

Summary

The CALIPER (Canadian Laboratory Initiative on Paediatric Reference Intervals) Project is a collaborative study led by the Hospital for Sick Children in Toronto, ON, in collaboration with several other children's hospitals across Canada. CALIPER aims to establish a current and accurate database of paediatric reference values (i.e. normal healthy values) that represent Canada's multiethnic children and youth from birth to 18 years old. Reference intervals are values that help clinicians properly interpret their patients' laboratory test results, and are crucial for providing quality medical care. It is very important that accurate paediatric reference intervals are available when a child with medical concerns is screened for a disease. Unfortunately, huge gaps currently exist in this information, and interpretation of paediatric test results is often based on inappropriate values or out-dated information. This increases the risk of misdiagnosis and can result in unnecessary stress, anxiety and lengthier hospital stays, as well as increased costs to the healthcare system.

Since the project began, CALIPER has developed reference intervals for over 170 disease biomarkers, which can be used to improve diagnosis in many clinical fields, including cardiology, nephrology, critical care and oncology. The CALIPER database of reference intervals is a major contribution to paediatric healthcare, and hospitals in both Canada and the US have already implemented the use of CALIPER reference intervals in their clinical practice.

CALIPER partners with schools, daycares and community agencies across Ontario and invites healthy children to participate with CALIPER. We want to keep our database up-to-date, develop age- and sex-specific reference intervals for emerging biomarkers, and increase awareness about this important health care initiative. By filling out a questionnaire and consent form, giving height, weight, and waist circumference measurements, and donating a small sample of blood, kids are able to directly help other kids!

In order to make our reference intervals more easily accessible to clinicians, the CALIPER data is available on a downloadable app for smartphone and tablet on iTunes and Google Play. The goal is for paediatricians to use this app in practice, to help increase the accuracy and speed of diagnosis, and to ensure that children get the correct treatment. The data is also being made available through the CALIPER website "www.CALIPERproject.ca".

The CALIPER team is also initiating a national and international campaign to ensure wide-spread knowledge translation, ensuring that clinicians and other healthcare workers across Canada, USA, and internationally, are aware of the new paediatric database and the recently released smartphone app.

FREQUENTLY ASKED QUESTIONS



What are CALIPER's goals?

CALIPER aims to improve the diagnosis and treatment of children all across Canada. We are trying to determine what is normal and healthy when a child is screened for a disease. Our findings are used by doctors in order to compare healthy and normal blood levels to those of their sick patients.

Can I see my child's blood results?

In a case where we find something of concern or abnormal with your child's blood then your family physician will be contacted. They are able to share that information with you and choose the appropriate action to take.

Does it hurt?

This varies with each child. Some say it feels like a mosquito bite and others say it feels like a pinch. We use a needle called the butterfly needle which are used on babies when treated at hospitals. It is the smallest type of needle and pain is minimal.

How much blood do you take?

The amount of blood varies with age but ranges from 1mL (newborns and infants) to 10mL (11-18 years of age). Generally, it is approximately a tablespoon of blood.

What kind of tests are done to the blood?

So far, we have tested over 170 markers within the blood. This includes hormones, vitamins, minerals, proteins, amino acids, etc. These levels ultimately look at serum chemistry, enzymes, proteins, and lipid analytes.

Where can I see results?

You can find the results of our pediatric reference intervals on www.CALIPERdatabase.com. This information is being used by doctors across Canada and all over the world.

Can my child donate at SickKids and not at a clinic?

Yes you certainly can. If you leave us your information we can contact you and make an appointment to donate here at the hospital within the lab.

How long is the study going on for?

This is an ongoing project that is expanding throughout Canada. We are trying to obtain information that is representative of the Canadian youth population. Having as many children as possible participate will increase the accuracy of our results.

My daughter is diabetic, can she still donate?

Yes, of course! We take blood from any child who wishes to donate. However, her blood may not be used towards our pediatric reference database since it is not "normal" but may be used in future tests to help other children with illnesses.

Who draws the blood?

We have fully trained phlebotomists who are a part of the CALIPER team and employed by SickKids Hospital that will draw the blood. These are people who are experienced with children and are professionals in their field.

Who will have access to the CALIPER database?

Our database is accessible to everyone including yourself. You can access it at www.CALIPERdatabase.com.

Is there a possibility that my child will feel sick after donating?

Not likely. Most children do not feel sick after donating since it is a small amount which is taken. However, some children may feel anxious, scared and nervous and sometimes feel faint or nauseas after donating. These reactions usually only last minutes but rarely occur. Generally, children are able to return to their normal daily activities since there is no rest period after donating.

If my child does not want to partake in donating, can they withdraw?

Yes. The child can withdraw from participating at any time. They will still receive their gifts for being brave enough for trying!

Will my child's information be confidential?

Yes. All data entered will be confidential and results published are anonymous.

How long does this process take?

Usually the whole process takes about 10 minutes. However, the blood draw itself only takes approximately 30 sec.

Does my child have to fast before blood collection?

No, we require the child to eat a substantial amount of food, juices and water prior to donating. No fasting is necessary.

Dear **Smithville Christian High School** Students and Parents,

We would like to share with you a great opportunity for you and your child to help sick children. **CALIPER** is national healthcare initiative lead by **SickKids Hospital** in collaboration with **McMaster Children's Hospital**. The purpose of CALIPER is to improve the diagnosis and treatment of children with medical concerns. We want to create an up-to-date database of normal blood values that represent Canada's children. The care of children with medical concerns depends on correct understanding of their clinical test results, which relies on comparison to normal values obtained from healthy children.

To date, over 10,000 children and teens throughout Ontario have participated in CALIPER through clinics at their schools, field trips to SickKids and summer camps. Now the students at **Smithville Christian High School** get a chance to impact the evolution of pediatric medicine.

Participation in the CALIPER Project involves:

- Completion of a short questionnaire and height, weight, waist measurements
- Consent from a parent or guardian and the child's willingness to participate
- Donation of a small blood sample (approximately 1-2 tablespoons)

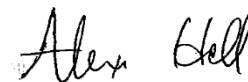
As a thank you, each participant receives \$10, two community service hours, and the choice of either a t-shirt or a teddy bear in addition to the empowering feeling of helping other Canadian children.

Please contact the CALIPER Project Coordinator, Alexandra Hall, or visit our website at www.caliperproject.ca for more information on our SickKids health initiative and to find out how your child can participate in this world-leading healthcare initiative. We're very much looking forward to having your child take part in our program!

Best Regards,



Dr. Khosrow Adeli
Khosrow Adeli, Ph.D, FCACB, DABCC
Head of Clinical Biochemistry
The Hospital for Sick Children
Ph: 416.813.8682
khosrow.adeli@sickkids.ca



Alexandra Hall
CALIPER Project Coordinator
Pediatric Laboratory Medicine
The Hospital for Sick Children
416.813.7654 ext. 202673
alexandra.hall@sickkids.ca