POSITIVE

Paediatric Outcomes in Transplant

Personalising Immunosuppression to Improve Efficacy

# Pediatric Outcomes in Transplant: Personalising Immunosuppression to Improve Efficacy (POSITIVE Study)

## What is the Canadian National Transplant Research Program?

The Canadian National Transplant Research Program (CNTRP) was created to bring together researchers from many transplant disciplines across Canada. Designed to transform transplant research in Canada, the CNTRP aims to increase the number of transplants and improve the survival of recipients on a national scale.

The CNTRP is funded by the Canadian Institutes for Health Research (CIHR) Institute of Infection and Immunity and other funding agencies. This network is composed of 105 investigators at 13 centres and universities across nine provinces. This program supports six projects and three cores. The POSITIVE study is a project focused primarily on improving outcomes in children after transplant.

## Purpose of the POSITIVE Study

Adequate control of immunosuppression is essential to prevent graft failure after transplantation and to avoid life-threatening viral and malignant complications. Children undergo periods of rapid change from birth to young adulthood as their bodies change with growth and maturation - this makes achieving optimal immunosuppression in children difficult.

Knowledge gained from the POSITIVE study will help to tailor post-transplant management to the unique needs of growing children and young adults with the goal of prolonging graft survival, delaying re-transplantation and ultimately improving the long-term quality of life of patients post transplant.

This includes how post-transplant immunosuppression can be adjusted to meet the unique needs of the child, reduce the risk of developing viral and malignant complications, and ways to improve adherence with medicines after transplant.

## Who can participate?

If you/your child are listed to receive a solid organ transplant (heart, liver, kidney, lung) or hematopoietic stem cell transplant, you are eligible for the POSITIVE Study.

## Description of Research

There are several components to this study, which are described below. We will do our best to coordinate all study tests with routine tests and hospital visits.

## Immune Function

Children have an immature immune system and may respond differently to immunosuppression than adults. We will study this by measuring the function and maturity of your child's immune system before and after transplant through blood samples (2-5 ml, one teaspoon) before transplant and at 3 months and 12 months after transplant.

## Pharmacokinetics

Pharmacokinetics (PK) is the study of the way the body absorbs, distributes, and eliminates a drug. We will study PK which involves collecting three blood samples over four hours (total 1.5 ml) to measure drug levels. This will be performed at the time of biopsies around 3 months and 12 months after transplant. If your child undergoes a biopsy for suspected rejection we will collect an extra sample for PK.

## Viral Genotyping

A child's immature immune system places them at higher risk for complications if they acquire Epstein-Barr virus (EBV) infection after transplant. EBV infected cells can grow to form tumors in the lymph nodes called post-transplant lymphoproliferative disorder (PTLD). We will collect a blood sample (6 ml, one teaspoon) at the time of EBV infection and 6-10 weeks later. Some of this blood will also be used for special tests of the immune function and to see how it responds to EBV. This will allow us in the future to decide which patients should or should not be treated more aggressively with anti-viral medicines.

## Medication Adherence

Teenagers and young adults often have trouble taking medicines on time. This can increase their risk for rejection and graft loss. We will study why young people fail to take their medicines. Participants will respond to a series of questionnaires. This will help us identify ways of supporting patients and families and providing care that may improve compliance with medicines.

"The POSITIVE study aims to tailor post-transplant management to the unique needs of growing children and young adults..."

## POSITIVE Study Team

### Project Leads

Dr. Seema Mital, *SickKids (lead)*
Dr. Upton Allen, *SickKids (co-lead)*
Dr. Beth Foster,
*McGill University Health Centre (co-lead)*

### Researchers

Dr. Patricia Birk, *Children's Hospital of Winnipeg*
Dr. Janice Bissonnette, *University of Ottawa*
Dr. Tom Blydt-Hansen,
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Jennifer Harrison, *Toronto General Hospital*
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Dr. Ruth Sapir-Pichhadze,
*McGill University Health Network*
Dr. Leanne Tibbles, *Alberta Health Services*
Dr. Simon Urschel, *Stollery Children's Hospital*
Dr. Michel White,
*Institut de Cardiologie de Montreal*

## EXTENT OF PARTICIPATION

Extent of participation may vary based on age and transplant status. You may be approached at different times for different components of the study. You may also be approached for the Transplant Biobank Registry as part of this study.

You/your child can choose which parts of the study you want and do not want to participate in. Whether you participate in the study or not will not have any impact on the provided clinical care for you/your child.