Jack Shore had a better treatment option for prostate cancer thanks to research. Read his story on page 12.
WE FIGHT ALL CANCERS

The Canadian Cancer Society funds more life-saving cancer research than any other national charity in Canada.

WE FIGHT CANCER IN DIFFERENT WAYS

- CHILDHOOD CANCER RESEARCH $4.5 million
- PREVENTION RESEARCH $6.3 million
- QUALITY OF LIFE & SURVIVORSHIP RESEARCH $3.5 million
- CLINICAL TRIALS $5.4 million

CANCER IN CANADA

196,900
Canadians were diagnosed with cancer in 2015

78,000
Canadians died of cancer in 2015

+143,000
lives saved since 1988

5-year survival rate

25% 1940s
+60% TODAY

CHILDHOOD CANCER SURVIVAL

71% 1980s
83% TODAY

THANKS TO YOU

WE FIGHT ALL CANCERS

1 in 4 Canadians will die of cancer

2 in 5 Canadians will develop cancer in their lifetime

CPN14_C34_2016_V3.png

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Lezlie Lee Kam, a Canadian Cancer Society outreach volunteer, understands the importance of cancer screening. But she also experiences the added barriers that people with disabilities face in getting screened. Lezlie has used a cane and walker for almost 10 years.

“When I go in for my Pap test, the first thing I’m told is to ‘hop on the bed,’” she says. “But it’s very difficult for me to get up on the bed on my own, and help isn’t offered to me.”

Equipment isn’t the only challenge. Lezlie wants to see staff better trained in helping patients with different needs.

“Screening tests can be uncomfortable for anyone — you’re at your most vulnerable at that time,” she says. “But those of us with disabilities also have to deal with equipment that is not suited to us and staff who are not prepared for us.”

With funding from the Canadian Cancer Society, Dr Aisha Lofters, a family doctor and researcher at St. Michael’s Hospital, is studying cancer screening rates among people with physical and mental disabilities. She found that women with severe disabilities get screened for cervical and breast cancer at lower rates than women without disabilities.

“This is an issue of fairness. It’s not right that there are groups of people who are not receiving appropriate screening,” Dr Lofters says. “And as the population ages, even more people are going to be affected by disabilities.”

Dr Lofters suspects that there may be several reasons for the lower screening rates in people with disabilities, including challenges with equipment. But she is also concerned that doctors spend too little time talking with patients about cancer prevention, particularly when there are more immediate health concerns.

“People with disabilities already have complex healthcare needs. The last thing they need is to be diagnosed with advanced cancer on top of everything else,” says Dr Lofters. “It’s very important that we prevent and screen for cancer in this group.”

Lezlie agrees. “Screening is part of the whole package of care, and everyone should have access.”

Dr Lofters will next start examining the rates of colon cancer screening in men and women with disabilities. Ultimately, she wants to use this information to design programs that will improve access to screening.

Despite the challenges Lezlie faces, she stays up to date with all of her screening tests. But she knows that many people with disabilities do not and likely won’t until things change in the healthcare system to improve access.

“The healthcare system needs to make it easy for us to physically get screened,” she says. “Once equipment is accessible and there is training, appropriate language and more awareness, we’ll be screened just as frequently as the rest of the population.”

Understanding screening rates is the first step in addressing the barriers that people with disabilities face in getting checked for cancer.
Lugei Juma started smoking at 15. What started off as a few cigarettes with friends eventually turned into an all-out addiction while working in the construction and restaurant sectors. After nine years of smoking, Lugei knew he needed to make some changes to move forward in his career and his life. Quitting tobacco was a top priority.

“I wanted to go to college, pursue a career and focus on athletics, and smoking wasn’t aligned with those goals,” says Lugei. With the support of his family and friends, he stopped hanging around people who smoked and started exercising, eating well and meditating, and was able to quit smoking.

