Breast Cancer Awareness

PREVENTION & TREATMENT

Breast Cancer Risk in Younger Women May Be Influenced by Hormone Therapy

NIH study could help to guide clinical recommendations for hormone therapy use among women under 55

Scientists at the National Institutes of Health (NIH) have found that two common types of hormone therapy may alter breast cancer risk in women before age 55. Researchers discovered that women treated with unopposed estrogen hormone therapy (E-HT) were less likely to develop the disease than those who did not use hormone therapy. They also found that women treated with estrogen plus progestin hormone therapy (EP-HT) were more likely to develop breast cancer than women who did not use hormone therapy. Together, these results could help to guide clinical recommendations for hormone therapy use among younger women.

The two hormone therapies analyzed in the study are often used to manage symptoms related to menopause or following hysterectomy (removal of uterus) or oophorectomy (removal of one or both ovaries). Unopposed estrogen therapy is recommended only for women who have had a hysterectomy because of its known association with uterine cancer risk.

"Hormone therapy can greatly improve the quality of life for women experiencing severe menopausal symptoms or those who have had surgeries that affect their hormone levels," said lead author Katie O'Brien, Ph.D., of NIH's National Institute of Environmental Health Sciences (NIEHS).

"Our study provides greater understanding of the risks associated with different types of hormone therapy, which we hope will help patients and their doctors develop more informed treatment plans."

The researchers conducted a large-scale analysis that included data from more than 459,000 women under 55 years old across North America, Europe, Asia, and Australia. Women who used E-HT had a 14% reduction in breast cancer incidence compared to those who never used hormone therapy. Notably, this protective effect was more pronounced in women who started E-HT at younger ages or who used it longer. In contrast, women using EP-HT experienced a 10% higher rate of breast cancer compared to non-users, with an 18% higher rate seen among women using EP-HT for more than two years relative to those who never used the therapy.

According to the authors, this suggests that for EP-HT users, the cumulative risk of breast cancer before age 55 could be about 4.5%, compared with a 4.1% risk for women who never used hormone therapy and a 3.6% risk for those who used E-HT. Further, the association between EP-HT and breast cancer was particularly elevated among women who had not undergone hysterectomy or oophorectomy. That highlights the importance of considering gynecological surgery status when evaluating the risks of starting hormone therapy, the researchers noted.

"These findings underscore the need for personalized medical advice when considering hormone therapy," said NIEHS scientist and senior author Dale Sandler, Ph.D.

"Women and their health care providers should weigh the benefits of symptom relief against the potential risks associated with hormone therapy, especially EP-HT. For women with an intact uterus and ovaries, the increased risk of breast cancer with EP-HT should prompt careful deliberation."

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>
> KATIE O'BRIEN, Ph.D.
> NIEHS

The authors noted that their study is consistent with previous large studies that documented similar associations between hormone therapy and breast cancer risk among older and postmenopausal women. This new study extends those findings to younger women, providing essential evidence to help guide decision-making for women as they go through menopause.

For more information on NIEHS or environmental health topics, visit niehs.nih.gov.

BREAST CANCER AWARENESS

Advancing Breast Cancer Care With Innovation, Compassion and Purpose

One in eight women in the United States will be diagnosed with breast cancer in her lifetime, making it one of society's most serious diseases. Amid the concerning landscape, City of Hope® stands as a beacon of progress, compassion and scientific excellence. A National Cancer Institute-designated comprehensive cancer center, City of Hope's leading breast cancer program is recognized for its groundbreaking research, personalized treatments and unwavering commitment to patients.

During Breast Cancer Awareness Month, City of Hope clinicians across Southern California are wearing pink lab coats to symbolize their commitment to advancing breast cancer care. Doctors received their pink coats at Pink for a Purpose event, which also called attention to rising breast cancer rates among younger women.

A NATIONAL LEADER IN BREAST CANCER CARE

City of Hope has been consistently named among the top cancer hospitals in the country by U.S. News & World Report. Its breast cancer program is built on a foundation of multidisciplinary expertise, leading-edge technology, and a whole-person approach to care.

With locations across Southern California — including its Women's Cancer Program in Duarte, Orange County Lennar Foundation Cancer Center in Irvine (Orange County's only cancer specialty hospital will also open later this year) and more than 40 clinical network sites — City of Hope ensures that patients receive world-class care close to home.

