Some medical breakthroughs come as lightning bolts, but Randi Fibus-Caster has been riding the slow-moving train of islet-cell transplants for an astonishing 15 years. For most of her life, Fibus-Caster was called a “brittle diabetic,” which meant that her type 1 diabetes caused such severe swings in blood sugar levels that passing out was a frequent occurrence. “I used to wear a lot of silver bangles on my arm, so they could hear me when I fainted at work,” she says.

But since she had her islet-cell transplant in 2005, followed by a bone-marrow transplant 10 days later and an additional islet-cell transplant in 2010, that has all changed. She’s been free from insulin injections for 10 years, with a blood sugar score on the low side of normal. And she takes just two anti-rejection medications per day—very low for a transplant patient. That has made her a success story of the experimental procedure, which continues to be a major focus at the University of Miami’s Diabetes Research Institute.

Such transplants are used in other countries, and researchers are awaiting approval from the Food and Drug Administration (FDA), which is evaluating trial results. “This is an area where the U.S. lags,” says Jay Skyler, M.D., deputy director of clinical research at the institute.

One hurdle for these transplants is finding more sources of insulin-producing cells. Currently, they come from cadavers and are in short supply. “We’re still limited by only 1,200 cadavers per year,” he says. Researchers hope that embryonic or induced pluripotent stem cells will one day be a source of insulin-producing cells, making the treatment available to both type 1 and type 2 diabetics.

Both of Fibus-Caster’s 2005 transplants came from the same cadaver donor, and the 2010 procedure from another. Doctors attribute her exceptional recovery to a high tolerance of the required antirejection drugs, which can be an obstacle for many. She can’t wait for the day the procedure is cleared for widespread use.

“I’m so happy this transplant has given me a second chance.” —Randi Fibus-Caster, 63, Florida
**AFT**er 14 Y**E**ARS of per**F**ect mammograms, Cora Shird, 66, got the call that women dread: She should come in for a retest. The retest, in March 2018, led first to a sonogram, then to a biopsy, then to a retest. The retest, in March 2018, led to a diagnosis of breast cancer.

Researchers had been studying this cancer subtype and had developed new treatment approaches, including an aggressive multidisciplinary therapy that was first proven beneficial in later stages of breast cancer. “Several treatments are now available to women with advanced breast cancer, and some are expected to also be incorporated in the early setting, including new treatments that target HER2,” explains Vered Stearns, M.D., director of the women’s malignancies program at the Kimmel Cancer Center at Johns Hopkins University in Baltimore, which is where Shird was being treated.

First, Shird got a lumpectomy, with doctors removing three lymph nodes as well as the tumor. Next came 20 sessions of chemotherapy, followed by 15 rounds of radiation. “The first session was the worst, and I was determined that chemo wasn’t taking me down like that,” Shird says. So she began taking better care of herself, looking for ways to build her immune system, including meditation classes—“even something called ‘sound meditation’”—along with tai chi and walking.

Today her cancer is in remission. Shird continues to take one medication daily, anastrozole, which reduces the risk of her breast cancer coming back. Her doctors expect her to be on this drug for between five and 10 years.

Shird, who has since retired from her job as a clinical technician, couldn’t be more grateful, despite ongoing struggles with lymphedema, a common but painful complication of lymph node removal that required physical therapy. “I just leaned into my faith,” she says. “My three daughters gave me the baddest chick with a bald head.”

**I**n 2016, John Hammel developed intense back pain, and an MRI revealed tragic news. He had late-stage prostate cancer that had already begun to spread through his body. “Because I’m a physician, I knew how devastating the diagnosis was. I was despondent—I didn’t think I’d live a year.” When his oncologist told him real treatment was available—“treatment, not just palliative care”—he was skeptical. Then he met someone who had a similar case but was symptom-free for three years. He allowed himself to be hopeful.

As his oncologist’s urging, Hammel joined a clinical trial led by Christopher Sweeney, M.D., at Dana-Farber Cancer Institute in Boston. Because testosterone and other male hormones can fuel the growth of cancer cells, much research focuses on ways to either suppress the production of hormones or stop cells from receiving them. Sweeney’s study did both, combining enzalutamide, an oral drug that blocks hormone reception, with testosterone-suppressing medication. The FDA-approved treatment may raise three-year survival rates by as much as 80 percent.

Hammel, a psychiatrist, was living in Vermont and continued working throughout the trial. As he built regular trips to Boston for treatment, “I watched my PSA [a protein created by the prostate that goes up when the organ is diseased] drop from 2,000 to 450 to four and then to undetectable for six months—that’s where it is now.”

For Hammel, who says there is now no progression of his cancer, the trial has helped him start living, instead of focusing on his prognosis. When he and his wife found out one of their daughters was pregnant with their first grandchild, “that changed everything. We knew we wanted to be a part of the baby’s life and part of my daughter’s life more than we were.”

So he found a new job in Seattle, and the couple moved west. Besides spending time with their grandchild, they bought a sailboat, reigniting an old love of cruising. “We had put our lives on hold and kept working in three-month intervals,” he says. “But we are so fortunate that I’ve had this sustained response that we just decided to do what we want. If the tumor starts to win out again, we’ll deal with it.”

**PROSTATE CANCER BREAKTHROUGH**

An experimental drug combo that controls hormones linked to prostate cancer progression

By fusing a molecule that binds to a prostate-specific protein, scientists can spot tiny clusters of cancer in PET scans—leading to earlier detection of recurrences than were possible with conventional imaging.

