

What researchers suspect may be fueling cancer among millennials

By ARIANA EUNJUNG CHA, ÁLVARO VALIÑO, DAN KEATING The Washington Post

ary Patti leaned in to study the rows of plastic tanks, where dozens of translucent zebrafish flickered through chemically treated water. Each tank contained a different substance - some notorious, others less well understood - all known or suspected carcinogens.

Patti's team is watching them closely, tracking which fish develop tumors, to try to find clues to one of the most unsettling medical puzzles of our time: Why are so many young people getting cancer?

The trend began with younger members of Generation X but is now most visible among millennials, who are being diagnosed in their 20s, 30s and early 40s - decades earlier than past generations. Medications taken during pregnancy, the spread of ultraprocessed foods, disruptions to circadian rhythms - caused by late-night work, global travel and omnipresent screens - and the proliferation of synthetic chemicals are all under scrutiny.

Older Americans are still more likely to be diagnosed than younger ones. But cancer rates among those aged 15 to 49 have increased by 10 percent since 2000 even as they have fallen among

older people, according to a Washington Post examination of federal data.

Young women are more affected than men. From ages 15 through 49, women have a cancer rate that is 83 percent higher than men in the same age range.

The rise in early-onset cancers has drawn a growing number of scientists into a shared investigation: not into the inherited traits that remain largely unchanged as a cause of cancer across generations, but into the ways modern life might be rewriting the body's cellular fate. The new research direction examines the "exposome" - the full range of environmental exposures a person experiences throughout his or her life, even before birth - and how those exposures interact with biology.

Many researchers are focusing on a window that opened in the 1960s and '70s and accelerated in the '80s and beyond, when a wave of new exposures entered daily life.

Certain medications taken during pregnancy may disrupt fetal development or programming of gene activity, potentially increasing susceptibility to early-onset cancers.

Exposure to environmental chemicals - including those in microplastics that accumulate in tissues after being ingested or inhaled - can increase the risk of hormonal imbalances, genetic mutations, inflammation and other effects that contribute to early cancers.

A diet that contains large quantities of highly processed food can influence cancer risk by promoting inflammation, obesity and metabolic changes that may trigger tumorigenesis.

Disruption of circadian rhythms may impair DNA repair mechanisms and hormone, metabolic and immune regulation, heightening the risk of early-onset malignancies.

The research is sprawling and interdisciplinary, but it is beginning to align around a provocative hypothesis: Shifts in everyday

See CANCER D2



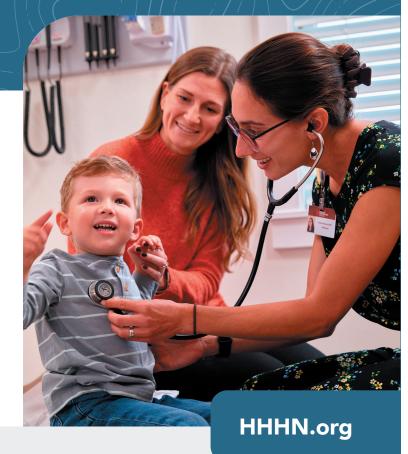


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(f) (in blog UVMHealth.org/AHMC In honor of Breast Cancer Awareness Month, let's work together to make sure every woman has access to education, screening and treatment.

Breast Cancer is the most common cancer among women, and screening mammograms are an important part of your care.

If you are between the ages of 40 and 49, talk to your doctor about when and how often you should have a screening mammogram. Between the ages of 50 and 74, be sure to have a screening mammogram every two years.

> University of Vermont HEALTH NETWORK Alice Hyde Medical Center

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Cancer

From D1

exposures may be accelerating biological aging, priming the body for disease earlier than expected.

'We've changed what we're exposed to considerably in the past few decades," said Patti, a professor of chemistry, genetics and medicine at the Washington University School of Medicine in St. Louis.

The sheer complexity of modern life makes it difficult to pinpoint specific culprits. But advances in rapid, high-volume chemical screening, machine learning and vast population datasets have made it possible to look with unparalleled depth and detail into the human body and the world around it. These methods test thousands of variables at once, revealing some never-beforeseen patterns.

Last year, researchers released findings from a 150,000-person study at the annual American Association for Cancer Research meeting that took the cancer community by surprise. They found that millennials - born between 1981 and 1996 - appear to be aging biologically faster than previous generations, based on biomarkers in blood that indicate the health of various organs. That acceleration was associated with a significantly increased risk - up to 42 percent - for certain cancers, especially those of the lung, gastrointestinal tract and uterus.

Much of the work in this area is in its early stages and has not proved a direct cause and effect in humans. The evidence comes from epidemiological studies, which look at patterns of disease in large populations; observational studies, which track people's behaviors and exposures without intervening; and animal models, which are sometimes, but not always, good proxies for people. Such research is difficult to interpret and especially prone to overstatement or misreading of the

John Ioannidis, a professor of medicine, epidemiology and population health at Stanford University, said research that searches for correlations across large datasets is highly susceptible to producing spurious results. While he believes there is strong and growing data that there are a lot of harmful exposures in today's environment, he emphasized, "We should not panic and think everything new we live with is toxic."

Identifying the forces behind the rise in cancer among young people is only the first step. Confronting them and developing treatment may be an even more complex task. Microplastics drift through our bloodstreams; synthetic chemicals line our homes, our food, our clothes; and modern medicine depends on many of the same substances that may be contributing to the problem.

Researchers say the surge in cancer cases among young adults reflects a deeper trend in human health: A number of major diseases, from heart disease to Alzheimer's disease, aren't just being detected earlier - they're actually starting earlier in life.

"This is not just about cancer," said Yin Cao, an associate professor of surgery at the Washington University School of Medicine in St. Louis whose team led the accelerated-aging study. "This is a universal problem across different diseases."

MATERNAL MEDICATIONS

Modern medicine has profoundly altered the experience of pregnancy. Women giving birth in the second half of the 20th century were treated with drugs not as an exception but as a new standard. Antidepressants, anti-nausea medications, antibiotics, hormone treatments - even in combinations, sometimes all in one trimester - heralded a new normal of active pregnancy management.

At the time, these developments were seen as progress; the pregnancy was safer and more comfortable thanks to science. However, as researchers revisit this era with new methods and by examining

how events unfolded over an extended period - and with the discovery of the link between the morning sickness drug thalidomide and birth defects in the 1960s - a more complicated story has emerged.

What if a drug's real risk may not be apparent in the days or weeks after birth, but only show up years - or possibly decades - later?

Caitlin Murphy, a professor and cancer epidemiologist at the University of Chicago, found herself wrestling with exactly this question. While combing through epidemiological data, she noticed a curious trend. The rise in cancer diagnoses tracked with birth

But rather than a steady increase across the board, cancer rates appeared to spike among millennials. The pattern, Murphy realized, was about a birth cohort, a group of people born during the same period.

