

SHR Hematology and Coagulation Reference Ranges - Informational Document

Purpose

This document provides information regarding Hematology reference ranges for adults and children reported with patient/client results. The reference ranges are for use within the Saskatoon Health Region.

Table 1: Adult Hematology Normal Values/Reference Ranges

Table 2: Child Hematology Normal Values/Reference Ranges

Definitions

For the purposes of this document, the following definitions apply:

Term, abbreviation, acronym, etc.	Definition
LIS	Lab Information System (SCC, SoftLab)
Test Abbreviation	Designated LIS test code for that test parameter
CD	Cluster of differentiation

General Information

Table 1: Adult Hematology Normal Values/Reference Ranges

Test Description	Reference Ranges	Test Abbreviation
Activated Partial Thromboplastin time	27 - 39 seconds	APTT
Antithrombin 3	80 - 120 %	AT3
Blood Parasites	None Seen	BLPAR
Bone Marrow Differential [Williams, 1995; Wintrobe 1993]	Neutrophils 7.00 - 30.00 % Band Neutrophils 9.40 - 15.40 % Metamyelocytes 13.00 - 22.00 % Myelocytes 0.50 - 19.00 % Promyelocytes 1.00 - 8.00 % Eosinophils 0.50 - 4.00 % Basophils 0.00 - 0.70 % Lymphocytes 3.00 - 17.00 % Plasmacytes 0.00 - 2.00 % Monocytes 0.70 - 2.80 % Blasts 0.30 - 5.00 % Normoblasts 7.00 - 32.00 % Proerythroblasts 1.00 - 8.00 % M:E ratio (Normal Adult) 2:1 - 4:1	BM

CBC [Complete Blood Cell Count]			Male	Female	CBC
	WBC	(10 ⁹ /L)	4.00 - 11.00	4.00 - 11.00	
RBC	(10 ¹² /L)	4.60 - 6.20	3.20 - 5.40		
Hgb	(g/L)	135 - 180	110 - 160		
Hct	(%)	0.405 - 0.546	0.330 - 0.480		
MCV	(fL)	79.0 - 99.0	79.0 - 99.0		
MCH	(pg)	27.0 - 32.0	27.0 - 32.0		
MCHC	(g/L)	320 - 360	320 - 360		
RDW	(%)	11.5 - 15.0	11.5 - 15.0		
Plt	(10 ⁹ /L)	150 - 400	150 - 400		
MPV	(fL)	7.4 - 10.6	7.4 - 10.6		
Neut	(10 ⁹ /L)	1.50 - 7.50	1.50 - 7.50		
Lymph	(10 ⁹ /L)	1.50 - 4.00	1.50 - 4.00		
Mono	(10 ⁹ /L)	0.20 - 1.00	0.20 - 1.00		
Eos	(10 ⁹ /L)	0.00 - 0.60	0.00 - 0.60		
Bas	(10 ⁹ /L)	0.00 - 0.20	0.00 - 0.20		
CD3	58 - 85 %	absolute 843-2705 x10 ⁶ /L	CD4/CD8		
CD4/CD3	29.0 - 63.8 %	absolute 450-2072 x10 ⁶ /L			
CD8/CD3	10 - 40 %	absolute 210-1073 x10 ⁶ /L			
CD4/CD8 Ratio [T4/T8 Ratio]	0.87-5.31				
Cerebrospinal fluid [cell count]	WBC (10 ⁶ /L) 0-5 RBC (10 ⁶ /L) 0			CSFH	
D-Dimer	≤500 µg/L FEU			DDI	
Differential [automated or manual]	Neutrophils (10 ⁹ /L)	1.50 - 7.50	DIFF		
	Band Neutrophils (10 ⁹ /L)	0.00 - 1.00			
	Metamyelocytes (10 ⁹ /L)	0.00 - 0.10			
	Lymphocytes (10 ⁹ /L)	1.50 - 4.00			
	Monocytes (10 ⁹ /L)	0.20 - 1.00			
	Eosinophils (10 ⁹ /L)	0.00 - 0.60			
	Basophils (10 ⁹ /L)	0.00 - 0.20			
	Reactive Lymphs (10 ⁹ /L)	0.00 - 0.20			
Erythrocyte Sedimentation Rate [ESR]	Female 0-20 (mm/hr) Male 0-10 (mm/hr)			ESR	
Factor 2	0.5 - 1.5 U/mL			F2	
Factor 5	0.5 - 1.5 U/mL			F5	
Factor 5 Leiden	Negative			F5L	
Factor 7	0.5 - 1.5 U/mL			F7	
Factor 8	0.5 - 1.5 U/mL			F8	
Factor 9	0.5 - 1.5 U/mL			F9	
Factor 10	0.5 - 1.5 U/mL			F10	

