

Appropriate Maximum Phlebotomy Volumes

Purpose: To provide a guideline for performing safe phlebotomy procedures on our neonate, infant and pediatric population.

Scope: All personnel drawing blood specimens, i.e., by direct phlebotomy or venous/arterial lines.

Procedure:

The following chart outlines the guidelines for blood drawing that is practiced at Children's Hospitals and Clinics Laboratory²:

Conversions:

lbs / 2.2 = kg

kg X 1.7 = mLs

Pounds (lbs)	Kilograms (kg)	(mLs) Volume which can be safely drawn per day
6 – 8	2.7 – 3.6	4.6 – 6.1
9 – 10	4.1 – 4.6	7.0 – 7.8
11 – 14	5.0 – 6.4	8.5 – 10.8
15 – 17	6.8 – 7.7	11.6 – 13.1
18 – 20	8.2 – 9.1	13.9 – 15.5
21 – 23	9.6 – 10.5	16.3 – 17.9
24 – 26	10.9 – 11.8	18.5 – 20.1
27 – 29	12.3 – 13.2	23.2 – 24.7
30 – 32	13.6 – 14.5	23.2 – 24.7
33 – 35	15.0 – 15.9	25.5 – 27.1
36 – 38	16.4 – 17.3	27.8 – 29.4
39 – 41	17.7 – 18.6	30.1 – 31.7
42 – 44	19.1 – 20	32.5 – 34.0
45 – 47	20.5 – 21.4	34.8 – 36.3
48 – 50	21.8 – 22.7	37.1 – 38.6

Procedure Notes:

This laboratory has developed procedures to minimize specimen volume requirements, whenever possible. Our laboratory staff will do their best to work with the specimens that have been collected and will notify the patient's caregiver if testing cannot be completed.

This procedure is a guideline for blood drawing. If test requests require greater amounts of blood drawn, than indicated in the guidelines, laboratory staff should call the ordering provider to determine if all tests are to be drawn or to prioritize testing.

Contact Children's Pathology for any clarification of the maximum phlebotomy volumes and guidelines.

General Information:

Approximate blood volume¹:

Age	Total Blood Volume
Premature infants	90 – 105 mL/kg
Term newborns	78 – 86 mL/kg
>1-month	78 mL/kg
> 1-year	74 – 82 mL/kg
Adult	68 – 88 mL/kg

For outpatient phlebotomy, observe the patient for the risk of development of physiologic signs of rapid blood loss. Symptoms of excessive blood loss are tachycardia, decreased perfusion, bradycardia, decrease in blood pressure, and shock. Symptoms are more severe with acute loss. If signs of acute blood loss are apparent or if the patient loses consciousness; immediately call the rapid response team (contact security). In most instances the body can compensate for the blood loss but notify the patient's practitioner.

References:

¹The Harriet Lane Handbook, 13th Edition, The John Hopkins Hospital, Kevin B. Johnson, M.D., Editor

²Mayo Medical Laboratory, (August 2006) Mayo Guidelines for Pediatric Patients

Becan-McBride K, Garza D. (1989) Phlebotomy Handbook, 2nd Edition. Norwalk, Connecticut; Appleton & Lange; 241