"The rates weren't just increasing with age - they varied dramatically by generation, she explained.

At 37, Murphy had personal reasons to care. Her mother was diagnosed with and died of cancer in her 40s. Now, nearing that age herself, Murphy began to wonder whether the mystery of rising early-onset cancers might begin not in adolescence but in gestation.

To find out, she turned to one of the longest-running maternal-health studies in the United States - a cohort in Northern California that began collecting blood samples from pregnant women in 1959. The mid-century period, Murphy knew, was a golden age of medical intervention in pregnancy: a time when hormonal treatments, sedatives and experimental drugs were widely prescribed to expectant mothers, often with little long-term follow-up.

By linking these prenatal medical records to statewide cancer registries, Murphy determined that children whose mothers had taken bendectin, an anti-nausea drug, during pregnancy were 3.6 times more likely to develop colon cancer as adults, when all other factors were taken into consideration. Even more startling was that children of women who received a different medication to prevent miscarriage, hydroxyprogesterone caproate, had more than double the overall lifetime cancer risk. In this group, about 65 percent of cancers occurred before the age of 50.

Bendectin was voluntarily withdrawn from the market in 1983 amid concerns about birth defects. Follow-up testing found no link with birth defects. The Food and Drug Administration withdrew its approval for a brand name and generic hydroxyprogesterone caproate in 2023 for preventing preterm birth after a large clinical trial failed to prove the drug works.

DIET

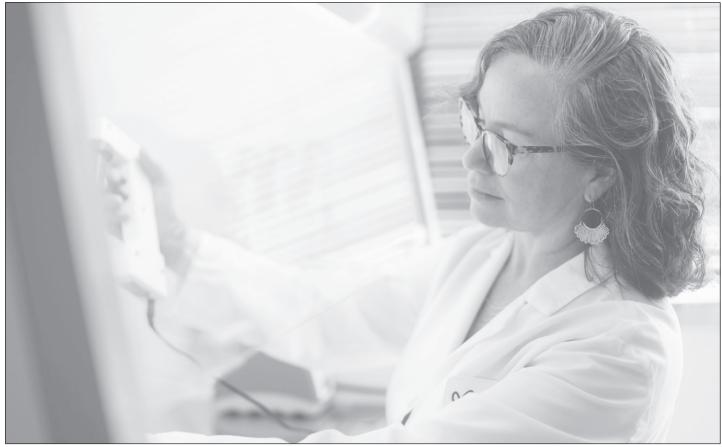
By the 1980s and '90s, a new kind of diet had become the

Shelf-stable snacks, frozen entrées, sugary cereals and reconstituted meats filled lunch boxes, cupboards and grocery store aisles. It was a drastic change in food habits compared with generations past, which had grown up with diets made up mostly of meals cooked at home with whole

Today, ultra-processed foods account for more than half of the total daily calorie intake in the United States, among other countries. Designed for flavor, convenience and shelf stability, they have been correlated with rising rates of obesity and metabolic disease - and perhaps a rise in cancer in young adults.

A 2023 study published in the BMJ found that heavy consumption of ultra-processed foods was associated with significantly elevated risks of developing several cancers, including colorectal and breast cancer - two of the fastestrising malignancies in people under 50.

According to the Post analysis of the latest data, breast, thyroid, colon-rectum, skin and cancers of the testes are the most common diagnoses for young adults. Young people



Katja Lamia, a professor of molecular and cellular biology at Scripps Research, studies the relationship between circadian clocks and DNA damage which can lead to cancers. (Brendan Cleak)

are more likely to suffer late diagnoses of some of the most common cancers.

Andrew Chan, a gastroenterologist at Massachusetts General Hospital and professor of medicine at Harvard Medical School, is co-lead of a global research initiative launched in 2024 to investigate the surge in colon cancer among young adults. In May, his team presented early findings suggesting a troubling link. Individuals under 50 who consumed the largest quantities of ultra-processed foods faced a 1.5-fold increased risk of developing early-onset colon tumors.

The association, Chan emphasized, isn't simply about weight gain.

"Ultra-processed foods appear to have independent metabolic effects that could have negative consequences on human health," Chan said.

Scientists are examining a variety of ways these products could cause cancer: chronic inflammation caused by additives, the disruption of gut microbiota by emulsifiers, carcinogenic compounds formed during high-heat cooking, and changes to hormones from excess sugar and carbohydrates. Even packaging might play a role, because leaching chemicals, particularly when heated, from plastics may disrupt the balance of hormones in the body.

As part of his research, Chan is preparing a clinical trial to test whether the new generation of diabetes and weight loss drugs such as Zepbound can slow molecular changes associated with cancer in younger adults. If industrial food has affected a generation's health, he wonders, can that trajectory be

CIRCADIAN RHYTHM

Nearly every organism on Earth, from bacteria to humans, runs on a biological rhythm shaped by the rotation of the planet. This internal clock - the circadian system - regulates functions from hormone release to cell repair, syncing the body to the 24-hour cycle of light and dark.

But over recent decades, the explosion of artificial light, erratic work schedules and 24/7 digital connectivity has fundamentally altered when and how we sleep, eat and rest. As a result, researchers, many of whom have been funded by the National Institute of General Medical Sciences, say the biological processes that rely on the rising and setting sun - like immune regulation, endocrine control and metabolic functions - may unravel.

Melatonin, a hormone produced in darkness, plays a crucial role in this system. But in today's glowing, sleepless world, melatonin production is regularly disrupted.

Research has linked chronic circadian misalignment to higher risks of breast, colorectal, lung, liver and pancreatic cancers, all increasingly diagnosed in younger populations. And in 2007, the International Agency for Research on Cancer declared shift work that disturbs circadian rhythms a probable human carcinogen.

Katja Lamia, a professor of molecular and cellular biology at Scripps Research, found that mice with lung cancer exposed to conditions that simulate chronic jet lag developed 68 percent more tumors than those that got more regular

At the University of California at Irvine, Selma Masri found similar effects related to colorectal cancer. Using animal models to mimic the impact of shift work, jet lag and constant light exposure on humans, she found that circadian disruption alters the gut microbiome and intestinal barrier function, potentially making it easier for cancerous cells to spread.

"Our bodies need those dark periods for many aspects of homeostasis," explained Masri, an associate professor of biological chemistry at the UC-Irvine School of Medicine.

CHEMICALS AND MICROPLASTICS

Patti is a biochemist by training, but his vigilance doesn't stop at the lab.