PERSONALIZED, WHOLE-PERSON TREATMENT

Every breast cancer diagnosis is unique, and City of Hope's deeply collaborative care teams tailor treatment plans to each patient's needs, goals and background. Patients benefit from:

- **Advanced surgical techniques,** including nipple-sparing mastectomies and intraoperative radiation therapy (IORT), which delivers targeted radiation during surgery
- **High-precision radiation therapy and immunotherapies,** including CAR T cell therapy for select breast cancer types
- **Comprehensive diagnostic tools,** such as 3D mammography, MRI, ultrasound, PET scans and stereotactic biopsy
- **Genetic counseling and testing** for hereditary risk factors, including BRCA1 and BRCA2 mutations
- **Breast reconstruction options** that preserve skin and nipple sensation and microsurgical techniques to reduce lymphedema

City of Hope's High-Risk Breast Clinic offers personalized risk assessments and prevention strategies for individuals with a family history or genetic predisposition to breast cancer. This precision medicine approach helps guide surveillance and risk-reduction strategies tailored to each individual.

CLINICAL TRIALS: TOMORROW'S TREATMENTS TODAY

As a founding member of the National Comprehensive Cancer Network, City of Hope plays a key role in shaping breast cancer treatment guidelines nationwide. City of Hope is rapidly expanding its portfolio of clinical trials in breast cancer, evaluating novel agents, emerging therapeutic targets, and supportive care strategies. Trials are available for patients at all stages of breast cancer, including those at high risk of developing the disease.

Recent innovations include:

- **A robotic-assisted, single-incision mastectomy trial,** offering improved cosmetic outcomes and faster recovery
- **A national clinical trials model** that enables simultaneous trial openings across multiple states, expanding access to life-saving treatments
- **Trials focusing on personalizing treatment** to specific cancer biology

> City of Hope's High-Risk Breast Clinic offers personalized risk assessments and prevention strategies for individuals with a family history or genetic predisposition to breast cancer.

These trials reflect City of Hope's commitment to accelerating breakthroughs, ensuring that patients benefit from the most advanced therapies available.

SUPPORT BEYOND TREATMENT

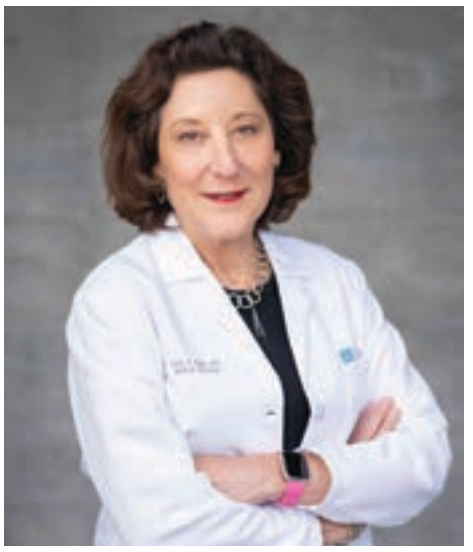
City of Hope's care doesn't end when treatment does. Its Breast Cancer Survivorship Program provides long-term follow-up, recurrence monitoring and support for physical, emotional and practical challenges. Services include:

- Personalized survivorship care plans
- Fertility and sexual health counseling
- Nutrition, wellness and integrative therapies
- Financial and insurance navigation
- Partner and caregiver support through the Partners Clinic

This whole-person approach ensures that patients are supported not only during treatment, but throughout their survivorship journey.

LEADING THE WAY: VISIONARY EXPERTS IN BREAST CANCER CARE

City of Hope's breast cancer program is guided by two nationally recognized leaders whose expertise and compassion are shaping the future of breast health.



Dr. Hope S. Rugo, director of City of Hope's Women's Cancers Program and division chief of Breast Medical Oncology.

Dr. Veronica C. Jones, chief of City of Hope's Division of Breast Surgery.

Dr. Hope S. Rugo, a world-renowned breast cancer physician-scientist, serves as director of the Women's Cancers Program and division chief of Breast Medical Oncology. With more than 500 peer-reviewed publications and decades of clinical trial leadership to her name, Dr. Rugo has helped bring numerous US Food and Drug Administration-approved therapies to patients, including PARP inhibitors, CDK4/6 inhibitors and antibody-drug conjugates. She is also renowned for her work improving the patient experience — leading studies that resulted in scalp cooling caps to prevent chemotherapy-induced hair loss and steroid mouthwash to reduce mouth sores as a treatment side effect.

