

# The Hospital for Sick Children Research Ethics Board

## Blood Sampling Guidelines

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For research of infants, children and adolescents, the REB will allow total blood-drawing of up to 5% of the research participant's total blood volume over an eight week period, on a single occasion or in divided portions.

Blood volume changes with age, thus amount available per kg will be:

	Calculation of 5% Blood Volume by weight
1 month to 10 years	4.0 ml/kg
10-15 years	3.7 ml/kg
Greater than 15 years	3.6 ml/kg

If one volume is used for all participants than the small applicable volume must be used (3.6 ml/kg). (More detailed chart below if further breakdown is required).

Issues to consider:

Vulnerable populations such as premature infants, newborns, cyanotic heart disease, renal disease or inherent anemias must all be considered individually with appropriate research blood volume reduction.

These volumes are based on the assumption that there are not additional clinical blood needs. ***If there are clinical blood draws within the given time period this amount must be subtracted from what is permitted to be taken for research.*** For example, a 10 kg 1 year old could have 40 mls of blood removed in an 8 week period. If, however, a 10 ml clinical blood draw will be required at week 2, then only 30 mls will be available for research.

The calculation of blood volume is based on ideal body weight, and should be adjusted for the severely obese or fluid overloaded.

Research requiring blood volumes in excess of 5% will be considered by the REB but detailed justification must be provided.

Chart of changes in blood volume by age:

Age	Mean blood volume per weight (mL/kg)	5% of BV= (mL/kg)
Neonates (*4% of BV)	80	*3.0
Children, 3 months	87	4.4
Children, 6 months	86	4.3
Children, 1 year	80	4.0
Children, 6 years	80	4.0
Children, 10 years	75	3.8
Children, 15 years	71	3.6
Men	71	3.6
Women	70	3.5