Curing cancer, one tax return at a time

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California taxpayers fund a number of health programs — some administered by UC — by designating a portion of their tax refund.

Those contribution lines on your 540 State Income Tax Return where you can fill in donation amounts for nearly 30 different California-based funds? Those are just nickel-and-dime funds without much impact, right?

Wrong.

Last year California taxpayers contributed more than $4 million to an inspiring range of worthy health, environmental and educational funds. Among the funds that get an important boost around tax time are the California Breast Cancer Research Program and the California Cancer Research Fund. Both funds are administered by the University of California, which distributes the money as direct grants to California researchers working on the cutting edge.

In other words, those contributions have a tangible impact in the fight against cancer, supporting work that ranges from personalized support for young cancer survivors to new low-radiation screening tools.

Protecting fertility for young cancer survivors

As treatments for breast cancer improve, the number of young women surviving the disease has grown. Of the 2.8 million cancer survivors in the U.S., 10 percent are under 45 at diagnosis. After enduring cancer therapies and one of the most frightening experiences of their lives, survivors often find themselves faced with a variety of worrisome long-term health issues.

During chemotherapy, menstrual periods often stop, and it is not uncommon for women—even very young women—to experience the symptoms of menopause, including hot flashes and vaginal dryness. Cancer fears become compounded by worries that they may never be able to have children and that their bodies will never be the same.

"Young breast cancer survivors and their health care providers want to learn about how to manage reproductive health after cancer," said Dr. Irene Su, an assistant professor in the Division of Reproductive Endocrinology and Infertility at the UC San Diego School of Medicine.

Closing the knowledge gap

"There hasn't been an emphasis on providing reproductive health information to young survivors," Su said. Also, because many health care providers may not see that many young women with cancer, they may face knowledge gaps on providing reproductive health care for this population.

"Right now, there is a dearth of resources for disseminating reproductive health care information to patients and providers."

Su is leading a project, funded by the California Breast Cancer Research Program, to help women and their medical providers—no matter where they are located—have access to up-to-date, evidence-based information to treat estrogen deprivation symptoms, improve sexual function and monitor fertility potential after cancer. CBCRP received nearly $400,000 through the tax check-off program last year.

With a grant of more than $750,000 over three years, the project will generate the Reproductive Survivorship Care Plan (SCP-R), a Web-based tool that offers the best current research on managing hot flashes, sexual problems, fertility concerns and contraception to young breast cancer patients and their providers. Information can be tailored to the patient, and focuses on specific issues. The SCP-R will be tested in a randomized controlled trial that launches this summer.

The resource is being developed with the participation of patients and caregivers recruited across the country and with the oversight of a stakeholder panel of clinicians, researchers and breast cancer survivors.

Young women who survive breast cancer often have questions about fertility. It isn't unusual, for example, for a young woman's periods to stop when she undergoes chemotherapy. Women who have not

completed their families may worry that not menstruating means that they are infertile. "The SCP-R will provide relevant information on the natural course of ovarian recovery, when survivors usually get their periods back, types of blood tests that can help monitor ovarian function, and, equally importantly, what tests are not recommended and what we still don't know," Su said.

Women who have completed their families will need to consider effective contraception. In the United States, birth control pills are the most common reversible form of contraception. For a cancer survivor, however, it is crucial to keep estrogen levels low. "The copper IUD is a great form of reversible birth control, because it is non-hormonal and highly effective," said Su. "It would be great if a family practice physician or oncology provider had knowledge of how effective different birth controls are and what are recommended methods for breast cancer survivors."

Lung cancer screenings as safe as chest X-rays

Lung cancer is the most deadly form of cancer in the U.S. While patients with other forms of cancer are living longer than before, the five-year survival rate for lung cancers hasn't improved much in recent decades. More people die from lung cancer than from the next four cancers combined (including breast and prostate cancer). And while smoking is a leading cause of lung cancer, up to 15 percent of lung cancers have no relation to smoking; even smokers who quit smoking up to 15 years previously are still at risk of lung cancer.

One obstacle has been the lack of any screening test to detect lung cancer at an early stage. While imaging technology held some promise, it was unproven and there were some risks associated with being screened. But just a few years ago, a national lung screening trial found that at-risk patients who were screened using low-dose CT scanning technology had

a 15-20 percent lower chance of dying of lung cancer than those who received a standard chest X-ray.

These results showed promise for a new tool, with dramatically reduced radiation, to detect the most deadly form of cancer.

With funding from the California Cancer Research Fund (administered by UC's Tobacco-Related Disease Research Program), a team at UCLA is working to bring the level of radiation in an ultra-low-dose CT scan even lower. The TRDRP received nearly $445,000 through the tax check-off program last year.

"We know how to do the screening and the technology is pretty good," said Michael McNitt-Gray, a professor of radiology at the UCLA School of Medicine. "We want to push that dose even lower. We'd like to get the same level as a single chest X-ray."

Shorter times, improved images

Several aspects of CT scanning technology have improved dramatically. While low-dose CT screenings have been possible for nearly 20 years, technical limits have made them difficult to use effectively.

For example, an accurate image used to take up to 60 seconds to capture. Patients had to hold their breath during that entire time, something that most smokers can't do.

The improvements being made at UCLA make the process faster—the actual scan takes just 5 seconds—and can allow finer detail in the image, showing suspicious objects in the lung as small as 5 mm.

The timing of the UCLA project couldn't be better. Last year, private insurers began covering the cost of ultra-low-dose CT scans. In

February, Medicare announced that it also would cover the screening, making the early detection tool available to the elderly and disabled who may be at risk of developing lung cancer.

"The test itself is very quick," says McNitt-Gray. "The patient lies down, puts their arms above their head, and does some practice breathing. Based upon a planning view, the scanner adjusts to the patient's anatomy so that just enough of the radiation dose is used to provide the necessary image quality to detect anything suspicious in the lungs."

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