients with breast cancer cells that express a high amount of that protein, but until trastuzumab deruxtecan, these drugs had been less effective in cancers with only low levels of HER2. This approval redefines how a large group of patients with metastatic breast cancer will be treated and could also have implications for the future treatment of people with other types of cancer that express HER2 at low levels.
- In January 2023, the FDA approved the drug elacestrant (Orserdu®) for certain people with advanced or metastatic breast cancer. In clinical trials, elacestrant was effective in people with tumors that were hormone receptor-positive and HER2-negative, kept growing after hormone therapy, and had a mutation in a gene called *ESR1*. The approval capped a decade of pivotal research led by breast medical oncologist **Sarat Chandralapaty, MD, PhD**, Naddisy Foundation Chair in Breast Cancer Research.

- Breast cancer treatment has rapidly evolved because of advances in a class of therapies known as antibody-drug conjugates (ADCs). These therapies consist of an antibody targeting the HER2 protein. The antibody is tethered to a toxin, which enables it to selectively target cancerous cells. The Chandralapaty Lab learned that some cancers suppress proteins on the cancer cell's surface to prevent being targeted by ADCs. They are investigating new ways to enhance the benefits of ADC therapies by modulating the target in cancer cells.
- In a study published in August 2023, breast medical oncologist **Komal Jhaveri, MD**, Patricia and James Cayne Chair for Junior Faculty; **David Solit, MD**, Director of the Marie-Josée and Henry R. Kravis Center for Molecular Oncology and Geoffrey Beene Chair; and colleagues demonstrated the benefit of adding the drug neratinib (Nerlynx[®]) to treatment with fulvestrant (Faslodex[®]) and trastuzumab in people with hormone receptor-positive metastatic breast cancer that did not overproduce HER2 but had HER2 alterations. As a result of this study, the triplet combination of neratinib, fulvestrant, and trastuzumab was added to the National Comprehensive Cancer Network's treatment guidelines for this type of breast cancer.
- Cells normally have brakes called checkpoints in their growth cycles to prevent rampant cell growth, and cancer may result when these checkpoints do not work well. CDK4/6 inhibitors like abemaciclib (Verzenio[®]) can help restore these checkpoints, but breast cancer cells often become resistant to them. Dr. Chandralapaty and his lab team identified ways that metastatic breast cancer can prevent these drugs from working and developed new ones to potentially overcome treatment resistance. The team is conducting additional laboratory research and optimizing the medications so they can be given safely to patients.
- At the San Antonio Breast Cancer Symposium in December 2023, Dr. Jhaveri reported the results of an early-phase clinical trial showing that the addition of inavolisib to the standard treatment of palbociclib (Ibrance[®]) and fulvestrant was more effective than palbociclib and fulvestrant alone for delaying breast cancer recurrence in patients with advanced hormone receptor-positive, HER2-negative disease and a *PIK3CA* mutation. Since inavolisib targets the *PIK3CA* protein, the three-drug combination may become a new standard of care for patients with *PIK3CA*-mutated breast cancer who may become resistant to palbociclib and fulvestrant alone.
- Dr. Robson was among a team of investigators who reported new data at the 2024 Annual Meeting of the American Society of Clinical Oncology, the largest gathering of cancer professionals in the world. They evaluated the effectiveness of olaparib (Lynparza[®]) among various subgroups of patients with metastatic breast cancer with either *BRCA1/2* mutations or inherited *PALB2* mutations. Their findings showed that olaparib is most effective among those with *PALB2* mutations, 75% of whom responded to the treatment (versus 37% for *BRCA1/2* mutation carriers). Their findings could help clarify which patients are best suited for this therapy.

Enhancing Immunotherapy for Breast Cancer

Immunotherapy boosts the power of the immune system to detect and destroy cancer cells. It is a pillar of treatment for some cancers but has not been as effective against breast cancer. Pembrolizumab

(Keytruda®) is the one immunotherapy approved for breast cancer, and it is used only for people with triple-negative disease. Several MSK investigators are searching for novel ways to improve the effectiveness of immunotherapies against breast cancer.