This is a familiar story for Dr Bruce Baskerville, a researcher at the Propel Centre for Population Health Impact at the University of Waterloo. With funding from the Canadian Cancer Society, he led research focused on helping young people like Lugei quit smoking.

“Young adults have higher smoking rates than the general population, but if someone stops smoking before age 30 they are likely to not suffer any health problems related to smoking,” says Dr Baskerville.

Dr Baskerville’s team studied the effectiveness of an app, Break It Off, developed by the Canadian Cancer Society’s Smokers’ Helpline team. The app was developed to offer younger smokers an effective and accessible tool to stop using tobacco.

“Social media and smartphones are where young people are and how they use information,” says Dr Baskerville. “We want to test whether these tools can be used for quitting smoking.”

Dr Baskerville’s team found that young adults who used the app were more successful in quitting smoking than people in the same age group who used a more traditional telephone quit line.

Dr Baskerville stresses that a telephone quit line is still an essential service, and social media and apps complement this service so that more people can be reached by targeting a demographic more likely to embrace technology.

“This is a new frontier and new territory. We want to see how these new innovations and interventions can best be used to be effective,” says Dr Baskerville.

Lugei agrees that social media can be an effective tool. “It’s important for the Canadian Cancer Society to fund research like this,” he says. “My generation is tech savvy and constantly using social media, so this technology can really target youth who need help quitting.”

Lugei is now in his final year of college and captain of the varsity cross-country running team. He currently works for Leave the Pack Behind, a college and university smoking cessation program, and he hopes to be a role model for young people who are trying to quit smoking.

“Smoking is like a relationship,” says Lugei. “You may think you’re in love with it and that you need it, but if it isn’t making you a better person, it’s not a positive impact on your life.”

WHO

Lugei Juma, student, Toronto (pictured)
Dr Bruce Baskerville, researcher, Waterloo

WHAT

With Canadian Cancer Society funding, Dr Baskerville found an app developed by our Smokers’ Helpline team is effective in helping young people like Lugei quit smoking.

WHY

Helping young adults quit smoking is a priority since they likely will not suffer major smoking-related health problems if they quit early enough.
Researchers across different disciplines are working together to use technology to create detailed roadmaps of the brain, a development that will help to improve brain cancer surgery. With Canadian Cancer Society funding, Dr Simon Graham, a medical physicist at Sunnybrook Hospital, and Dr Sunit Das, a neurosurgeon at St. Michael’s Hospital, are working to improve MRI technology used during brain surgery.

Many patients with brain cancer need surgery to remove the tumours. Surgeons rely on MRI images of the brain to plan the surgeries. Currently, MRI technology shows the structure of the brain and where the tumour is located, but is limited when it comes to showing brain activity.

Dr Graham and Dr Das are testing the use of functional MRI (fMRI), which provides an extra layer of detail that shows which regions of the brain are active when a patient performs a particular task, such as counting or spelling.

“Functional MRI has been used for neuroscience research, but using this technology in the clinic is quite new,” says Dr Graham. “I want to do work that has clinical applications in medicine.”

Dr Graham and his team developed a new tablet-based technology, where patients perform tasks while in an MRI machine to provide detailed information about brain activity. Dr Das is then using the information gained through the fMRI and tablet technology to plan a roadmap for surgery of how to get to and remove as much of the tumour as possible while causing the least amount of brain injury to the patient.

“This technology allows me to be remarkably aggressive in patients with these tumours,” says Dr Das. “It seems counterintuitive, but once I know what part of the brain needs to be protected, I can be remarkably aggressive with the rest.”

Dr Graham and Dr Das – along with a multi-disciplinary team that includes neuroscientists, anesthesiologists and a speech pathologist – have already used this technology to plan surgeries for close to 30 patients. While they are currently focused on improving the technology for surgery, in the future they hope to study whether it also improves survival and side effects for patients.

The support of the Canadian Cancer Society was essential to moving the research forward to the point where it can be used in patients.