Married with two young children, his scientific knowledge has deeply shaped his family's lifestyle. At home, he practices what he calls "exposure remediation" - scrutinizing ingredients on shampoo bottles for questionable dyes, scanning cleaning products for chemicals known to disrupt hormones, and avoiding anything scented or labeled "antibacterial" to reduce exposure to substances that might weaken the body's natural defenses against disease.

Chemical and plastic exposure today is diffuse, ambient and inescapable, unlike legacy toxins such as asbestos or lead, which tended to be more occu-

pational or localized. "There's still so much we don't understand about how

these exposures interact with our bodies," Patti said. "But we do know that small changes, especially early on, can have lasting effects."

Chemical exposure has grown in tandem with the explosion of microplastics. By the 1980s and '90s, entire generations chewed on plastic toys, ate food wrapped in cling film and drank from microwaved containers. Microplastics have now been found in the placenta, the lungs, and even the brain and heart.

These fragments act as sponges for environmental toxins; laboratory studies demonstrate that microplastics can damage DNA, interfere with cell division and promote chronic inflammation, a wellknown mechanism in carcinogenesis. In animal models, microplastic exposure has been linked to colon and lung cancer and immune system dysregulation. An analysis of peerreviewed studies published in December 2024 and led by University of Sydney researcher Nicholas Chartres, scientific lead of the Center to End Corporate Harm, at the University of California at San Francisco, found repeated evidence linking microplastic exposure to mechanisms indicative of cancer across multiple systems -

digestive and respiratory. The Centers for Disease Control and Prevention has estimated that 97 percent of Americans have some level of toxic "forever chemicals" - a group of synthetic compounds often found in plastics with negative health effects that persist in the environment and in the human body - in their

It's this hidden complexity

that drives Patti's work. His team is focused on metabolomics - the vast, largely unmapped study of the small molecules coursing through the human body. Using highresolution mass spectrometry and custom-built computational tools, Patti's lab has developed a system capable of scanning a single blood sample for tens of thousands of chemicals at once.

Traditional toxicology has been reactive, testing chemicals one by one, often after problems emerge. Patti's approach flips that model - scanning everything first and asking questions later. The goal is to find chemical signatures that appear more often in people diagnosed with early-onset cancers than in those without.

"We're just now beginning to understand the full chemical complexity of modern life," he said. There are estimated to be more than 100,000 synthetic chemicals on the market. Their global production has almost doubled since 2000.

Only a small fraction of these have been studied for links to cancer: The International Agency for Research on Cancer (IARC) puts this number at about 4 percent. But among those examined, many have been shown to have some links to the disease. A 2024 study in Environmental Health Perspectives, for example, identified 921 chemicals that could promote the development of breast cancer.

Regular mammograms to screen for breast cancer should start younger, at age 40, according to the U.S. Preventive Services Task Force Women ages 40 to 74 should get screened every other year, the group said. Previously it recommended every two years from age 50 through

Earlier mammograms

BREAST CANC

Facts and figures



in 8 WOMEN

in the United States will develop breast cancer in her lifetime. This year an estimated 310,720 new cases of invasive breast cancer will be diagnosed in women.

of breast cancer cases are diagnosed at a localized stage, for which the 5-year survival rate is 99%.



1 in 1000

Although rare, men get breast cancer too. The lifetime risk for U.S. men is about 1 in 1,000.

men will be diagnosed with breast cancer this year in the United States and

approximately 500 will die.

Early detection **Some symptoms**

When breast cancer is detected early, and is in the localized stage, the 5-year relative survival rate is 100%. Early detection includes doing monthly breast self-exams, and scheduling regular clinical breast exams and

Skin changes

· Nipple discharge

· General pain

· Shape change

· Nipple changes

· Lumps or nodes

In general, there are five treatment options. and most treatment plans include a combination of the following: surgery, radiation, hormone therapy, chemotherapy, and targeted therapies. Some are local, targeting just the area around the tumor.

Treatment

















Source: nationalbreastcancer.org Graphic: Staff, TNS

Others are systemic

targeting your whole

body with cancer

fighting agents.

\$200,000 raised in Gouverneur cancer walk



Prior to the 24th annual Gouverneur Breast and Ovarian Cancer Walk Oct. 4, booths and vendors were available in Gouverneur Village Park. Richard Cancer Treatment Center/Facebook

GOUVERNEUR — A walk to absolutely amazing! Please generate funds for the Gouverneur Breast and Ovarian Cancer Fund generated more than \$200,000 Oct. 4.

"We are excited to announce as of today we have raised just under \$217,000.00 for the 24th annual Gouverneur Breast and Ovarian Cancer Walk! Your commitment, dedication and support are share your photos with us and know we are here for you!" a Facebook post from the Gouverneur Breast and Ovarian Cancer Fund stated.

The Oct. 4 walk that began in Gouverneur Village Park was the 24th annual event.

The Gouverneur Breast & Ovarian Cancer Fund is an all-volunteer group with every

penny raised going to assist patients. It's mission is to alleviate at least some of the financial burden patients face during their treatment and allow them to focus on recovery and healing. Patients receive financial assistance with medical expenses, household expenses, rent, mortgages and car payments as a few examples.

"Every penny of donations that come into the Gouverneur Breast and Ovarian Cancer Fund goes to help someone who is facing the long road from diagnosis to recovery from breast or ovarian cancer in St. Lawrence, Jefferson, Lewis, and Franklin Counties, New York. All funds received from donations become direct

financial support to someone who is facing a diagnosis of breast or ovarian cancer and needs help during this challenging time; you can have peace of mind that your donations will reach a friend, colleague, loved one, or neighbor," stated the event's Facebook page.

In 2014, the Gouverneur Ovarian Cancer Fund.

Business Women's Breast Cancer Walk Fund became a community non-profit, the Gouverneur Breast Cancer Fund, it was established to provide financial assistance to those fighting breast cancer or a cancer that metastasized from that cancer. In 2022, the organization officially became the Gouverneur Breast and

I'm living a cancer survivor's nightmare. Why am I okay?

By JOANNE GRUBER

then I found out I had earlystage breast cancer 20 years ago, it ranked as one of the worst days of my life. This time, even though the disease was more advanced and required more aggressive treatment, it didn't even make the top 10. What had changed?

A lot of things, starting with this no longer being my first rodeo.

Sure, learning you're having a recurrence is the moment every so-called survivor dreads most, but for me it carried less of a wallop than the first time I'd heard the words "You have cancer." On that occasion, I truly didn't hear what the doctor said next - which I think doctors have come to expect, because I'm pretty sure he did a lot of reiterating before I left his office.