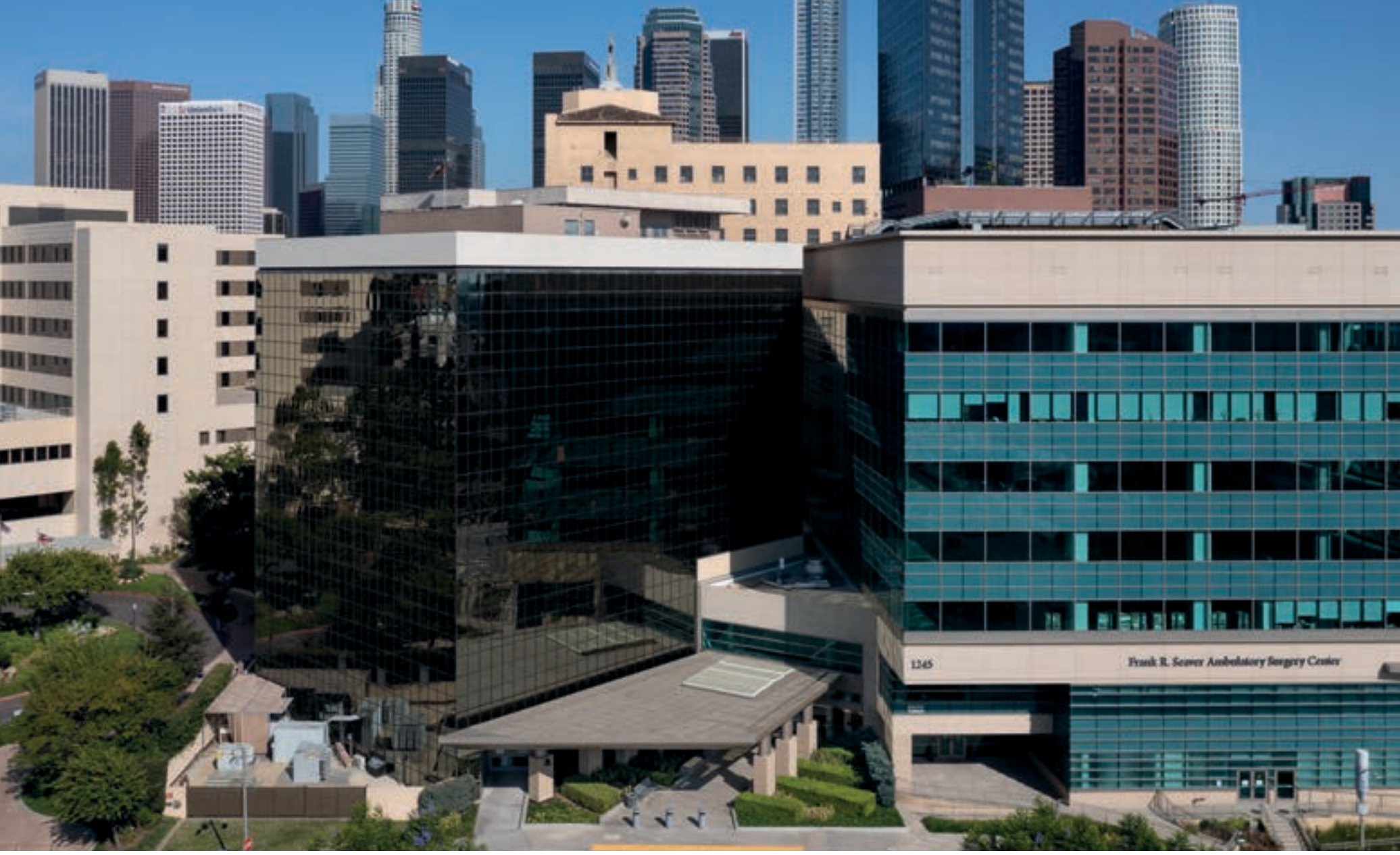
Her leadership at City of Hope is focused on expanding clinical trials, advancing translational research and standardizing care to improve outcomes for patients nationwide.

In addition, Dr. Rugo moderates a free, virtual Breast Cancer Forum for patients.

Dr. Veronica C. Jones, chief of the Division of Breast Surgery, is a nationally respected breast cancer surgeon and researcher. Her work focuses on understanding the biological mechanisms of aggressive breast cancer across various racial and ethnic groups, particularly hormone-sensitive subtypes. Dr. Jones is committed to reducing disparities in breast cancer outcomes and improving access to immediate breast reconstruction and survivorship care for underserved populations.