“I had the desire to have a tool like this for my patients at the same time that Dr Graham had pushed this remarkable technology forward to a place where it was ready to be translated into the clinic,” says Dr Das. “The support of the Canadian Cancer Society and our team has let us do highly innovative work to help patients.”

**WHO**

Dr Simon Graham, researcher, Toronto (left)
Dr Sunit Das, neurosurgeon, Toronto (right)

**WHAT**

With Canadian Cancer Society funding, researchers are developing technology that can improve surgery by providing a more detailed image of the brain.

**WHY**

Surgeons can use the detailed images to develop a plan for surgery that removes as much of the tumour as possible while preventing damage to the brain.
Dr Shana Kelley, a professor and researcher at the University of Toronto, is tackling one of the toughest questions in cancer research – how to detect cancers that have no symptoms.

Some cancers, including breast or colon cancer, can be detected early. But other cancers deep within the body, such as brain or ovarian cancer, are more difficult to diagnose. Early detection is a top priority since it often increases the chances that a cancer will be successfully treated.

Dr Kelley envisions a future where doctors can use a simple blood test to screen for a number of cancers during a routine physical exam.

“That’s certainly the holy grail,” she says. “Ideally, we want to be able to find more cancers before they have symptoms.”

Researchers have discovered that cancer cells shed tiny particles that enter the blood and circulate around the body. Dr Kelley’s team of chemists and engineers, in collaboration with physicians, has leveraged this finding by developing a device that can detect these particles in a small blood sample.

The device uses a microchip, similar to a computer chip, that produces an electrical signal when these tiny cancer particles are present in the blood. The team has produced a working model of the device and early results show it is sensitive enough to detect these particles in blood samples. The team will next test the device in larger clinical studies with more blood samples from patients.

The long-term goal is to create a compact, easy-to-use tool that doctors can use in their clinic to easily test for cancer.

Dr Kelley says that her promising research would not have been possible without the Canadian Cancer Society’s support of unconventional cancer research. "When we applied for funding, we didn’t have a lot of results to back up our work. But because of our Society Innovation Grant, we were able to create a new device and prove that it worked," she says. "The support of the Society was essential."

Her success in developing tools to improve cancer diagnosis is rooted in the decision to bring together researchers and doctors with different backgrounds. "Ultimately, we want to develop tools that are useful to clinicians," she says. "We are using our expertise in chemistry and engineering to make devices that meet the needs of the medical community and are designed to make an impact for patients."

**New technology to diagnose hard-to-find cancers**

**Who**
Dr Shana Kelley, researcher, Toronto

**What**
With Canadian Cancer Society support, Dr Kelley and her team are developing a new device to detect cancer earlier using patient blood samples.

**Why**
Detecting hard-to-diagnose cancers early through a blood test may help to improve treatment and, ultimately, survival.
Jack Shore is no typical 67-year-old. As a power skating instructor, avid gym goer and boxer, he has a lifestyle of someone half his age. Jack’s life was turned upside down in 2006 after being diagnosed with prostate cancer. He had surgery and radiation treatment, but almost two years later, his prostate specific antigen (PSA) level – a marker of prostate cancer – started to rise rapidly.

Hormone therapy was the next treatment option. These injections slow the growth and spread of prostate cancer cells but they come with many side effects that may drastically impact the lives of the men who receive it.

After Jack’s first round of hormone injections, side effects hit him almost immediately. Despite his active lifestyle, he gained weight, lost muscle mass and experienced fatigue and hot flashes. But most troubling to Jack was the onset of depression.

“I was really bothered by my change in physical condition, but the worst was the depression,” he says. “I was used to a certain lifestyle and I just wanted it back.”

Until recently, many prostate cancer patients received continuous hormone therapy. But a clinical trial supported by the Canadian Cancer Society is changing that. Work led by Dr Laurence Klotz and Dr Juanita Crook found that men who took breaks from hormone therapy lived as long as those receiving continuous therapy. Moreover, their quality of life improved.