B cells are white blood cells that may play an important role in how some immunotherapies work. In the Sloan Kettering Institute Immunology Program laboratory led by **Jayanta Chaudhuri, PhD**, breast surgeon **Stephanie Downs-Canner, MD**, is trying to understand how B cells fight cancer and how they can be harnessed to enhance the effects of immunotherapy. This information may help uncover ways to strengthen the immune system's capacity to kill cancer and to pinpoint targets for anti-cancer medications. Using data from patient samples, Dr. Downs-Canner is seeking to identify targets in a tumor that B cells might react against. The findings could open the door to new therapies that can be used synergistically with immunotherapy. Dr. Downs-Canner is also exploring how regulating circadian rhythm through exposure to different light therapies could improve cancer outcomes by boosting the effectiveness of a patient's own immune cells.

Breast surgeon **George Plitas, MD**, Director of Research for the Breast Service in the Department of Surgery, is creating a new laboratory model for assessing immunotherapy response that will be better than existing tools for recapitulating the tumor microenvironment (the cells and other structures around a tumor that influence breast cancer growth and spread). This tool could be used to optimize preclinical studies, facilitate the development of new immunotherapeutic approaches, and potentially improve patient outcomes. In a second project, Dr. Plitas and his colleagues are exploring how genetic differences between white and non-white people may explain why Black and Asian patients with triple-negative breast cancer respond better to presurgical immunotherapy plus chemotherapy than white patients do. The data could be used to refine treatment selection for people with this form of breast cancer, which disproportionately affects Black patients.

Medical oncologist and cellular therapist **Christopher Klebanoff, MD**, has devoted much of his scientific career to developing a form of immunotherapy called T cell receptor (TCR) therapy. Existing immunotherapies and antibody-based treatments take aim at proteins on the outside of cancer cells, but 90% of cancer-specific proteins are found inside the cells. TCR therapies enable T cells to detect abnormal proteins found exclusively on the inside of cancer cells, overcoming the major limitation of existing immunotherapies. The engineered T cells can attack tumor cells while leaving healthy cells that have a normal version of a protein unharmed, so the treatment may be more effective and have fewer side effects.

MSK is the ideal place for this kind of work to succeed. Every patient has access to MSK-IMPACT®, our targeted tumor-sequencing test that identifies more than 500 genes associated with cancer and helps doctors determine if a patient will benefit from TCR therapy. MSK is also one of the very few institutions globally that has the facilities to create gene therapies and treat patients with genetically engineered cell products. With our extensive expertise and unique resources propelling this research, we anticipate that the TCR initiative will lead to a revolutionary improvement in care for many common solid tumors that do not respond well to current forms of immunotherapy.

Using Liquid Biopsy to Improve Outcomes

Most metastatic breast cancer starts out as a primary tumor that is detected early but then silently spreads to distant organs. Metastatic cells may occur even before the original cancer is diagnosed. They can survive in the body for many years after initial treatment without forming metastatic tumors or causing a recurrence. MSK scientists are developing technologies to detect such minimal residual disease (MRD) and designing clinical trials to improve outcomes for patients.

Dr. Chandarlapaty and breast medical oncologist **Pedram Razavi, MD, PhD**, are developing liquid biopsy tests to detect MRD after treatment. This process involves screening large numbers of people with cancer to find those with MRD and offering them novel therapies through a clinical trial. Such approaches open up the possibility of preventing the progression of early-stage cancer to metastatic disease.

Similarly, changes in ctDNA detected through liquid biopsy predict response to treatment. A decline in ctDNA may indicate that a patient is responding well to therapy, while no change or a rise in ctDNA levels could indicate that perhaps another treatment approach is warranted. This is the basis of a powerful new strategy developed by Dr. Chandarlapaty, Dr. Jhaveri, and Dr. Razavi that has the potential to change oncology practice for people with HER2-positive metastatic breast cancer. The doctors designed HERizon, a clinical trial that seeks to upend the conventional practice of waiting for drug resistance to emerge before changing to another anti-HER2 therapy. Instead, they will sequentially use the most effective therapies together with highly sensitive liquid biopsies to guide treatment decisions. The goal is to cure all patients with HER2-positive metastatic breast cancer.

Breast medical oncologist **Adam Widman, MD**, focuses on new tools for cancer detection and monitoring through liquid biopsy, using artificial intelligence (AI) and cancer genomics to quantify trace amounts of cancer in the blood. He is developing a test to screen carriers of *BRCA* mutations using whole-genome sequencing and machine learning tools to look for disruptive DNA associated with *BRCA*-related cancers. Using such a test may pinpoint the early presence of these cancers before they may be detectable through screening tests or physical exams.

