

## DTH Meditech HCIS CBC and Differential Reference Intervals

**Applicability** This document applies to all Central Zone DTH Meditech HCIS personnel of AHS Laboratory Services and laboratories administered under the Covenant Health Group collectively referred to here as Laboratory Services.

**Purpose** This document states the reference intervals for Central Zone DTH Meditech HCIS Laboratory Complete Blood Count (CBC) and differential testing.

**A. CBC and Differential Reference Intervals Applicable for Hematology Analyzers: DXH600, XN550, XS-1000i, AcT Diff2**

**RBC, Hemoglobin, Indices and Platelet**

Ages	RBC (x10 <sup>12</sup> /L)	HGB (g/L)	HCT (L/L)	MCV (fL)	MCH (pg)	MCHC (g/L)	RDW (%)	PLT (x10 <sup>9</sup> /L)
0 – 23 hours	3.90 - 5.50	135 - 195	0.420 - 0.600	98 - 118	26 - 35	320 - 360	0 - 14.5	145 - 400
1 – 7 days	4.00 - 6.60	145 - 225	0.450 - 0.670	95 - 121	26 - 35	320 - 360	0 - 14.5	145 - 400
8 – 14 days	3.90 - 6.30	135 - 215	0.420 - 0.660	88 - 126	26 - 35	320 - 360	0 - 14.5	145 - 400
15 – 30 days	3.60 - 6.20	125 - 205	0.390 - 0.630	86 - 124	26 - 35	320 - 360	0 - 14.5	145 - 400
31 days – < 2 months	3.00 - 5.40	100 - 180	0.310 - 0.550	85 - 123	26 - 35	320 - 360	0 - 14.5	145 - 400
2 – < 3 months	2.70 - 4.90	90 - 140	0.280 - 0.420	77 - 115	26 - 35	320 - 360	0 - 14.5	145 - 400
3 – < 6 months	3.10 - 4.50	95 - 135	0.290 - 0.410	74 - 108	26 - 35	320 - 360	0 - 14.5	145 - 400
6 months – < 2 years	3.70 - 5.30	105 - 135	0.330 - 0.390	70 - 86	26 - 35	320 - 360	0 - 14.5	145 - 400
2 – < 6 years	3.90 - 5.30	115 - 135	0.340 - 0.400	75 - 87	26 - 35	320 - 360	0 - 14.5	145 - 400
6 – < 12 years	4.00 - 5.20	115 - 155	0.350 - 0.450	77 - 95	26 - 35	320 - 360	0 - 14.5	145 - 400
12 – < 18 yrs Female	3.90 - 5.10	120 - 160	0.360 - 0.460	78 - 95	26 - 33	320 - 360	0 - 14.5	145 - 400
12 – < 18 yrs Male	4.30 - 5.30	130 - 175	0.370 - 0.490	78 - 95	26 - 33	320 - 360	0 - 14.5	145 - 400
18 – 150 yrs Female	4.10 - 5.20	125 - 160	0.370 - 0.460	83 - 96	28 - 33	320 - 360	0 - 14.5	145 - 400
18 – 150 yrs Male	4.70 - 5.80	140 - 175	0.420 - 0.520	83 - 96	28 - 33	320 - 360	0 - 14.5	145 - 400