This type of treatment regime also lowers costs for our publicly funded healthcare system.

“This research means that most men going on hormonal treatment no longer require it for life. It’s not often you have a treatment that both saves money and improves quality of life, and potentially improves survival,” says Dr Klotz.

In Canada, roughly 24,000 men are diagnosed with prostate cancer each year, with 25 to 30 per cent needing hormone therapy as part of their treatment. Work funded by the Canadian Cancer Society is giving thousands of men each year an alternative to continuous hormone therapy.

Jack and his doctor decided to try intermittent hormone therapy. Jack’s first two injections successfully controlled his cancer for three years. Then Jack needed another series of two injections.

“This type of cancer is life-altering,” says Jack. “I don’t like hormone therapy at all but if I am going to have to go through it, by being allowed breaks, I feel like I have some control over it.”

Two years after his last hormone injection, Jack is finally starting to feel like his old self. “I’ll have this cancer for the rest of my life, so my quality of life has become a priority to me,” he says. “I’m thankful that the Canadian Cancer Society funds research that is helping to improve treatment options for patients like me.”

Clinical trial improves prostate cancer treatment options

Jack Shore, living with prostate cancer, Port Colborne (pictured)
Dr Laurence Klotz, oncologist, Toronto

WHO

A clinical trial supported by the Canadian Cancer Society found that men with prostate cancer who took breaks from hormone therapy lived as long and experienced fewer side effects and better quality of life as men taking continuous therapy.

WHAT

The trial is changing how prostate cancer is treated and improving the lives of thousands of men in Canada.

WHY

It’s not often you have a treatment that both saves money and improves quality of life, and potentially improves survival.

- Dr Laurence Klotz -
Lori and Steve Taraba proudly watched their 18-year-old twin boys, Conner and Brock, graduate from high school in 2015. The celebration was particularly poignant for Brock, who was diagnosed with cancer as a baby.

Lori remembers preparing for the worst in 1998 when she was told that 10-month-old Brock had high-risk acute lymphoblastic leukemia, a form of blood cancer that had a survival rate of only 18 per cent.

Brock endured 26 months of chemotherapy followed by 10 days of radiation treatment that targeted his head. The family worried about side effects. While cancer treatments destroy cancer cells, they can also damage healthy cells. In children, whose bodies are still developing, health problems can last for months or years after cancer treatment.

Brock beat the odds and survived his cancer. However, he is still coping with long-term side effects, including difficulty with math, languages, speech and fine motor skills.

“The doctor told us there would be changes with Brock,” Lori says. “We have focused on what we need to do to help him reach his full potential.”

To help kids like Brock, the Canadian Cancer Society is funding Dr Brian Nieman, a researcher at the Hospital for Sick Children.

He is examining brain structure and function in children with leukemia who, like Brock, underwent chemotherapy at a young age, in order to understand the changes this treatment causes.

“As these kids get older, they tend to have problems in school and maintaining employment,” Dr Nieman explains. Children with leukemia receive a combination of drugs. Dr Nieman will also study each drug individually to determine their effects on the brain. He hopes his team can isolate the ones most harmful for brain development.

“By better understanding how each chemotherapy drug impacts the developing brain, in the future we might be able to change treatments or provide therapy after treatment to improve these children’s quality of life,” he says.

Brock isn’t letting anything hold him back. He plans to go to college to study horticulture and pursue his goal to work with plants and trees.

“The research the Canadian Cancer Society is funding to improve the lives of kids after treatment is extremely important,” Lori says. “The first priority is saving children’s lives, but we also need treatment options that will help more kids to thrive and leave cancer behind them.”
Thanks to the support of donors and volunteers, the Canadian Cancer Society has made significant progress in the fight against cancer. But there is more to be done.

To make a donation, please visit cancer.ca.

For more information about accessible formats, please contact aoda@cancer.ca