



Dr. Vanessa B. Sheppard's work at Virginia Commonwealth University's Massey Cancer Center earned her honors as the American Cancer Society's Researcher of the Year for 2022.

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GOING FOR THE MOONSHOT

MEET FOUR INNOVATORS WORKING TO ADVANCE CANCER DETECTION, PREVENTION AND TREATMENT

BY SANDRA SHELLEY

“We’d like you to come back for some additional testing.” Hearing these words after a mammogram, prostate exam or other screening, your heart drops to your stomach. All the worst-case scenarios run through your head. But for many people, getting a cancer diagnosis is not the same as it was 30 years ago — or even last year. The Richmond region is home to top-rated health systems and physicians who are leading advancements in cancer research. Here are four doctors who are on the cutting edge of detection and treatment. >

TARGETED CANCER RESEARCH

In February, Dr. Vanessa Sheppard was named the American Cancer Society's 2022 Researcher of the Year. The honor recognizes her innovative research at Virginia Commonwealth University's Massey Cancer Center where, for years, she and her team have worked to improve breast cancer outcomes for Black women.

"We focus on African American women because they're the group that experiences the worst breast cancer mortality — 40% higher than their white counterparts," says Sheppard, associate director for community outreach and engagement and health disparities research at VCU Massey Cancer Center and associate vice president for population and public health strategic initiatives at the VCU School of Medicine.

According to Sheppard, Black women are more prone to triple-negative breast cancer, which has fast-growing tumors and high recurrence rates. Biology plays a part, as do socioeconomic and behavioral factors. She's found that Black women are less likely to complete chemotherapy or endocrine therapy and they also report communication issues with their doctors. To address this, she developed a Sisters Informing Sisters intervention that pairs newly diagnosed Black breast cancer patients with trained coaches who are also Black and are cancer survivors who have undergone similar therapies.

The coaches share stories from their experiences, using a patient guidebook, and help the patients learn how to better communicate with their physicians, while stressing the importance of receiving treatment. Various therapies, survivor stories, and real patient-to-physician conversations are presented in a digital guidebook, which the pairs also discuss.

"The goal is that women will have better communication



with their providers, because we know when there's better communication, then people are more likely to have recommended treatments [and] they're more likely to complete those treatments," says Sheppard, adding that these findings were discovered during her initial study.

Sheppard's research team partnered with survivors and stakeholder groups like the African Women's Cancer Awareness Association and members of the Sisters Network Inc. to develop the guidebook and ensure it was culturally relevant.

"At the time we were developing the tools, there weren't any focused on African American women," says Sheppard. "There weren't even materials that had faces of brown people. So, we've come a long way over the last decade or so of this work."

She is now overseeing a randomized clinical trial funded with a \$1.5 million American Cancer Society grant in which participants either receive enhanced usual care or the Sisters Informing Sisters intervention. The trial is open to newly diagnosed Black women in Virginia and in metro Washington, D.C.

It will be one of the largest interventional trials to focus on Black women. The grant and recognition from the American Cancer Society will assist in expanding her platform to reach more patients.

"The goal is, 'How do we reduce morbidity and mortality from breast cancer?'" Sheppard says. "We think that interaction between the patient and her clinician is critical."

PROGRESSIVE MAMMOGRAPHY TECHNOLOGY

In his darkened office, radiologist Dr. Ryan Gabriel clicks through bright mammography images on a large monitor. On one 3D scan, no tumors are visible. But on the next scan of the breast, using a different technology, cancerous growths show up clearly as white spots. Such vivid images are the hallmark of a contrast-enhanced mammogram, or CEM.

"It's really an amazing tool," says Gabriel, director of breast imaging at the Sarah Cannon Cancer Institute at Henrico Doctors' Hospital. He and his colleagues have analyzed more than 1,000 scans. Contrast imaging enables doctors to detect cancers at the earliest stage possible.

Patients are injected with an iodine-based dye prior to CEM imaging. The dye is later flushed out by the kidneys, but while in the body, it can light up tumors that escape 3D imaging.

"What we're taking advantage of are those blood vessels that are growing in the cancer, and those blood vessels are not normal, they're leaky," Gabriel says. "The contrast that we inject through an IV leaks out into the tumor for a little bit of time and we capture it, we take a picture at that time."