**White Blood Cell Count and 5 Part Automated / Manual Differential (Absolute)**

Ages	WBC (x10 <sup>9</sup> /L)	Neutrophil (x10 <sup>9</sup> /L)	Lymphocyte (x10 <sup>9</sup> /L)	Monocyte (x10 <sup>9</sup> /L)	Eosinophil (x10 <sup>9</sup> /L)	Basophil (x10 <sup>9</sup> /L)
0 – 23 hours	9.0 - 30.0	6.0 - 26.0	2.0 - 11.0	0 - 3.5	0 - 2.0	0 - 0.4
1 – 7 days	9.4 - 34.0	5.0 - 21.0	2.0 - 11.5	0 - 3.5	0 - 2.0	0 - 0.4
8 – 14 days	5.0 - 21.0	1.5 - 10.0	2.0 - 17.0	0 - 1.8	0 - 1.7	0 - 0.4
15 – 30 days	5.0 - 20.0	1.0 - 9.5	2.0 - 17.0	0 - 1.8	0 - 1.7	0 - 0.4
31 days – < 6 months	5.0 - 19.5	1.0 - 9.0	2.5 - 16.5	0 - 1.0	0 - 0.7	0 - 0.3
6 months – < 1 year	6.0 - 17.5	1.0 - 8.5	4.0 - 13.5	0 - 1.0	0 - 0.7	0 - 0.3
1 – < 2 years	6.0 - 17.5	1.5 - 8.5	4.0 - 10.5	0 - 1.0	0 - 0.7	0 - 0.3
2 – < 4 years	6.0 - 17.0	1.5 - 8.5	3.0 - 9.5	0 - 1.0	0 - 0.7	0 - 0.3
4 – < 6 years	5.5 - 15.5	1.5 - 8.5	2.0 - 8.0	0 - 1.0	0 - 0.7	0 - 0.3
6 – < 8 years	5.0 - 14.5	1.5 - 8.0	1.5 - 7.0	0 - 1.0	0 - 0.7	0 - 0.3
8 – < 12 years	4.5 - 13.5	1.8 - 8.0	1.5 - 6.8	0 - 1.0	0 - 0.7	0 - 0.3
12 – < 18 years	4.5 - 13.0	1.8 - 8.0	1.5 - 6.0	0 - 1.0	0 - 0.7	0 - 0.3
18 – 150 years	4.0 - 10.0	1.8 - 7.5	1.0 - 4.5	0 - 1.1	0 - 0.7	0 - 0.2

**NOTE:** 6 Part Automated Differentials are generated by Sysmex XN550 Analyzers. All of the above reference intervals are applicable with the addition of immature Granulocytes which has a range of 0 - 0.1 x 10<sup>9</sup>/L for all ages.

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**White Blood Cell Count and 3 Part Automated Differential (Absolute)**

Ages	WBC (x10 <sup>9</sup> /L)	Granulocyte (x10 <sup>9</sup> /L)	Lymphocyte (x10 <sup>9</sup> /L)	Mixed (x10 <sup>9</sup> /L)
0 – 23 hours	9.0 - 30.0	6.0 - 26.0	2.0 - 11.0	0 - 5.9
1 – 7 days	9.4 - 34.0	5.0 - 21.0	2.0 - 11.5	0 - 5.9
8 – 14 days	5.0 - 21.0	1.5 - 10.0	2.0 - 17.0	0 - 3.9
15 – 30 days	5.0 - 20.0	1.0 - 9.5	2.0 - 17.0	0 - 3.9
31 days – < 6 months	5.0 - 19.5	1.0 - 9.0	2.5 - 16.5	0 - 2.0
6 months – < 1 year	6.0 - 17.5	1.0 - 8.5	4.0 - 13.5	0 - 2.0
1 – < 2 years	6.0 - 17.5	1.5 - 8.5	4.0 - 10.5	0 - 2.0
2 – < 4 years	6.0 - 17.0	1.5 - 8.5	3.0 - 9.5	0 - 2.0
4 – < 6 years	5.5 - 15.5	1.5 - 8.5	2.0 - 8.0	0 - 2.0
6 – < 8 years	5.0 - 14.5	1.5 - 8.0	1.5 - 7.0	0 - 2.0
8 – < 12 years	4.5 - 13.5	1.8 - 8.0	1.5 - 6.8	0 - 2.0
12 – < 18 years	4.5 - 13.0	1.8 - 8.0	1.5 - 6.0	0 - 2.0
18 – 150 years	4.0 - 10.0	1.8 - 7.5	1.0 - 4.5	0 - 2.0

\* The reference ranges from birth to age 17 yr have been calculated using the relative range for manual differentials and the WBC ranges. (These have NOT been established by running normal patients in these age ranges on the Hematology analyzer).