Together, Dr. Rugo and Dr. Jones exemplify City of Hope's mission: combining scientific innovation with compassionate care to deliver the best possible outcomes for every patient.

If you or a loved one has been diagnosed with breast cancer, City of Hope is here to help. To schedule an appointment or learn more about our leading breast cancer care, call (877) 460-4673 or visit CityofHope.org.



See the Difference Early.

Choose a 3D Mammogram.

At PIH Health Good Samaritan Hospital, we offer advanced 3D mammography for clearer images, greater accuracy, and earlier detection—even before symptoms appear. Because when it comes to breast health, early detection can save lives.

Take control of your health today.

Schedule your mammogram at **PIHHealth.org/Mammogram**

Be sure to choose our Los Angeles location for the PIH Health Good Samaritan Hospital campus.

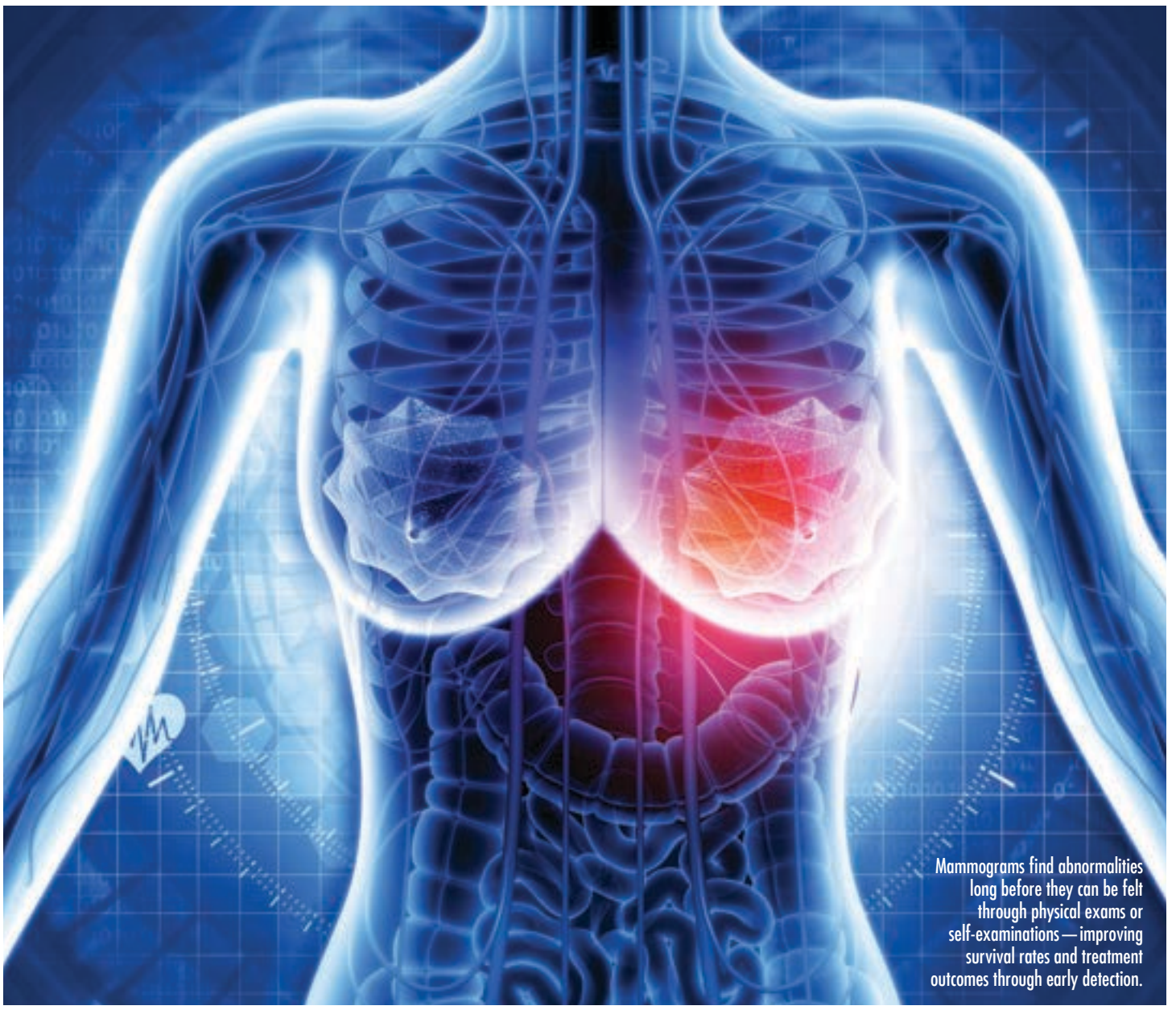
PIH HEALTH

PIHHealth.org

BREAST CANCER AWARENESS

Mammograms and Millennials: The Importance of Early Screening

By **PIH HEALTH**



Mammograms find abnormalities long before they can be felt through physical exams or self-examinations—improving survival rates and treatment outcomes through early detection.