Gabriel trained in CEM imaging during a breast imaging fellowship at the University of Virginia, which he completed in 2017. A passionate patient advocate, he lobbied to bring the technology to Henrico Doctors' in 2019. The hospital

Improving outcomes for Black women with breast cancer is a focus for Dr. Vanessa B. Sheppard.



Radiologist Dr. Ryan Gabriel, director of breast imaging for the Sarah Cannon Cancer Institute at Henrico Doctors' Hospital

offers the only contrast-enhanced mammograms in metro Richmond. Henrico Doctors' is also one of only a few facilities in the United States offering contrast-enhanced stereotactic biopsy machines, where tissue collections are guided by real-time contrast injection.

"It is important to know that MRI is still the most sensitive method to detect breast cancer and CEM doesn't completely negate the need for MRI," Gabriel says. "CEM has the potential to provide a quicker, more affordable way to identify breast cancers for those who can't or don't want to do MRI."

At Henrico Doctors', CEM patients also receive a 3D scan. The contrast dye can pick up tumors as small as 5 mm in diameter — about the size of a pencil eraser — buried deep within layers of tissue.

One of Gabriel's patients, Melanie Crouch, 47, has dense breast tissue (which can easily hide tumors) but no family or personal history of breast cancer. In 2020, she had an abnormal mammogram and then biopsy findings of atypical ductal hyperplasia, which can sometimes lead to cancer. In 2021, she had a 3D mammogram. Though it came back normal, she says, "I decided I wanted something more in-depth in 2022," and underwent a contrast-enhanced mammogram for her annual screening.

On the scans, Gabriel discovered "a subtle change on the 3D portion from her prior mammogram, but the tumors were dramatically obvious on the CEM. She had multiple tumors equating to a large cancer in her left breast."

An ultrasound was also performed. It showed abnormal lymph nodes under her left arm. After biopsy, she learned she had stage 2A breast cancer, which had spread to the lymph nodes.

She has since undergone a double mastectomy, four months

of chemotherapy and five weeks of radiation, which she recently completed. Now, "I can see the light at the end of the tunnel," she says with a laugh. "It's been a long year, but at the point it was caught it was still treatable and curable, so I'm very thankful for that."

Crouch hopes her story encourages others to get mammograms. "If I would have put this off," she says, "I don't know how far it would have spread."

Of the advanced imaging screening, Crouch says: "It saved my life."

EXPANDING CLINICAL TRIALS

Dr. William "Billy" Irvin Jr. looks out his office window at Bon Secours Cancer Institute at St. Francis Medical Center and sees signs of a booming population — the foundations and frameworks of apartments and office buildings going up just across the street. Here in the growing suburbs of Chesterfield County, he sees a need to expand the reach of clinical trials.

"Eighty to 85% of patients with cancer are treated in a community hospital setting such as ours. Having trials available in someone's backyard is absolutely necessary to give them state-of-the-art care. We don't want to limit it to only those who can drive or fly or have the means to get to a large academic center," says Irvin, medical director of oncology for Bon Secours Richmond and director of clinical research for the Bon Secours Cancer Institute.

Since his arrival to Bon Secours in 2012 he's sought to grow the clinical trial program — making sure patients have access to National Cancer Institute trials.

Dr. James Pellicane, a surgeon and director of breast oncology for Bon Secours Richmond, says, "I honestly don't think we had a program before he took it over, at least not a very active one. He's done a tremendous job with developing this — not just for breast cancer, but for all cancers."

Irvin notes that the mortality rate from cancer has decreased 30% in his lifetime. "We're at the point now where people with a lot of cancer diseases can live a long time, and that's because of advancements in care," he says.

Some cancers are still proving stubborn, like triple-negative breast cancer, the most aggressive subtype. Bon Secours patients can undergo trials for datopotamab deruxtecan (Dato-DXd). "It's a novel antibody-drug conjugate; think of a Trojan horse, in that it is a drug linked to another drug," Irvin says.