**B. CBC and Differential Reference Intervals Applicable for Red Deer Sysmex XN-9100 Hematology Analyzer Only:**

**RBC, Hemoglobin, Indices and Platelet**

Ages	RBC (x10 <sup>12</sup> /L)	HGB (g/L)	HCT (L/L)	MCV (fL)	MCHC (g/L)	RDW (%)	PLT (x10 <sup>9</sup> /L)
0 – 6 days	4.0 - 6.6	145 - 225	0.45 - 0.67	95 - 121	310 - 350	11 - 16	150 - 400
7-13 days	3.9 - 6.3	135 - 215	0.42 - 0.66	88 - 126	305 - 355	11 - 16	150 - 400
14-29 days	3.6 - 6.2	125 - 205	0.39 - 0.63	86 - 124	305 - 355	11 - 16	150 - 400
1 month	3.0 - 5.4	100 – 180	0.31 - 0.55	85 - 123	310 - 350	11 - 16	150 - 400
2 months	2.7 - 4.9	90 - 140	0.28 - 0.42	77 - 115	310 - 350	11 - 16	150 - 400
3-5 months	3.5 - 5.2	110 – 147	0.31 - 0.45	74 - 98	305 - 350	11 - 16	150 - 400
6 months – 2 years	3.5 - 5.6	106 - 145	0.31 - 0.44	71 - 90	310 - 350	11 - 16	150 - 400
3-11 years	3.8 - 5.6	110 – 157	0.34 - 0.46	75 - 91	315 - 360	11 - 16	150 - 400
12-14 years Male	4.4 - 5.7	125 – 170	0.36 - 0.50	82 - 100	320 - 360	11 - 16	150 - 400
12 years and over Female	4.0 - 5.6	120 - 160	0.36 - 0.48	82 - 100	320 - 360	11 - 16	150 - 400
15 years and over Male	4.5 - 6.0	137 - 180	0.40 - 0.54	82 - 100	320 - 360	11 - 16	150 - 400

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**White Blood Cell Count and 6 Part Automated / Manual Differential (Absolute)**

Ages	WBC (x10 <sup>9</sup> /L)	Neutrophil (x10 <sup>9</sup> /L)	Immature Granulocyte (x10 <sup>9</sup> /L)	Lymphocyte (x10 <sup>9</sup> /L)	Monocyte (x10 <sup>9</sup> /L)	Eosinophil (x10 <sup>9</sup> /L)	Basophil (x10 <sup>9</sup> /L)
0 – 6 days	9.4 – 34.0	5.0 - 21.0	0 – 0.1	2.0 – 11.5	0.5 – 1.7	0.2 – 0.7	0 – 0.3
7-13 days	5.0 - 21.0	1.5 – 10.0	0 – 0.1	2.0 – 17.0	0.3 – 1.3	0.2 – 0.8	0 – 0.2
14-29 days	5.0 – 20.0	1.0 – 9.5	0 – 0.1	2.0 – 17.0	0.5 – 1.8	0.2 – 0.6	0 – 0.2
1 month	5.0 – 19.5	1.0 – 9.0	0 – 0.1	2.5 – 16.5	0.5 – 1.8	0.2 – 0.6	0 – 0.2
2 months	5.0 – 19.5	1.0 – 9.0	0 – 0.1	2.5 – 16.5	0.5 – 1.8	0.2 – 0.6	0 – 0.2
3-5 months	6.0 – 18.0	0.6 – 6.7	0 – 0.1	2.8 – 14.4	0.2 – 1.6	0.0 – 1.1	0 – 0.2
6 months – 2 years	6.0 – 16.0	0.6 – 5.1	0 – 0.1	2.7 – 12.0	0.2 – 1.4	0.0 – 1.0	0 – 0.2
3-11 years	4.0 – 14.0	0.8 – 7.2	0 – 0.1	1.3 – 8.0	0.1 – 1.1	0.0 – 0.7	0 – 0.2
12-14 years Male	4.0 – 11.0	2.0 – 7.0	0 – 0.1	1.5 – 6.5	0.0 – 1.0	0.0 – 0.7	0 – 0.2
12 years and over Female	4.0 – 11.0	2.0 – 9.0	0 – 0.1	0.5 – 3.3	0.0 – 1.0	0.0 – 0.7	0 – 0.2
15 years and over Male	4.0 – 11.0	2.0 – 8.0	0 – 0.1	0.7 – 3.5	0.0 – 1.0	0.0 – 0.7	0 – 0.2

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