For another thing, I'd learned the first time what I was capable of handling, stress-wise. And this had led to my embracing the irritating-to-many notion of illness as a gift of sorts (though not one I'd recommend registering for), because it can drastically alter your perspective vis-à-vis sweating life's small

Also, there had been 20 years of losses and heartaches. I had lost one brother to cancer years before; now I'd lost the other one the same way, and both of my parents, as well as some close friends and exes. (No, I'm not cursed - I'm simply no spring chicken.) And yet, somehow, here I still was. So what's a little breast cancer? Besides, my brothers had both gotten mortality timetables of 11 or 12 months from the start, whereas I'd been told, twice now, that my cancer was probably curable. Who was I to complain? (Rather, survivor's guilt is my watchword. Words.)

Don't get me wrong: I can be a marvelous pity-party hostess - a veritable Mamie Fish or Perle Mesta of pity-party hostesses - as when I lost my hair this time and developed enduring chemo side effects such as numb feet, affecting my balance. Then there was saying goodbye to most of both breasts (for symmetry), taking me from a D cup to a teacup, as I like to say. But I've kept these parties to a minimum, thanks to a vast professional support network, better living through prescription chemistry, some reliable friends, and having learned in the intervening years myriad ways to keep my spirits up.

After all, even when you're stuck at home with a compromised immune system, the internet offers endless free diversions: not only puppy videos and Randy Rainbow song parodies, but also online art and creative-writing classes, support groups, music-therapy sessions, and yoga and meditation seminars. Two sponsors of same, catering to those with lives touched by cancer, are the Creative Center and Gilda's Clubs. Friends are reachable by phone.

There's the cuddly companionship of my cat, Floyd, who's a riot. And there's that most lifesaving of 20th-century inventions, television. I stopped watching the news after my diagnosis (or was it Election Day?), instead sticking to a steady diet of dependably formulaic "Perry Mason" episodes and sitcom reruns (bless the nostalgia networks!) and the works-on-all-levels-includingmine zaniness of Looney Tunes.

Because it turns out laughter really can be darned good medicine ... and whistling in the dark can be contagious.

This year, at the age of 68 (there it is), I finally learned how to apply makeup in a mere 12 steps at a free Look Good Feel Better workshop. Who knew: It turns out you're not supposed to slather your smiling-cheek apples with blush (rather, you pull down from the temples on a slant), and your sunscreen should go on *before* your concealer, foundation, powder and blush. (That's right, five layers.) And don't even get me started on proper eyebrow drawing.

This got me wondering about other improvements I could make in my relative dotage. (Yeah, yeah, lose all the weight. I'll get right on it, as soon as I'm done with the steroids.) Now that my blond curls have been replaced by sparse, straight, salt-and-pepper patches, I'm trying to decide whether to take advantage of the wig charities or shave my head for life - y'know, go for Cynthia Erivo or Sinéad O'Connor, only without the stunning features and talent. But how to decide?

Inspiration came from twin sources: the groundbreaking 1961 book "Black Like Me," in which White reporter John Howard Griffin had his skin artificially darkened and went undercover in the Deep South to experience life as an American Black man, and the late 1980s Spy magazine feature "Busty Like Me," in which modestly proportioned humorist Lynn Snowden went undercover in the shallow Northeast with enormous synthetic breasts. I'm thinking I'll frequent one nightclub over a number of weeks, au naturel and in various wigs - platinum blond pixie, brown bob, auburn curls, an "Addams Family"-length head of straight black hair, a neon pageboy from the Pink Wig Project - and see which gets the best reception. Working title: "Morticia Like Me."

The wisdom of experience, learning to put things in perspective, seeking nourishment from both loved ones and mass media, pursuing a steady dose of yuks: These can get you through an awful lot. Who knows, one of these days I might even be ready to start paying attention to current events again. But don't rush me. I've been sick, you know.

Joanne Gruber is a writer and editor Source: AARP Graphic: Staff. TNS living in Coconut Creek, Florida.

Lung cancer by

the numbers

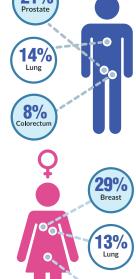
Health panel expands lung smokers. Who's eligible? The U.S. Preventive Services Task Force said anvone between ages 50 and 80 who has smoked at least 20 "pack-years" and either still smokes or quit within the last

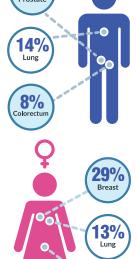
Estimated number of lung cancer cases this year

New cases of lung cancer diagnosed in Women

Estimated deaths from lung

most common cancer diagnosed in both men and women in the United States.





Source: cancer.org, AF Graphic: Staff, TNS

Samaritan doctors on the importance of collaborative care

they can have a breast

amaritan Medical Center is proud to invest in advanced technology, progressive treatments, and specialty doctors to bring top-of-the-line breast care to the North Country. At Samaritan's Women's Wellness and Breast Care (WWBC), located at 1575 Washington Street in Watertown, special emphasis is placed on the importance of col-

laboration. A patient's breast care journey typically starts with their annual mammogram. Dr. Kelly McAlarney, the dedicated breast radiologist at WWBC, offers sameday 3D mammogram reads, so patients can learn their results and act quickly if next steps are needed.

"Breast cancer should not be fatal. It should be found when it's tiny," McAlarney says. "When a mammogram finds a cancer that's less than two centimeters or so, the five- and ten-year survival rates for that patient are 100%. Once that cancer grows larger than that, the numbers go exponentially down. So, let us find it when it's small. Show up every year - not every two, not every three — so that we can take it out."

As a full service breast care center, WWBC offers much more than mammograms. If there is a mass detected in the mammogram, Samaritan's team of technologists performs breast ultrasounds, which are also read by Dr. McAlarney

during the patient's visit. If a patient has dense breasts or is identified as high-risk, Samaritan gery." is the only place in the North Country where

MRI. "Another really great thing that we offer is genetic testing," McAlarney adds. "We'll ask you questions and find out what is your risk level. If your risk falls into that certain category, then we offer genetic testing right then and there, same day that you're having your mammograms."

If a patient needs a mass removed, they will see Samaritan's recent addition, breast surgical oncologist Dr. Michael Peyser. Dr. Peyser specializes in lumpectomies, mastectomies, nerve reinnervation, and advanced surgical techniques. Oftentimes, his procedures are performed in tandem with Samaritan's plastic surgeon, Dr. Deana Paley.

"There's several advanced surgical procedures that I perform at Samaritan," Peyser says. "For example, patients with breast cancer sometimes require a mastectomy, and that mastectomy can be done with preservation of the nipple and the areola complex. We can often do an immediate reconstruction in conjunction with the plastic surgeon. And, for patients who have lumpectomy surgery, I can utilize a technique which is called oncoplastic surgery, where we can maintain the shape and the contour and the cosmetics of the breast, and yet still take the lump of cancer out. That's a combination of both cancer surgery and plastic sur-

With the largest team of breast specialists in the area, Samaritan is well-equipped to provide a full continuum of care, all under one roof.