Breast cancer is no longer just a concern for older women. In recent years, more cases have been diagnosed in younger women, making early screening an essential part of proactive healthcare. Millennials, those born between 1981 and 1996, are now entering their 30s and 40s—the age range where breast cancer screening becomes increasingly relevant.

The US Preventive Services Task Force (USPSTF) now recommends that women begin routine screening mammography at age 40, particularly those at average risk. This update reflects an alarming rise in breast cancer diagnoses among younger populations, reinforcing the importance of early detection. When detected in its earliest stages, breast cancer is more treatable, with higher survival rates and more treatment options available.

For some women, screening should start even earlier. Those with an elevated risk due to personal or family history may need to begin mammograms around age 30. Additionally, some may require supplemental screening, such as contrast-enhanced breast MRI, starting as early as 25-30 years old. The American College of Radiology advises that all women undergo a breast cancer risk assessment by age 25 to help determine their ideal screening schedule.

THE POWER OF EARLY DETECTION

The earlier breast cancer is detected, the better the chances of successful treatment. Mammograms can detect tumors before they are large enough to be felt, often identifying abnormalities years before symptoms appear. This is especially critical for younger women, as breast cancer tends to be more aggressive in this age group.

Carol Richardson-Te MD, PIH Health internal medicine doctor, underscored the importance of prioritizing breast health. "Many young women believe breast cancer won't affect them until they are older, but that may not be the case. Being proactive with screenings, knowing your personal risk, and adopting a healthy lifestyle can make all the difference in catching cancer early and improving outcomes," she said.

Despite the benefits, some women hesitate to get mammograms due to fear, discomfort, or misconceptions. However, advances in mammography technology have made the process quicker, more comfortable, and more effective. Digital mammography and 3D mammography (tomosynthesis) provide highly detailed images that improve accuracy and reduce the likelihood of false positives.

BREAST SELF-AWARENESS: KNOW YOUR NORMAL

In addition to mammograms, self-awareness is an important part of breast health. The American Cancer Society encourages all women to be familiar with the normal appearance and feel of their breasts so they can detect any changes early. While routine self-exams are no longer formally recommended, breast self-awareness means recognizing changes such as:

- Lumps or thickening in the breast or underarm
- Changes in size, shape, or appearance of the breast
- Unexplained pain that persists
- Nipple discharge or inversion
- Skin dimpling or redness

If you notice any of these changes, it's important to consult a healthcare provider promptly. While most breast changes are not cancerous, early evaluation ensures that any potential concerns are addressed quickly.

> The earlier breast cancer is detected, the better the chances of successful treatment.

RISK FACTORS MILLENNIALS SHOULD KNOW

Millennials should also be aware of risk factors that can increase the likelihood of developing breast cancer. These include:

- **Family history and genetics:** Women with close relatives who had breast cancer—especially at a young age—may have a higher risk. Genetic testing can help determine if someone carries mutations such as BRCA1 or BRCA2.
- **Dense breast tissue:** This can make it harder to detect abnormalities on a mammogram and may increase cancer risk. Supplemental imaging like breast MRI or ultrasound may be recommended.
- **Lifestyle factors:** Maintaining a healthy weight, exercising regularly, limiting alcohol intake and avoiding smoking can all help reduce risk.
- **Hormonal factors:** Extended use of hormone-based birth control or hormone replacement therapy can slightly increase the risk of breast cancer. Discussing options with a doctor can help manage any concerns.

Put yourself first. Maintain a proactive approach to your breast health to significantly lower the chances of advanced breast cancer—schedule regular mammograms, conduct self-exams, and stay informed about any risks.

TAKE CONTROL OF YOUR BREAST HEALTH

For millennials, taking responsibility for breast health goes beyond just scheduling an annual mammogram. It means being informed, understanding personal risk factors, and knowing when and how to take action.