Factor 11	0.5 - 1.5 U/mL	F11
Factor 12	0.5 - 1.5 U/mL	F12
Factor 8 Inhibitor/Factor 9 Inhibitor	Negative	F8IN/F9IN
Fibrinogen	1.50 - 4.50 g/L	FIB
Fluid [cell count plus differential]	No reference range applicable	FLCOU/FLDIF
Fluid [crystals]	None seen	FLDIF
Glucose-6-phosphate dehydrogenase in RBC [screen]	Normal	G6PDS
Hemoglobin H inclusions	Negative	HGBHI
Heinz bodies	Negative	HZB
Heparin Assay/Anti-Xa Heparin	Varies	XAHEP
LUPAC Sensitive PTT	27-36 seconds	CAPTT
Lupus Anticoagulant May include: DRVVT (Dilute Russell Viper Venom Time), LUPAC sensitive PTT, mixing test if indicated, PNP (Platelet Neutralization Procedure)	DRVVT Ratio less than 1.2	LUPAC
Malarial Parasites	None seen	MALA
M:E Ratio (Normal Adult)	2:1 - 4:1	
Osmotic Fragility	Normal	OSFR
Platelet Function Assay	Collagen/Epinephrine 83 - 170 seconds Collagen/ADP 62 - 104 seconds	PLAG
Protein C	70 – 140%	PROTC
Protein S Free [Free Protein S]	Female 55 - 125 % Male 70 - 150 %	PRTSF
Prothrombin time [INR]	INR 0.8 - 1.2	PT
Reticulocyte count	19-73 x 10 ⁹ /L	ARETC
Sputum Eosinophils	None seen	SPEOS
Thrombin Time	18.0 - 28.0 seconds	TT8
Thrombophilia investigation [test panel includes: AT3, Prot C, PRTSF, F5L, PR202, LUPAC, HOMOC, ACL]	See individual tests	THROM
Urine Hemosiderin	Absence of hemosiderin	URHEM
Urine Eosinophils	None seen	UREOS
von Willebrand Antigen	0.65 - 1.75 U/mL (Lower limit of normal is 0.40 U/mL in blood group O individuals)	VWFAG
von Willebrand Activity	0.50 - 2.00 U/mL (Lower limit of normal is 0.40 U/mL in blood group O individuals)	VWFFX

Table 2: Child Hematology Normal Values/Reference Ranges

Test Description	Reference Ranges		Test Abbreviation		
CBC [Complete Blood Cell Count]	WBC [$10^9/L$]	0-90 days	7.00-20.00	CBC	
		90 days-2 years	5.00-20.00		
		2-14 years	5.00-15.00		
	RBC [$10^{12}/L$]	0-1 day	4.00-6.00		3.20-4.80
		1-90 days	3.20-4.80		
		90 days-6 years	3.40-5.20		
		6-14 years	3.80-5.20		
	Hgb [g/L]	0-30 days	135-180		105-145
		30-90 days	105-145		
		90 days-6 years	105-142		
		6-14 years	116-150		
	Hct [L/L]	0-30 days	0.410-0.620		0.310-0.440
		30-90 days	0.310-0.440		
		90 days-6 years	0.310-0.430		
		6-14 years	0.350-0.450		
	MCV [fL]	0-90 days	94-115		76-100
		90 days-2 years	76-100		
		2-14 years	79-97		
	MCH [pg]	0-6 years	24-34		27-31
		6-14 years	27-31		
	MCHC [g/L]	all ages	320-360		
	RDW [%]	all ages	11.5-15.0		
	Plt [$10^9/L$]	all ages	150-400		
Neut [$10^9/L$]	0-1 year	1.00-12.00	1.50-7.50		
	>1 year	1.50-7.50			
Lymph [$10^9/L$]	0-15 days	2.00-17.00	2.00-10.50		
	15 days-2 years	2.00-10.50			
	2-6 years	2.00-8.50			
	6-14 years	1.50-6.50			
	>14 years	1.50-4.00			
Mono [$10^9/L$]	all ages	0.20-1.00			
Eos [$10^9/L$]	all ages	0.00-0.60			
Baso [$10^9/L$]	all ages	0.00-0.20			
Differential [Manual]	Neut [$10^9/L$]	0-1 year	1.00-12.00	DIFF	
		>1 year	1.50-7.50		
	Band [$10^9/L$]	all ages	0.00-1.00		
	Lymph [$10^9/L$]	0-15 days	2.00-17.00		2.00-10.50
		15 days-2 years	2.00-10.50		
		2-6 years	2.00-8.50		
		6-14 years	1.50-6.50		
		>14 years	1.50-4.00		
Mono [$10^9/L$]	all ages	0.20-1.00			
Eos [$10^9/L$]	all ages	0.00-0.60			
Baso [$10^9/L$]	all ages	0.00-0.20			
Reactive Lymphs [$10^9/L$]	all ages	0.00-0.20			
Erythrocyte Sedimentation Rate [ESR]	0-10 (mm/hr) [Brown, 1988]		ESR		

References

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