"We have all the technology necessary for treatment of a breast cancer patient here in Watertown," says Peyser. "Anything that can be done elsewhere can be done here. So there's no need to leave the North Country at all."

Samaritan is great because of the teams here and the commitment to patient care," McAlarney adds. "We have the newest technology, and we have a great new breast surgeon. So, it's all about patient care, and Samaritan is dedicated to continuing to bring the right teams and the right people to take care of this area."

As the month of October reminds us the importance of breast health, Samaritan doctors urge you to take the first step and schedule your mammogram. Samaritan offers the convenience of scheduling screening mammograms online, up to a year in advance, at samaritanhealth. com/breastcare.

From your very first visit, all the way through your breast health journey, Samaritan is prepared to meet your needs exceptionally well. Learn more by visiting our website or calling 315-785-4155.

Samaritan Health -Leading Local Breast



A group photo of Dr. Marco Campitelli, Dr. Lawrence Kramer, and Dr. Rory Sears. Contributed.

Millennial family caregivers

Of the 40 million U.S. family caregivers, about 1 in 4 is part of the millennial generation (ages 18-34). Family caregivers provide critical support to adults with a chronic, disabling or otherwise serious health condition.

Millennial family caregivers by age group

18-24

Millennial family caregivers by race

Hispanic White **Black** 18%





Join us for a free lunch while learning from providers at the Richard E. Winter Cancer Center. Hear the latest on prevention, treatment, and support, ask questions, and leave with clear next steps on why early detection matters.

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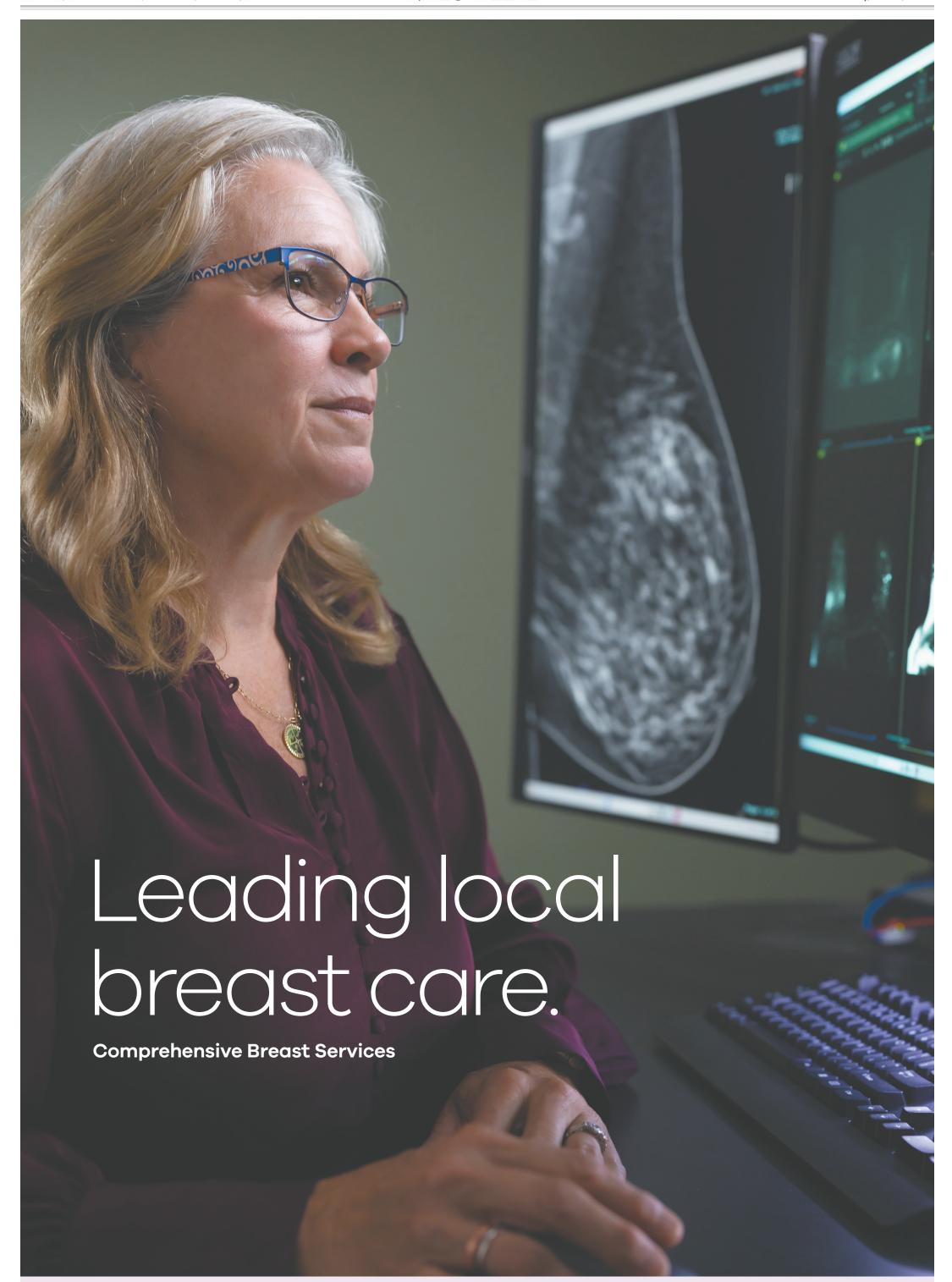
Location

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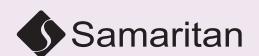
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Women's Wellness and Breast Care

How to live to 117? Researchers find clues in the world's oldest woman.



Maria Branyas Morera, 1925. (Manel Esteller MD PhD/University of Barcelona/ Josep Carreras Institute)

By GRETCHEN REYNOLDS The Washington Post

Maria Branyas Morera's life was simple. She enjoyed yogurt, gardening, sleep, books, walks, friends, playing the piano and dogs.

But her lifespan was remarkable - and also inscruyear, aged 117 and still in relatively good health, she was the oldest person on Earth. But how? What was there about a quiet mother in Catalonia, Spain, that made this extreme longevity possible?

A new study published recently in Cell Reports Medicine provides some intriguing clues. In one of the most thorough examinations yet of a supercentenarian (someone who lives to be at least 110), the authors closely investigated Morera's genes, immune system, cell function, cell age, microbiome, diet, disease biomarkers and other facets of her lifestyle and physiology - with her cooperation - and compared them with those of other people, both young and old.

The study's findings suggest that Morera "won the genetics lottery," said Manel Esteller, the chairman of genetics at the University of Barcelona School of Medicine and senior author of the study. Her genome included a wide array of genetic variants previously linked to long lifespan, but also some that, until now, hadn't been known to contribute to longevity.

