

Preventing problems after cancer

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(from left) U of A medical researchers Lesley Mitchell and Maury Pinsk with Lisa McDermott, whose daughter went through cancer treatment and had blood-clot complications

Medical researchers at the University of Alberta are part of a national team that has one common vision—to prevent long-term complications from childhood cancer treatment.

The researchers will initially test blood samples of those who survived childhood [cancer](#) to see which genetic biomarkers made the survivors more susceptible to developing common post-cancer complications, such as [blood clots](#), hearing loss, kidney failure or bone marrow transplant rejection. In the fifth and final year of funding of the \$4.3-million grant, researchers will start a pilot study in which [children](#) deemed to be at risk of these complications will be given medications to prevent the noted health problems. Ultimately, the researchers hope to screen all children with cancer before their treatment starts, in hopes of preventing the complications in the first place.

Each team across the country is recruiting patients for each arm of the study. And each site has a principal investigator who is the national lead in charge of one specific aspect of the research. In Edmonton, principal investigator Lesley Mitchell is in charge of the research arm zeroing in on blood clots. She is a researcher and an associate professor in the Department of Pediatrics with the Faculty of Medicine & Dentistry and an adjunct associate professor with the School of Public Health. She notes that children who have had cancer are one of the largest groups of children to suffer from blood clots, a side-effect of the cancer and the treatment.

“Twenty to 30 years ago children didn’t survive cancer,” says Mitchell, who has spent more than 20 years researching the issue of blood clots in children who have this disease. “Thanks to advances in pediatric medicine and research, children are surviving cancer, but they are living with long-term complications of treatment for the disease. We want to help these children and prevent these complications from happening in the first place.”

Some children who suffer from blood clots can have symptoms such as swelling or passing out. Others don’t exhibit any symptoms at all, such as one child whose multiple veins to his heart had been completely blocked by blood clots, so the body created numerous additional veins to the heart to keep blood flowing. But the problem, says Mitchell, is that these newly created veins don’t work as well as the original ones. Blood clots can lead to complications later in life such as being at risk for developing multiple clots and rupturing of the newly created veins.

Pediatric oncologist Maria Spavor, an Edmonton co-investigator and assistant clinical professor with the Department of Pediatrics, will be involved in enrolling child and adult patients for all arms of the study through her role as medical director of the Kids With Cancer Society Survivor Program, a multidisciplinary Edmonton clinic that follows

survivors of [childhood cancer](#). The clinic provides lifelong screening and support for survivors, assisting them with the long-term medical and psychosocial complications of cancer treatment.

"Late complications of cancer treatment are a reality for so many survivors of childhood cancer," says Spavor. "Our hope is that we will reduce the significant impact these [complications](#) cause in their lives, ultimately giving every survivor the quality of life they so deserve."

Maury Pinsk, another Edmonton co-investigator, is based in pediatric nephrology and is an associate professor in the Department of Pediatrics. He will lead the kidney-failure part of the study in Edmonton.

"Kidney injury from the medicines used to treat cancer is not well recognized in pediatric cancer unless children end up with complete kidney failure on dialysis," he says.

The \$4.3-million grant was jointly funded by the Canadian Institutes of Health Research (CIHR), the C17 Research Network in Edmonton, the Canadian Cancer Society, the Hospital for Sick Children in Toronto, and the Pediatric Oncology Group of Ontario.

Overall, CIHR and other funding organizations have invested \$12 million to support the work of four different research teams across Canada.

Provided by University of Alberta

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