

Hematology Reference Ranges and Critical Values North Zone

Applicability This document applies to all North Zone personnel who do hematology testing.

Purpose This document provides Hematology reference ranges and critical values.

Hematology Critical and Phoning Protocol:

Refer to *Reporting and Documentation of Critical Results North Zone*

| Critical | |
|----------------------------|--|
| WBC | <0.6 or >99.9 x 10 ⁹ /L |
| Absolute Neutrophil | <0.6 x 10 ⁹ /L |
| HGB | <70 or >239 g/L, If patient is 0-7 days old and result is <70 the comment "Consultation with Neonatology is required." must be added to the result. |
| PLT | <30 x 10 ⁹ /L |
| CSF Count | WBC >27 x 10 ⁶ /L (0-1 month) WBC >7 x 10 ⁶ /L (2 months-16 years) WBC > 5 x 10 ⁶ /L (>16 years) |

| Pathologist Notifiables | |
|--|--|
| Call required to the pathologist if: <ul style="list-style-type: none"> • First time with this abnormality in Meditech/Netcare. • >30 days since the patient has had this abnormality documented in Meditech/Netcare Call NOT required if patient has this abnormality documented in Meditech/Netcare within 30 days . | |
| <ul style="list-style-type: none"> • Positive Malaria Screen –Initial diagnosis. • ≥3 spherocytes/100 RBC or more • ≥1 schistocytes/100 RBC or more with platelets <100 (<i>Exception: Neonates < 4 months old</i>) • Obstetric patient: ANY schistocytes present with platelets <100. • > 3% blast cells or unidentifiable WBC counted as OTHER in peripheral blood • An increase of 5% count in blast cells in peripheral blood • ≥ 1% blast cells in CSF • Microorganisms on blood smear or in a body fluid | |
| If... | Then... |
| During regular shift hours. (Monday to Friday 0800-1700) | Contact the site affiliated Pathologist. |
| After hours. | Contact the Pathologist on call. (See Call Schedule) |
| NOTE: Ensure to document call in Meditech. | |

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Reference Ranges:

| Age | RBC (x10 ¹² /L) | | Hgb (g/L) | | HCT | | MCV (fL) | | MCHC (g/L) |
|---|-------------------------------|---------------------------------|-----------------|-------------------------------|-------------------|---------------------------------|---------------|------------------------------|---------------|
| 0 days | 3.90 - 5.50 | | 135 - 195 | | 0.42 - 0.60 | | 98 - 118 | | 330 - 360 |
| 1 day | 4.00 - 6.60 | | 145 - 225 | | 0.45 - 0.67 | | 95 - 121 | | 290 - 360 |
| 1 week | 3.90 - 6.30 | | 135 - 215 | | 0.42 - 0.66 | | 88 - 126 | | 280 - 360 |
| 2 weeks | 3.60 - 6.20 | | 125 - 205 | | 0.39 - 0.63 | | 86 - 124 | | 280 - 360 |
| 1 month | 3.00 - 5.40 | | 100 - 180 | | 0.31 - 0.55 | | 85 - 123 | | 290 - 360 |
| 2 months | 2.70 - 4.90 | | 90 - 140 | | 0.28 - 0.42 | | 77 - 115 | | 290 - 360 |
| 3 months | 3.10 - 4.50 | | 95 - 135 | | 0.29 - 0.41 | | 74 - 108 | | 300 - 360 |
| 6 months | 3.70 - 5.30 | | 105 - 135 | | 0.33 - 0.39 | | 70 - 86 | | 300 - 360 |
| 2 years | 3.90 - 5.30 | | 115 - 135 | | 0.34 - 0.40 | | 75 - 87 | | 310 - 360 |
| 6 years | 4.00 - 5.20 | | 115 - 155 | | 0.35 - 0.45 | | 77 - 95 | | 310 - 360 |
| 12 years | Male 4.00-5.80 | Female/ Unknown 3.80-5.20 | Male 130-170 | Female/ Unknown 120-160 | Male 0.37-0.49 | Female/ Unknown 0.36-0.46 | Male 78-98 | Female/ Unknown 78-100 | 310-360 |
| ≥ 18 years | 4.30-6.00 | 3.80-5.20 | 135-175 | 120-160 | 0.41-0.52 | 0.36-0.46 | 80-100 | | 310-360 |
| Platelets: Normal Range: 140 - 450 x 10⁹/L MCH: Normal Range: 26 - 35 pg RDW: Normal Range: <15.6% | | | | | | | | | |