But her genetics "don't explain everything," Esteller continued. Other aspects of her physiology, especially the workings of her immune system and the makeup of her gut, seem likewise to have played a role in her lifespan. They may also yield useful lessons for any of the rest of us with aspirations of becoming supercentenarians.



Maria Morera was born in San Francisco on March 4, 1907, then moved to the Catalonia region of Spain with her family when she was 8, staying there for the rest of her life.

Esteller, whose lab retable. When she died last searches cancer, as well as genetics, heard about Morera a few years ago, when she was already a supercentenarian. "They are so rare," he said, "and to have one close to us, we felt we should learn all we could about her."

Interest in the physiology of the very old, especially super-agers who remain relatively healthy, isn't new. Researchers with the Longevity Genes Project at Albert Einstein College of Medicine in the Bronx have been studying the genetics of centenarians since 1998.

But even by the standards of super-aging, Morera was special. Life expectancy for women in Catalonia is 86 years, Esteller said. (In the United States, it's about 81 years for women and 76 years for men.) Morera outlived that standard by more than 35 years.

'We wanted to understand what made her unique," Esteller said.

So, with Morera's permission and help, he and his colleagues visited her several times when she was 116, gathering samples of her blood, urine, saliva and stool, along with extensive information about her lifestyle and health.

Then, using a variety of techniques to catalogue and characterize as many of the genes and molecules in Morera's tissues as possible, they began analyzing.

HOW HER GENETICS PLAYED A ROLE

"Genetics is certainly a big part" of how we age, Esteller said. And on that count, Morera lucked out. Her cells



Barcelona/ Josep Carreras Institute)



Morera in 1989. Manel Esteller/University of Barcelona/Josep Carreras



Maria Branyas Morera in 2023. (Manel Esteller MD PhD/University of Barcelona/ Josep Carreras Institute)

carried most of the gene variants that past research had found in other long-lived people, including variants that play a role in DNA repair, as well as in the body's ability to clear away dead or malfunctioning cells, control inflammation and create robust mitochondria, the energy powerhouses inside cells. Her genome also contained seven other variants, Esteller and his colleagues found, that hadn't been identified in the very elderly before, and which he suspects played a substantial role in

her longevity. Just as important, she didn't carry any gene variants known to increase risks for cancer, Alzheimer's, diabetes or most other major chronic illnesses, and never

developed any of those conditions. (Her primary physical complaint was arthritis.) If genes alone explained her lifespan, though, her family tree probably would have been filled with supercentenarians, Esteller felt, and none of her close rela-

tives lived nearly that long. An 'efficient' immune sys-

So he and his colleagues next looked at her immune system, which turned out to be unusually sturdy. She had a large reservoir of certain white blood cells, known as T cells, that carry a "memory" of past threats, such as infections and cancer. Examining those cells told the researchers that "she had experienced many infections" over her life, Esteller said. She was, for instance, the oldest person in Spain to have had covid-19.

The numbers and functions of these T cells often decline in the elderly, but hers remained "very active," Esteller and his colleagues found. But not so active that they attacked healthy tissue, causing autoimmunity, which can often occur as people age. Instead, her immune system was fine-tuned and "efficient," Esteller said.

Why? The scientists aren't certain, but believe her genetics are involved. They also point to her microbiome. "It was very good," Esteller said. In fact, her gut teemed with bacteria known to produce substances that may help reduce inflammation throughout the body, bolstering the immune system

It's important to point out that Morera's physiology was hardly perfect, Esteller said. She looked old. Her joints ached, and she had signs of incipient disease, including high levels of the protein amyloid in her bloodstream, which might be a marker of future dementia, as well as issues with abnormal blood cells, which could indicate a risk for blood cancers. But she didn't have those diseases at the time of her death.

LESSONS ON DIET AND LIFESTYLE

What role did her diet and lifestyle play in all of this? A large one, Esteller and his colleagues believe. "In the last 10 years of her life, she ate three plain yogurts a day," he said, and otherwise followed a typical Mediterranean diet. "She ate very lightly," he said, "a lot of fish and olive oil and fruit." She also walked often and gardened until the final years of her life, he said. The interplay of her lifestyle and genetics probably helped her maintain healthy cholesterol and blood-sugar levels, he said, ensuring her blood chemistry at 116 looked like that of someone decades younger.

In fact, when the scientists used available tests to check her "biological age," which is how old or young our bodies seem to be, based on how well they function, it was 23 years younger than her chronological age.

Can the rest of us learn how to improve our own chances of a long, healthy life from Morera's life and biology? Sure, Esteller said, although he doesn't advocate a threeyogurts-a-day diet. "Maybe try one," he said, along with regular physical activity and social interaction. Morera mingled with other residents in her assisted-living facility when she could and wel-

comed visitors. **MORE STUDY IS NEEDED**

This study has limitations. In particular, Morera is "a single person," said Nir Barzilai, a professor of medicine and genetics at Albert Einstein College of Medicine and founder of the Longevity Genes Project. "We need many, many more examples" of long-lived people, especially supercentenarians before drawing any conclusions about the underpinnings of their longevity.

Still, he's hopeful that studies such as this one and the ongoing Longevity Genes Project will lead to new insights into aging and potential lessons about the healthiest lifestyle choices for longevity, as well as possible drugs or other interventions that might help people age better.

As for Esteller, the main message he and his colleagues gleaned from studying Morera was that "aging and illness are separable," he said. She grew old. She did not grow seriously ill. Perhaps she would have, eventually, he said. But something inside of her pushed that eventuality further and further out, until, on Aug. 19, 2024, aged 117 and still mentally and physically well, she peacefully died in her sleep.



Maria Branyas Morera in 2008. (Manel Esteller MD PhD/University of Barcelona/ Josep Carreras Institute)

An oncology nurse becomes the patient: How breast cancer treatment has changed

By OLIVIA MITCHELL

cleveland.com (TNS)

CLEVELAND, Ohio – A routine mammogram led to a breast cancer diagnosis that gave former oncology nurse Judith McDaniel an unexpected perspective on how treatment has evolved since her nursing days in the 1980s.

McDaniel, of South Euclid, was diagnosed with stage 1 breast cancer in February 2023 when she was 72. Her experience revealed transformations in breast cancer care that have shifted from a one-size-fits-all approach to personalized medicine.

"There is absolutely no comparison," McDaniel said when comparing current care to her nursing days. "Patients were so sick from chemotherapy, and there weren't a lot of options available."

McDaniel was declared cancer-free in April 2024. In total, she had five surgeries, including a mastectomy and lymph node removal, four sessions of chemotherapy, and 25 sessions of radiation therapy. She is waiting for reconstruction surgery in November.