Expanding Options for Patients Who Cannot Have Surgery

Applying freezing temperatures to large breast tumors, a treatment called cryoablation, reduces the risk of breast cancer recurrence. That was the finding that MSK interventional radiologist **Yolanda Bryce, MD**, reported at the 2024 Society of Interventional Radiology Annual Scientific Meeting. The study included people with an average breast tumor size of 2.5 centimeters who were not candidates for surgery or who declined surgery because of other health reasons. Only 10% of patients who received cryoablation experienced a recurrence of their cancer after a median follow-up of 16 months. Dr. Bryce noted that this approach could be more effective than the current standard of care for people who cannot have breast cancer surgery (radiation and hormonal therapy) and that the findings are encouraging.

Advancing Breast Cancer Research

Identifying New Breast Cancer Genes

While mutations in the *BRCA1* and *BRCA2* genes raise the risk of various cancers, including breast cancer, their exact role in the disease's development can be complex. MSK investigators have shown that there are

more than 75 common *BRCA2* variants that influence the risk of developing breast cancer, providing a range of opportunities to better understand and target the disease. MSK medical oncologists are researching pathways that can be targeted to modify breast cancer risk in people with *BRCA1/2* mutations. Led by **Kenneth Offit, MD, MPH**, Chief of the Clinical Genetics Service and Robert and Kate Niehaus Chair in Inherited Cancer Genomics; Dr. Chandralapaty; **Charles Sawyers, MD**, Chair of the Human Oncology and Pathogenesis Program and Marie-Josée Kravis and Henry R. Kravis Chair in Human Oncology and Pathogenesis; and Dr. Robson, the team has also identified mutations in DNA repair genes in a pathway called nucleotide excision repair. These changes are present in many cancer types, and the researchers are developing new drugs to target this pathway.

The team is exploring ways to expand cascade testing, a more efficient method of genetic screening, for families with an increased risk of breast cancer. With cascade testing, relatives are alerted to a genetic condition discovered within the family and offered genetic testing for that condition. It is an alternative to the genetic screening of millions of people in the general population.

Bolstering Translational Research

Organoids are 3D organlike cultures about a millimeter in size made from tumor specimens, while patient-derived xenografts (PDXs) are cells from a human tumor transplanted into a research animal. With these laboratory constructs, our investigators can study cancer cells on a microscopic level as they grow into a new tumor and can assess potential drugs. Dr. Lee and other scientists in MSK's Hereditary Breast Cancer Treatment Program are creating a library of organoids and PDX models from people with hereditary breast cancer, which will aid in the search for new therapies as well as provide a deeper understanding of these tumors and how they respond or become resistant to treatment.

Managing Big Data

Most cancer care today is based not just on physician experience but on medical evidence and data. Modern cancer care and research generate massive amounts of information, and there is an urgent need for new mathematical approaches to make sense of this data and understand how the insights it holds should be applied to patient care. Toward that goal, MSK is part of the Mathematical Oncology Initiative (MOI) led by **Larry Norton, MD**, Medical Director of the Evelyn H. Lauder Breast Center, Norna S. Sarofim Chair in Clinical Oncology, and a pioneer in mathematical oncology; and **Joseph Deasy, PhD**, Chair of the Department of Medical Physics and Enid A. Haupt Chair in Medical Physics. In collaboration with researchers from Stony Brook University and Israel, the MOI unites data scientists, computer engineers, computational biologists, and clinicians to harness the power of machine learning and data analytics to improve cancer care.

Through the MOI, researchers are developing methods for analyzing pathology slides and radiological images, improving the interpretation of cancer features that may guide treatment choice. Additional funding is needed to build and maintain MSK's data repository so we can continue to make headway in understanding breast cancer and the best treatments for each patient.

AI plays a significant role in data-driven scientific research. MSK is driving an institutional effort to use AI to accelerate the matching of patients with clinical trials for which they may be eligible. Breast cancer clinical trials will be among the first studies included as part of this initiative.

Reducing the Effects of Cancer Disparities on Treatment Outcomes

People living in disadvantaged neighborhoods are more likely to experience a recurrence of breast cancer than those living in advantaged neighborhoods. This disparity persists even after controlling for individual, environmental, and treatment factors, as well as tumor biology, suggesting there are other mechanisms at play affecting breast cancer recurrence. Through the Miami Breast Cancer Disparities Study, breast surgeon **Neha Goel, MD, MPH** — who recently came to MSK from the University of Miami Miller School of Medicine — analyzed blood and tissue samples from people with breast cancer. She showed that people from disadvantaged neighborhoods had higher levels of certain immune cells that promote breast cancer growth and spread, due to effects on signaling in the sympathetic (“fight-or-flight”) nervous system. These factors resulted in more aggressive breast cancer and a shorter time to breast cancer recurrence. Dr. Goel subsequently reported in a randomized clinical trial that a stress management program reduced sympathetic nervous system signaling, reversed this aggressive tumor behavior, and lengthened patient survival. She is planning to design a similar neighborhood-based breast cancer disparities study at MSK.