**B**reast cancer is in remission.

“**My breast cancer is in remission.**” —Cora Shird, 66, Maryland

**Prostate cancer is in remission.** —John Hammel, M.D., 65, Washington

**There are several breast cancer treatments that are generating optimism.**

- New studies find that aromatase inhibitors (which reduce estrogen), currently used to prevent recurrence, may prevent breast cancer from developing in the first place.
- An immunotherapy drug, atezolizumab, is being tested in combination with the chemotherapy drug nab paclitaxel, potentially creating a new line of treatment for difficult-to-treat “triple negative” cancers.

**Aggressive multidisciplinary therapy to attack an especially dangerous early-stage tumor**

**NEW STUDIES FIND THAT**

**A**ggressive multidisciplinary therapy to attack an especially dangerous early-stage tumor...
ANNA KUEHL was scared. Ever since a diagnosis of dry macular degeneration in her late 40s—younger than most patients—she had been monitoring her sight, using a special tool known as an Amsler grid. One day a large black area appeared in her left eye, and she went back to her doctors at the University of Southern California for help. There she discovered that a team of researchers were working on a promising treatment for her condition called retinal implants. Even as she began taking the required immune-suppressant medication, a larger clinical trial cleared the way for a larger clinical trial. The treatment uses an ultrathin layer of specialized retinal cells to slow the progress of dry AMD. In some cases the procedure actually improves vision. That’s what happened to Kuehl. She can now read her watch and see her entire face in the mirror. “Shortly after the surgery, I turned to my husband while we were watching TV and said, ‘I can see all their faces!’” Doctors say FDA approval is about five years away.

Surgeons implanted the tiny device—about the size of a human red blood cell—into the retinas of 15 patients, including Kuehl. Now that some participants have passed the key one-year mark with improving vision, the procedure has cleared the way for a larger clinical trial. The treatment uses an ultrathin layer of specialized retinal cells to slow the progress of dry AMD. In some cases the procedure actually improves vision. That’s what happened to Kuehl. She can now read her watch and see her entire face in the mirror. “Shortly after the surgery, I turned to my husband while we were watching TV and said, ‘I can see all their faces!’” Doctors say FDA approval is about five years away.

SUZANNE NUGENT was 54. Her vision was failing, and doctors had told her there was no cure. Now that the procedure remains investigational, so insurance may not cover it.

Diagnostics took a week as doctors mapped out the faulty areas of Bartlett’s heart, but the actual procedure “took less time than the Chopin sonata he had on his earphones,” says Clifford Robinson, M.D., professor of radiation oncology at Washington University, a co-pioneer of the technique. Unlike a typical ablation, which can take six hours or more, the procedure is noninvasive. Doctors have now performed it on a number of people. One, a patient in her 80s, died within one month, from causes that may have been unrelated to the surgery. The other patients, who had experienced numerous VT episodes in the weeks before the procedure, have found that their incidents have decreased measurably, and in some cases have stopped altogether. Bartlett’s are virtually nonexistent—and so is his sense of dread.

WHEN Bob Bartlett collapsed during an exercise class in 2007, fast-acting paramedics saved his life. But the event led him down a complicated road of heart procedures and surgeries, an implanted defibrillator and debilitating medication. And he was burdened by the constant knowledge that he could drop dead at any moment from his fast and abnormal heart rate, a condition called ventricular tachycardia (VT).

“Once you know the feeling,” Bartlett says, “you know that if it continues, you’ll fall like a tree. And you know you might die.”

The attacks—which trigger the defibrillator to begin shocking the heart back into proper rhythm—can occur multiple times a year. “It feels kind of like a locker-room punch to the chest,” he says of his VT attacks. Like Bartlett, many patients develop post-traumatic stress disorder from repeatedly having their heart shocked back into rhythm. And when his arrhythmia drug caused intensely painful neuropathy in his feet, he was ready to give up. “I realized that if this became the new normal, I wasn’t sure I could live with it.”

Then Bartlett learned about experimental work happening at Barnes-Jewish Hospital in St. Louis, where Washington University School of Medicine physicians were using radiation to ablate damaged heart tissue. The procedure remains investigational, so insurance may not cover it.

Diagnostics took a week as doctors mapped out the faulty areas of Bartlett’s heart, but the actual procedure “took less time than the Chopin sonata he had on his earphones,” says Clifford Robinson, M.D., professor of radiation oncology at Washington University, a co-pioneer of the technique. Unlike a typical ablation, which can take six hours or more, the procedure is noninvasive. Doctors have now performed it on a number of people. One, a patient in her 80s, died within one month, from causes that may have been unrelated to the surgery. The other patients, who had experienced numerous VT episodes in the weeks before the procedure, have found that their incidents have decreased measurably, and in some cases have stopped altogether. Bartlett’s are virtually nonexistent—and so is his sense of dread.

When the FDA cleared Zephyr for use in the U.S. in 2018, Hogan lobbied to get insurance coverage for the procedure, traveling to Temple University Hospital in Philadelphia, the first U.S. center to use the valve to treat severe emphysema. After a few hurdles—he’s insurance company considered it investigational, and he had to appeal—he had the valve implanted in April 2019.

It’s a serious procedure, with a device the size of a pencil eraser inserted via a bronchoscope. The one-way valve blocks air from invading the damaged part of the lungs, where it can get trapped and hinder breathing. “The instant I woke up from anesthesia, I felt the difference,” he says. “It took 20 years to develop and gain approval for a treatment,” says Gerard J. Criner, M.D., director of the Temple Lung Center, where Hogan had his procedure. “It’s less invasive than other treatments. It costs less. And it improves exercise function and quality of life.”