Dr. Bernadette Zwaans, PhD is conducting groundbreaking Radiation Cystitis (RC) research at Beaumont Health in Royal Oak, Michigan. As a Urology Care Foundation Research Scholar, Dr. Zwaans has become a rising star in RC research and has dedicated her career to helping cancer survivors, like her father, who are at risk of developing RC.

The personal connection was Dr. Zwaans’ initial inspiration to conduct this research, but her tireless dedication and passion to help cancer survivors has only intensified with her own battle with cancer – a battle that she fought and won while conducting her research and taking care of her one-year-old son.

Dr. Zwaans and the over 15.5 million cancer survivors in the United States have unique health needs that remain vastly understudied. Radiation cystitis (RC) is a debilitating chronic bladder condition with severe unmet medical needs that affects cancer survivors. While only 5-10% of cancer survivors who were exposed to radiation therapy are diagnosed with RC, most urologists will argue that the vast majority of survivors develop some degree of bladder damage, hereby significantly degrading the quality of life of millions.

Conventional treatment for this condition has limited success and can bring about severe complications including the need to remove the entire bladder. If not managed in a timely manner, RC can
become life-threatening. Thus, there is an overwhelming need for early diagnosis and reliable therapies.

RC patients present with symptoms including pelvic pain, increased need to urinate, increased urgency to urinate, and some degree of blood in urine, ranging from barely visible to blood clots so large they prevent people from being able to go to the bathroom. These symptoms are caused by increased thickening of the bladder and damage to the blood vessels. Stopping blood loss is the primary goal. However, without treating the underlying causes, the patient often relapses and more extreme measures such as placing toxic substances in the bladder to arrest bleeding or completely removing the bladder are used to save the patient's life.

Born in the Netherlands, Dr. Zwaans trained at Harvard University with top scientists in vascular biology. She then obtained her Doctorate in Philosophy in Molecular and Cellular Biology at the University of Michigan before coming to Beaumont in 2015. She lives in a suburb of Detroit with her husband Jake and her son Quintin.

“We were just delighted that such a world class trained young doctor, who worked on novel pathways on how cancer grows and spreads, could join us and build up urology research at Beaumont,” said Dr. Michael Chancellor, Director of Neuourology Program in the Department of Urology at the William Beaumont Hospital.

In March 2015, just two months after earning her doctorate degree and starting her career at Beaumont, Dr. Zwaans noticed she had shortness of breath and a consistent dry cough, symptoms that were worsening quickly. A chest X-ray revealed a large mass in her chest that was exerting an enormous amount of pressure on her airways and lungs, making it difficult for her to breathe. After a series of tests, procedures and doctors’ appointments, Dr. Zwaans was diagnosed with primary mediastinal large B cell lymphoma, an aggressive cancer of white blood cells.

Dr. Zwaans stated “The most devastating moment for me was when I was told surgery was not an option and that I would have to undergo chemotherapy. How could I take care of a 9-month old baby, continue my scientific research, and fight this cancer?” Dr. Zwaans started her chemotherapy treatments in April and finished her treatment with radiation therapy in the fall and has been in remission since. “As a scientist, receiving chemo- and radiation therapy is especially difficult as I was very much aware of the damage these treatments do to your normal tissue and the severe long-term side effects they can cause.”
Understanding what the long-term consequences are of the harsh cancer treatments, Dr. Zwaans is determined to reduce the burden of millions of cancer survivors through her research by finding treatments for devastating conditions such as RC.

“Bernadette is simply amazing as she continued her research with us while undergoing surgery, radiation, and chemotherapy all while taking care of her young son, Quintin. As a mother of two children, I know how hard that is and what dedication it takes for working parents to contribute to medical science”, said Dr. Laura Lamb.

Working with Drs. Michael Chancellor and Laura Lamb in Urology research at Beaumont’s Research Institute, Dr. Zwaans is leading a comprehensive research program to discover how radiation damages the bladder. “I hypothesize that the key to successfully treating all RC-related symptoms is early diagnosis and discovery of a treatment for other cancer survivors who have gone through what I have experienced,” said Dr. Zwaans.

Dr. Zwaans’ story came to the attention of the Radiation Cystitis Foundation through the relationship between its founder George Harriston, who is a patient of Dr. Chancellor at Beaumont. Mr. Harriston is also a cancer survivor who has suffered long-term health issues from his radiation treatment. George noted, “It was a wonderful experience to visit Drs. Chancellor, Lamb, and Zwaans’ research facility and to talk with a fellow cancer survivor who is doing research in this important area that has not received enough attention”.

The Radiation Cystitis Foundation wants to pass along this special story and ask that you reach out to Dr. Zwaans and her colleagues at Beaumont Health Bernadette.Zwaans@beaumont.org and Michael.Chancellor@beaumont.org, if you want to learn more about their research.