Culturally Sensitive Breast Care

Since 2003, the team at the MSK Ralph Lauren Center has been working to reduce disparities in breast cancer outcomes by promoting access to screening, diagnosis, treatment, and support services for people in the Harlem neighborhood of Manhattan in a welcoming and culturally sensitive environment. A patient navigation program ensures that each patient’s care is seamlessly coordinated and addresses obstacles to accessing care. Doctors and nurses speak both English and Spanish, enhancing communication with the 60% of MSK Ralph Lauren Center patients who are native Spanish speakers. Nutritional and financial counseling, social services, and a medically tailored food pantry are all available to patients to help them live their best possible lives during cancer treatment, closer to their homes.

Tailoring Surgery for Each Person

Because breast cancer can spread to the lymph nodes under the arm, surgeons often remove and examine a sentinel node (the first node to which cancer cells might spread) to determine the extent of cancer growth and guide treatment. Sometimes all the lymph nodes under the arm need to be taken out, but removing many lymph nodes can cause a side effect called lymphedema, in which fluid collects in the affected arm. This condition raises the risk of infection and can be very uncomfortable.

Babak Mehrara, MD, Chief of the Plastic and Reconstructive Surgical Service and Peter G. Cordeiro Endowed Chair in Plastic and Reconstructive Surgery, and breast surgeon **Andrea Barrio, MD**, had previously shown in a pioneering study that Black and Latina patients and people who receive chemotherapy before breast cancer surgery are more likely to develop lymphedema. Bolstered by federal research funding awarded in 2023, they are conducting a five-year study to investigate the causes of racial disparities in breast cancer-related lymphedema. They recently expanded the research cohort to include not only patients having many lymph nodes removed but those who had sentinel node biopsy. Dr. Mehrara

is also using microsurgical techniques to minimize the risk of lymphedema in patients who must have all of their axillary lymph nodes removed.

Surgeons on the Breast Service — led by **Monica Morrow, MD**, Anne Burnett Windfohr Chair of Clinical Oncology — are sparing some patients with small cancers and normal lymph nodes on ultrasound from sentinel lymph node biopsy during breast cancer surgery, decreasing postoperative discomfort and speeding their recovery. In postmenopausal adults with hormone receptor-positive, HER2-negative breast cancer (who make up the largest subset of people with breast cancer), the presence or absence of cancer in the lymph nodes is no longer the best indicator to decide if chemotherapy is necessary. This determination is better accomplished with genomic testing of the tumor. Doctors have also learned that removing underarm lymph nodes does not increase the chance of curing breast cancer. A European clinical trial demonstrated that eliminating sentinel node biopsy in patients with hormone receptor-positive, HER2-negative breast cancer does not change cancer outcomes. After adopting this approach at MSK, our surgeons found that among an initial group of 123 patients, sentinel node biopsy was needed in only 8, meaning that 94% of patients could avoid any axillary surgery.

Looking Ahead

We've made so much progress in detecting breast cancer earlier, helping patients live longer and improving their quality of life. But much work remains to be done. More MSK scientists than ever are conducting transformative research to gain a clearer understanding of the disease and reduce the burden of breast cancer metastasis on the lives of patients, their families, and society. Your support is essential to ensure that the momentum of this work continues. We greatly appreciate your longstanding generosity in support of this critical work.

The MSK Campaign

Leading Science. Changing Lives.

The MSK Campaign is an opportunity for our vibrant community to support MSK's mission of ending cancer for life. Every day, MSK doctors and scientists bring courage and creativity to answer cancer's biggest questions, apply discoveries to care, and train the next generation of leaders. Organized across six strategic initiatives, The MSK Campaign ensures MSK will have the resources needed to create new treatments and cures, turning a legacy of innovation into impact for people with cancer around the world. You are invited to join the Campaign and change lives with us.

Learn more about The MSK Campaign at giving.mskcc.org/msk-campaign.