Like her siblings, she survived cancer. McDaniel's older sister was diagnosed with breast cancer when she was 68. She had traditional treatment and died at 86 years of age. Another sister was diagnosed with small cell

carcinoma of the lung and died at 82 years of age. Her brother also was diagnosed with prostate cancer and, after treatment, he is cancer-free.

During her cancer journey, her most prized moment was at a family dinner on Easter in 2023. When she arrived, the entire family wore T-shirts that read, "We are stronger together."

McDaniel, 74, described her family as "her army." During her cancer journey, they visited often, cooked for her on a regular basis and showered her with gifts, she said.

Her surgeon, Dr. Megan Miller, a breast surgical oncologist at University Hospitals Seidman Cancer Center, said precision medicine has revolutionized treatment decisions during her practice.

"The thing that has changed the most, even in the time that I've been practicing, is how we can more precisely predict which patients are going to benefit from which kinds of treatment," Miller said.

The evolution is most evident in chemotherapy decisions. Until eight to 10 years ago, chemotherapy was routinely given to patients with tumors larger than 2 centimeters or any lymph node involvement.

Today, molecular testing helps doctors identify which patients will benefit from the treatment. For example, a molecular profiling test called Oncotype DX tells doctors whether a patient with a particular kind of cancer would benefit from chemotherapy.

"That has really changed the whole landscape for us as surgeons, as medical oncologists, radiologists, oncologists," Miller said.

McDaniel experienced this personalized approach first-hand during her chemotherapy treatments, which contrasted sharply with her memories from the 1980s. She received steroids and Benadryl to prevent reactions.

"I wasn't sick. I wasn't vomiting. I wasn't in bed for days. I was in my yard planting and tending to my flowers," she said.

Surgical approaches have also become less invasive. Guidelines established in 2016 revolutionized lumpectomy procedures, requiring surgeons to remove cancer with a small margin around the edges.

"We only actually came out with margin guidelines for lumpectomy in 2016, which tell us that all you need for breast cancer. We call this 'no tumor on ink,' meaningyou just have to remove the cancer," Miller said. "You don't have to take away half of somebody's breast."

Miller recently met a patient who illustrated the difference between past and current practices. The surgeon had recently met a woman who had her first surgery in 1990, and her breast on that side is about half the size as her other breast, Miller said.

Treatment options have expanded significantly, particularly regarding reconstruction. McDaniel noted that reconstructive surgery wasn't discussed with breast cancer patients during her nursing career.

"In the olden days it was just like, get the cancer out, don't worry about what it looks like," Miller said. "Today, patients receive extensive discussions about reconstruction options. We want patients to feel comfortable and possibly happy in their bodies after treatment."

Technology advances have also improved outcomes. Mc-Daniel credits 3D mammography with enabling her early diagnosis during routine screening.

Despite these advances, fear remains a significant factor for many women. Miller offers reassurance that earlier detection leads to better outcomes.

"The majority of breast cancers are detected early and are very treatable and curable," Miller said. "We give chemo to so many fewer patients today,"

On average, 72% of female breast cancers diagnoses are detected in early stages, according to state and countywide data.

From 2018 to 2022, female breast cancer was the second-leading cause of cancer

diagnoses in Cuyahoga County, accounting for 14.7% of cancer cases, following prostate cancer. Female breast cancer was the fourth leading cause of deaths in the county, according to Cuyahoga County Cancer Profile 2025.

Data shows that an average of 210 women die in the county per year.

"It's important just for women to just take care of their health," McDaniel advised. "And ultimately, the decisions that you make are yours."

Miller noted that most women find masses themselves through self-examination, though some notice lumps under their arm where lymph nodes are located. Other symptoms include nipple discharge, especially if it's on one side and bloody, or any skin changes that don't go away.

Over the years, patients and doctors have paid more attention to the density of breast tissue because if a person has dense breast tissue, it's more challenging to see on a mammogram. Though about 90% of breast cancers are found on a screening mammogram, for women with denser breasts, doctors recommend other screening exams, such as ultrasounds and MRI.

African American women are more likely to be diagnosed with triple negative breast cancer,

which has the poorest prognosis, Miller said. White women are more likely to be diagnosed with breast cancer, but Black women have higher death rates, studies show.

"Systemic stress might make patients unable to complete all of their treatments, or have stress in their life that is unavoidable," she added.

Ohio female breast cancer death rates decreased 36% from 2000 to 2022, according to data from the Ohio Department of Health. Death rates for Black women were highest at 26.9%, followed by white women at 20.3%. Hispanic women have the lowest rate at 8.8%, according to data from the Ohio Department of Public Health.

As Breast Cancer Awareness Month continues this October, both women emphasize the importance of yearly mammograms starting at age 40.

As for McDaniel, she is happy and cancer-free, but she also learned a lot through her journey.

"My biggest lesson is that on any given day, you never know what you're going to get," Mc-Daniel said. "Everyone is going to get something, you just don't know what your something is going to be."

BREAST CANCER AWARENESS MONTH: SUPPORTING THE FIGHT

By Assembly Minority Leader Will Barday

Every October, the sight of a pink ribbon is a powerful reminder of the millions of lives touched by breast cancer. Annually, we are reminded that nationally, one of every eight women will be diagnosed with the disease in their lifetime and in New York, the American Cancer Society estimates 19,170 New Yorkers will be diagnosed this year alone. There is hope, though. Breast Cancer Awareness Month has done an incredible job of establishing a global movement of support, and there is a growing optimism thanks to the advancements in early detection and treatment.

This success should be celebrated, as we know that early detection dramatically increases the chances of survival. Our goal must now be to ensure that those services and resources are readily available for every person at risk. Here in Central New York, we are blessed to have accessible and dedicated health care services, educational programs and

resources available to serve our community.

For those in Jefferson County and Oswego County, the Cancer Services Program of the North Country offers free screenings, including mammograms and clinical breast exams, to individuals who meet certain age, income and insurance require ments. Later this month, the Oswego County Health Department is partnering with Upstate Medical University and the American Red Cross to host a mammogram and blood drive event on Tuesday, Oct. 28 from 10 a.m. to 4 p.m. at the Nick Sterio Public Health Clinic in Oswego. Furthermore, the Upstate University Hospital operates its mobile mammography van year-round serving the greater Central New York region. Individuals are encouraged to schedule an appointment ahead

Additionally, the Adelphi Statewide Breast Cancer Hotline and Support Program provides New Yorkers free support and education to breast cancer patients, survivors and their families. Staffed by licensed professionals and breast cancer survivors, the organization offers peer-to-peer counseling and emotional support to empower individuals and their families.

The power of Breast Cancer Awareness Month lies in its ability to inspire action on a deeply personal level. Schedule your screening, talk to your loved ones about their risk factors and encourage them to book their own appointments. Remember that breast cancer affects not just women, but men as well. The New York State Department of Health recommends a screening mammogram every other year for those aged 40 and older.