As of press time, Bon Secours has 59 clinical cancer trials open. Trials are also offered at sites including Massey Cancer Center, Richmond VA Medical Center (formerly Hunter Holmes >

Dr. William "Billy" Irvin Jr., clinical research director for the Bon Secours Cancer Institute and medical director of oncology for Bon Secours Richmond



LEFT AND ABOVE: JAY PAUL

McGuire), Virginia Cancer Institute, Virginia Cancer Specialists and Virginia Urology. As of early March, the website *clinicaltrials.gov* lists 243 cancer-related studies recruiting within the Richmond area.

One of Irvin's clinical trial patients, Jennike Duignam, 37, is an elementary school art teacher and mother of two young children. In September 2020, she found a lump in her breast and went through testing. She was diagnosed with invasive ductal carcinoma, which had not spread to her lymph nodes.

Irvin went over Duignam's options for chemotherapy, and she opted for a 12-week study that December for the drug Taxol, "instead of this really harsh drug called the 'Red Devil,'" she says, referring to the nickname for Doxorubicin, an intravenous cancer drug with a bright red color.

She worked virtually from home every day, except for Wednesdays when she received chemo treatment. She also underwent hormone therapy and a double mastectomy, with direct implant reconstruction. Now, she says, "I have complete resolution of cancer."

She still remembers the first time she and her husband met Irvin. "He used a word that I'll never forget: He said, 'We're going to annihilate this tumor.' And he did."

ADVANCING CANCER TREATMENTS

Many were shocked when Broadway actor Quentin Oliver Lee died last year at age 34 after being diagnosed with stage 4 colon cancer, remembering that "Black Panther" star Chadwick Boseman died at 43 of the same disease in 2020. But younger adults experiencing advanced colorectal cancer is no surprise to Dr. David Randolph II, a radiation oncologist at HCA Johnston-Willis' Sarah Cannon Cancer Institute.

"I've had two patients less than 40 that I've treated recently for advanced rectal cancer," he says.

"Their symptoms got so bad that they were having prolonged rectal bleeding, rectal pain, unable to have bowel movements. They went to the doctor, and it was cancer."

According to an American Cancer Society report released in March 2023, adults in the U.S. are being diagnosed with colon and rectal cancers at younger ages, with 1 in 5 new cases diagnosed in people in their early 50s or younger. Additionally, 60% of new colorectal

cases diagnosed in 2019 were already in an advanced stage.

At Johnston-Willis, Randolph II and his father, Dr. David Randolph, are exploring revolutionary changes to the treatment of rectal cancer. "The standard of treatment for rectal cancer treatments, when it comes to radiation, is to do a combination of both chemotherapy and radiation for almost six weeks, then go to surgery, then to more chemo afterwards," says Randolph II. "Now what we're doing is trying to upend that protocol and switch it, so we're doing the chemotherapy upfront, because a big problem with rectal cancer is that it spreads to the liver before we can do anything about it. We're trying to stop it from spreading first."

Instead of six weeks of radiation, patients that qualify undergo five consecutive days of intensity-modulated radiation therapy (IMRT), which uses advanced technology to manipulate beams of radiation to conform to the shape of the tumor. "The upfront chemotherapy, combined with a shorter course of radiation, is more convenient for the patient and allows them to get to curative surgery faster," he adds.

Johnston-Willis is one of six Sarah Cannon centers set to join a large national trial looking at this protocol and its outcomes. "Early trials have shown that chemotherapy upfront reduces the chance of distant metastatic cancer spread, so it's not spreading to the liver, which therefore leads to improved survival rates," says Randolph II.

Similarly, the two radiation oncologists and their colleagues are exploring protocols for brain, skin, breast, and lung cancers. "Where a lot of the field is going to is to really make more concise compact treatments and being very, very cognizant of the surrounding tissue damage," he says. With improved treatments in radiation and medical oncology, patients are living longer. As a result, there's more concern about tissue damage that can cause problems later — such as heart disease in breast cancer patients.

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Randolph II is excited about the advancements in his field. "Even when we have patients with stage 4 disease, it isn't the same as it was even five years ago. We have patients that are still around several years later with no evidence of disease, because of the combination of focused targeted therapies and excellent systemic therapies like chemotherapies or immunotherapies." ■

Radiation oncologist Dr. David Randolph II (right) is encouraged by recent advances in treating advanced cancers.



JAY PAUL