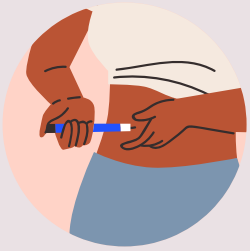
SCREENING NEWBORNS AND CHILDREN FOR TYPE 1 DIABETES RISK:

FROM SILENT THREAT TO EARLY ACTION

Type 1 diabetes (T1D) is one of the most common chronic childhood conditions, and Canada ranks in the top 10 countries in the number of cases.

What is T1D?



T1D is a condition where the body's immune system **mistakenly** attacks the cells that make insulin.

Insulin is a hormone that helps move sugar from the blood into our cells for energy. **People with T1D rely on daily external insulin to stay healthy and manage their blood sugar levels.**

Without insulin, sugar builds up in the blood to dangerous levels.

This can lead to a life-threatening condition called diabetic ketoacidosis (DKA). In Canada, 19-25% of children with T1D are not diagnosed until they develop DKA.

How Can T1D Silently Affect Anyone?

Genetic Risk: Some people are born with genes that increase their chances of developing T1D.

Immune Activation: The immune system targets the insulin-producing cells.

Immune Response: This causes the body to make special proteins, called autoantibodies, that act as early warning signs and can be detected through screening for T1D risk.

T1D Progresses in Three Stages

Stage 1: Autoantibodies are present, but blood sugar levels are normal and there are no symptoms.

Stage 2: Blood sugar levels become irregular as more insulin-producing cells are lost, though symptoms do not appear yet.

Stage 3: The disease is clinically diagnosed, with symptoms like increased thirst, frequent urination, weight loss, blurred vision, and fatigue.

How Can You Screen Your Child for T1D Risk?

The **Canadian Population Screening for Risk of Type 1 Diabetes (CanScreen T1D)** is a research team working to create Canada's first pilot screening program to identify newborns and children at risk for T1D.

To guide this work, we are first exploring whether families are interested in T1D risk screening and how this program should be designed. Based on the findings, we will develop and launch a pilot screening program to test the approach.

The program will screen participants using two testing methods: **genetic risk scoring** and **autoantibody testing**.

Genetic Risk Scoring
A genetic risk score checks a newborn's genetic information to see if they are more likely to develop T1D.

Genetic testing will be done using blood samples already collected through routine newborn screening. No new blood sample is needed. You simply need to give us permission to do the test.

Autoantibody Testing
Autoantibody testing checks the level of these signals of T1D risk in the blood. Autoantibodies typically appear years before symptoms.

Autoantibody testing is usually done using a blood sample, which can often be collected with a quick and simple finger prick.

How Can T1D Risk Screening Impact the Future of Children?

Screening for T1D risk can open doors for families. CanScreen T1D is committed to supporting the needs of children at risk and their families.

Reduces Health Emergencies
Children at high risk will continue to be closely monitored to catch changes in blood sugar early and be connected with a diabetes care team before insulin is needed.

Knowledge is Power
Families will receive education and genetic counselling to be prepared emotionally and practically.

Facilitates Access to Prevention
Children can take approved therapies or join clinical trials that may delay their T1D diagnosis by months or years.

At the same time, screening can come with emotional, medical, and practical challenges. CanScreen T1D is looking into these concerns.

Limited Health System Capacity
Provincial and territorial health systems may not have enough resources to fully support national T1D risk screening and follow-up care.

Uncertainty Creates Stress
Families may experience ongoing stress and anxiety if their child is identified as high risk for T1D, especially without knowing if or when the disease might develop.

Concerns About Data Privacy
Some people worry that current systems may not fully protect screening results, raising concerns about access to and misuse of this information.

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