Regular screenings, combined with healthy lifestyle choices and self-awareness, can significantly improve early detection rates and outcomes. When breast cancer is caught early, treatment is often less invasive, and survival rates are much higher.

Don't wait to take control of your breast health. If you are 40 or older, or at increased risk, schedule your mammogram at PIHHealth.org/Mammogram.

BREAST CANCER AWARENESS

A Polygenic Risk Score May Predict Future Breast Cancer in Patients

Patients diagnosed with abnormal breast cells were more likely to receive a later diagnosis of breast cancer if their 313-SNP breast cancer polygenic risk score was high

In a retrospective study, the 313-SNP breast cancer polygenic risk score (PRS313) blood test could predict future incidents of breast cancer in women diagnosed with ductal carcinoma in situ (DCIS) or lobular carcinoma in situ (LCIS), according to a paper published in Cancer Epidemiology, Biomarker & Prevention, a journal of the American Association for Cancer Research (AACR).

Breast cancer is the most common form of cancer in women and contributes to more than 15% of all new cancer cases in the United States. Abnormal cells in the breast ducts (DCIS) and breast lobules (LCIS) can develop into breast cancer, but scientists cannot currently predict which DCIS and LCIS cases will go on to become breast cancer, said Elinor J. Sawyer, PhD, the study's senior author and professor of clinical oncology at King's College London in the United Kingdom.

"It is therefore very important that we find ways to predict which women with DCIS and LCIS are most likely to develop invasive breast cancer in the future so they can be given the most appropriate treatment and avoid unnecessary treatment," she said.

The study's lead author, clinical information analyst Jasmine Timbres at King's College London, wanted to test whether PRS313 could be a useful tool in filling this gap in risk assessment and guiding treatment. PRS313 is a test that estimates a patient's breast cancer risk by quantifying which of 313 breast cancer-associated gene abnormalities called SNPs they have. Because PRS313 has been previously validated as a genetic test that can predict the risk of breast cancer in women with no cancer history, Timbres hypothesized that it could be used as a prediction factor for the risk of breast cancer in patients with DCIS or LCIS.

To test the predictive power of PRS313 in DCIS and LCIS patients, the researchers analyzed the datasets from the UK ICICLE and GLACIER studies. The team assessed the PRS313 scores and follow-up data from 2,169 DCIS cases and 185 LCIS cases. For patients with DCIS, the researchers stratified the PRS313 scores into quartiles and compared them with outcomes. For patients with LCIS, they measured associations between increasing PRS313 scores and outcomes.

The study found that, among patients with DCIS, those with PRS313 scores in the highest quartile were 2.03 times as likely to develop cancer in the breast opposite the original breast (i.e., the contralateral breast) compared with patients in the lowest PRS313 quartile. However, the association between a higher PRS313 and future same-breast (ipsilateral) cancer in patients with DCIS was not significant.

In patients with LCIS, an increasing PRS313 score was associated with an increased risk of ipsilateral breast cancer, being 2.16 times more likely to develop ipsilateral disease per increase in PRS313.

Family cancer history also appeared to play a role. The researchers found that, in patients with a family history of breast cancer, increases in PRS313 were associated with a more than threefold increase in the risk of ipsilateral disease after LCIS, and the risk increased to fourfold if patients who had received mastectomy and radiotherapy for their cancer were excluded.

"LCIS is not always surgically removed or treated with hormone therapies, as it is considered lower risk than DCIS. However, these results indicate that those with a family history may benefit from such additional treatments, which could reduce their risk of further cancer," Timbres said.

"The associations found in this study could be useful in helping women decide their treatment options after a diagnosis of DCIS or LCIS," she added. "By looking at the full picture, rather than just how cells look under a microscope, we can give women more accurate information about their personal risk of recurrence. This could help them make more informed choices about their treatment options and what's right for them."

Sawyer noted, "Although more work still needs to be done to confirm the results of this study in other groups of patients or assess additional genetic changes, the results are very promising and have the potential to influence treatment decisions."

The study's limitations include PRS313's design as a risk score for invasive disease specifically, and the study therefore may not have tested for important but as-yet-unknown genetic changes associated with in situ breast disease. Another limitation is that the number of women with LCIS in the study's cohorts was quite small, which may have led to the researchers not detecting statistically significant associations.

The study was funded by Breast Cancer Now, Cancer Research UK, and the Biomedical Research Centre at Guy's and St Thomas' NHS Foundation Trust and King's College London.

Learn more at aacr.org.