The progress we have achieved in early detection and survival is a testament to the power of awareness. This October, we recognize the power of the pink ribbon and honor its symbolism by focusing our efforts on greater support for the critical health resources and services saving New Yorkers' lives.

Explaining metastatic breast cancer

Metro Creative Connection

Breast cancer remains a formidable foe, but the tireless efforts of researchers and organizations that raise awareness of the disease have helped improve the prognosis for millions of women across the globe. Thanks to those efforts, the American Cancer Society can report the five-year survival rate for localized breast cancers is now greater than 99 percent.

While the vast majority of women with breast cancer are diagnosed when the disease is in its earliest and most treatable stages, some develop metastatic breast cancer, which is an advanced form of the disease.

WHAT IS METASTATIC BREAST CANCER?

The National Breast Cancer Foundation, Inc. notes that "metastatic" is a medical term used to define the process by which cancer cells spread to other parts of the body. Metastatic breast cancer occurs when breast cancer cells spread to other parts of the body beyond the breast and nearby lymph nodes.

WHICH STAGE IS METASTATIC BREAST CANCER?

Metastatic breast cancer can indicate recurrence, and women confronting such situations may recall that staging is an important part of confronting the disease. The ACS notes that staging helps doctors identify if the cancer has spread and, if so, how far. The earliest stage breast cancer is stage 0, and the most advanced stage is stage IV. Metastatic breast cancer is considered to be stage IV.

IS THERE A CURE FOR METASTATIC BREAST CANCER?



The organization Susan G. Komen®, which advocates for women with breast cancer and supports research into the disease while aiming to raise awareness of it, notes that there currently is no cure for metastatic breast cancer. Treatment for metastatic breast cancer aims to extend life and help women to maintain their quality of life. And while there may be no cure for metastatic breast cancer, Susan G. Komen® notes ongoing clinical trials may provide women with an opportunity to try new treatments. In addition, various studies are currently being conducted in the hopes of improving treatment.

WHAT ARE THE SYMPTOMS OF METASTATIC BREAST CANCER?

The NBCF notes that the symptoms of metastatic breast cancer can vary depending on how far the cancer has spread and where in the body it has progressed to. But the experts at Johns Hopkins note women who previously have been treated for breast cancer can keep an eye out for these symptoms that suggest the disease has spread.

• Unusual or persistent back or neck pain that cannot be

explained by an injury or exercise

- Pain in the bonesUnexplained shor
- Unexplained shortness of eath
- Profound fatigue or malaise
- HeadacheSeizures
- Mood changes
- Difficulty with speech
- Changes with vision

WHAT IS LIFE LIKE AFTER A METASTATIC BREAST CANCER DIAGNOSIS?

No two women are the same, so each experience with metastatic breast cancer will be different. However, Susan G. Komen® notes that managing side effects, including controlling pain, is an area of focus when living with metastatic breast cancer. Supportive care aimed at improving quality of life, including tending to the physical, emotional, social, and spiritual needs of a person diagnosed with metastatic breast cancer, also is part of life after a diagnosis.

Knowledge of metastatic breast cancer can help women and their loved ones navigate the disease more effectively in the event of a diagnosis.

Are there different types of breast cancer?

Millions of women are diagnosed with breast cancer every year. According to the Breast Cancer Research Foundation, more than 2.3 million women across the globe were diagnosed with breast cancer in 2020. The BCRF also notes that breast cancer is the most frequently diagnosed cancer among women in 140 of 184 countries worldwide.

Breast cancer statistics can give the impression that each of the millions of women diagnosed with the disease is fighting the same battle, but breast cancer is something of an umbrella term. In fact, there are various types of breast cancer, including ductal carcinoma in situ, invasive ductal carcinoma, inflammatory breast cancer, and metastatic breast cancer. Learning about each type of breast cancer can help women and their families gain a greater understanding of this disease.

DUCTAL CARCINOMAIN SITU (DCIS)DCIS is a non-invasive cancer

that is diagnosed when abnormal cells have been found in the lining of the breast milk duct. The National Breast Cancer Foundation notes that DCIS is a highly treatable cancer. That's because it hasn't spread beyond the milk duct into any surrounding breast tissue. The American Cancer Society notes that roughly 20 percent of new breast cancer cases are instances of DCIS.

INVASIVE DUCTAL CARCINOMA (IDC)

IDC is the most common type of breast cancer. The NBCF reports that between 70 and 80 percent of all breast cancer diagnoses are instances of IDC. An IDC diagnosis means that cancer began growing in the milk ducts but has since spreadinto other parts of the breast tissue. This is why IDC is characterized as "invasive." Though IDC can affect people, including men, of any age, the ACS notes that the majority of IDC cases are in women age 55 and older.

INFLAMMATORYBREAST CANCER (IBC)

The NBCF describes IBC as an "aggressive and fast growing breast cancer." Breastcancer.org notes that IBC is rare, as data from the ACS indicates that only about 1 percent of all breast cancers in the United States are inflammatory breast cancers. Many breast

with reddening and swelling of the breast, and symptoms can worsen considerably within days or even hours. That underscores the importance of seeking prompt treatment should any symptoms present themselves.

METASTATIC BREAST CANCER

Metastatic breast cancer may be referred to as stage IV breast cancer. When a woman is diagnosed

cancers begin with the formation

of a lump, but Breastcancer.org

reports that IBC usually begins

Metastatic breast cancer may be referred to as stage IV breast cancer. When a woman is diagnosed with metastatic breast cancer, that means the cancer has spread, or metastasized, into other parts of the body. The NBCF indicates that metastatic breast cancer usually spreads to the lungs, liver, bones, or brain. Symptoms of metastatic breast cancer vary depending on where the cancer has spread. For example, if the cancer has spread to the lungs, women may experience a chronic cough or be unable to get a full breath.

These are not the only types of breast cancer. A more extensive breakdown of the various types of breast cancer can be found at https://www.breastcancer.org.

Women
Ages 40 Through 74 at average risk for breast cancer should
Get a Mammogram
Every Other Year

according to U.S. Preventive Services
Task Force 2024 guidelines.

Metro Creative Graphics



Join us for a Free Breast Cancer Awareness Luncheon Hosted by the North Star Health Alliance and the Richard E. Winter Cancer Center

Join us for a free lunch while learning from providers at the Richard E. Winter Cancer Center. Hear the latest on prevention, treatment, and support, ask questions, and leave with clear next steps on why early detection matters.

Date

Monday, October 27, 2025 11:30 AM to 1:30 PM

Location

Ogdensburg Elks Club 322 Caroline Street, Ogdensburg, NY

RSVP by October 17, 2025
Amy Douglas • 315.221.3342
adouglas@nshany.org