5-Part Differential Reference Ranges:

| Age | WBC (x10 ⁹ /L) | NEUT ABS (x10 ⁹ /L) | LYMP ABS (x10 ⁹ /L) | MONO ABS (x10 ⁹ /L) | EOS ABS (x10 ⁹ /L) | BASO ABS (x10 ⁹ /L) | GRIMM ABS (x10 ⁹ /L) Only XN |
|------------|------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|-----------------------------------|---|
| 0 days | 9.0 - 30.0 | 6.0 - 26.0 | 2.0 - 11.0 | 0 - 3.5 | 0 - 2.0 | 0 - 0.4 | 0 - 0.1 |
| 1 day | 9.4 - 34.0 | 5.0 - 21.0 | 2.0 - 11.5 | | | | |
| 1 week | 5.0 - 21.0 | 1.5 - 10.0 | 2.0 - 17.0 | 0 - 1.8 | 0 - 1.7 | | |
| 2 weeks | 5.0 - 20.0 | 1.0 - 9.5 | 2.0 - 17.0 | | | | |
| 1 month | 5.0 - 19.5 | 1.0 - 9.0 | 2.5 - 16.5 | 0 - 1.0 | 0 - 0.7 | 0 - 0.3 | |
| 6 months | 6.0 - 17.5 | 1.0 - 8.5 | 4.0 - 13.5 | | | | |
| 1 year | 6.0 - 17.5 | 1.5 - 8.5 | 4.0 - 10.5 | | | | |
| 2 years | 6.0 - 17.0 | 1.5 - 8.5 | 3.0 - 9.5 | | | | |
| 4 years | 5.5 - 15.5 | 1.5 - 8.5 | 2.0 - 8.0 | | | | |
| 6 years | 5.0 - 14.5 | 1.5 - 8.0 | 1.5 - 7.0 | | | | |
| 8 years | 4.5 - 13.5 | 1.5 - 8.0 | 1.5 - 6.8 | | | | |
| 10 years | 4.5 - 13.5 | 1.8 - 8.0 | 1.5 - 6.5 | | | | |
| 16 years | 4.5 - 13.0 | 1.8 - 8.0 | 1.2 - 5.2 | | | | |
| ≥ 18 years | 4.0 - 11.0 | 1.8 - 7.5 | 1.0 - 4.5 | 0 - 1.1 | 0 - 0.7 | 0 - 0.3 | 0 - 0.1 |

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Other Hematology Tests:

| Test | Reference Range | |
|---|---|-----------------------------|
| ESR (Westergren BD Seditainer) mm/hr | 0-10 (Female < 16 years) | |
| | 0-20 (Female ≥ 16 years) | |
| | 0-10 (Male < 16 years) | |
| | 0-15 (Male ≥ 16 years) | |
| Infectious Mononucleosis | Negative | |
| Malaria | Negative | |
| Retics | | |
| Age | Normal Range Absolute Range | |
| 0 days | 4.0 – 5.0% | |
| 4 days | 1.0 – 3.0% | |
| 7 days | 0.5 – 1.5% | |
| >8 days | 0.4 – 2.0% | |
| >6 months | 0.4 – 2.0% | 20 – 90 x10 ⁹ /L |
| CSF Analysis | | |
| Test | Reference Range | |
| Color | Colorless | |
| Appearance | Clear | |
| WBC (x10 ⁶ /L) | 0-27 (0-1 month) 0-7 (2 months-16 years) 0-5 (>16 years) | |
| RBC (x10 ⁶ /L) | 0-1000 (Newborn preterm) 0-800 (Newborn term) 0-50 (Neonate) 0-5 (>3 months) | |
| Body Fluid (except CSF) | No reference range | |
| Crystals – Synovial Fluid | None | |

References Critical Value – Hematology 2016 Review by Hematology Network Nov 2016

Related Documents Reporting and Documentation of Critical Results North Zone, NQMPMJ00002MUL
 Critical Result Exception List North Zone, NQMPMJ00004MUL
 Hematology Reference Intervals (Edmonton Zone), RHERHS00009MUL

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