

KiCS STUDY

Unlocking the cancer codes

AS THE LARGEST paediatric cancer centre in Canada, SickKids has the patient population, clinical expertise, and intellectual capacity to identify genetic risks and develop personalized and precise treatments that have the potential to save the lives of critically-ill children.

Twenty years ago, when a child was diagnosed with cancer, it was thought to be horribly bad luck, not an indication of a deeper, genetic connection. But with the advent of new DNA sequencing technologies, and a greater investigation into family cancer histories, it is predicted that in up to 40 per cent of kids with cancer, genetics is directly related to the development of the disease, and 10 to 25 per cent of children will have a genetic predisposition associated with cancer that can be detected and acted upon. Today, we can also identify changes in the DNA of almost 25 per cent of childhood and young adult cancers, and treat them with new, molecular-targeted drugs.

The SickKids Cancer Sequencing (KiCS) Program is a collaborative and innovative study that brings together experts in haematology/oncology, pathology, bioinformatics, genetics, genomic research, and genetic counselling to

determine the genetic profiles of tumours, which will help clinicians identify the best individualized treatment options for children with refractory, relapsed and metastatic cancer.

KiCS also suggests new therapeutic intervention based on tumour-specific genetic alterations in collaboration with PROFYLE—a trailblazing pan-Canadian program in partnership with the Terry Fox Foundation and hospitals across Canada that matches all the sequencing data with potentially life-saving drugs.

With your support, clinicians can continue to identify the best individualized treatment options for more children who might have had little to no chance at life.

EACH YEAR, KICS SEQUENCES ABOUT 125 CANCER PATIENTS, WHICH COSTS APPROXIMATELY \$1 MILLION, ANNUALLY. TODAY, OVER HALF OF THESE PATIENTS HAVE A TARGETED TREATMENT PLAN THAT WOULD HAVE BEEN OTHERWISE UNKNOWN AND UNAVAILABLE.
