#### Reviewing and Releasing Results on the Sysmex XN-3100 Hematology Analyzer

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| Background | This procedure describes how to evaluate hemogram, auto differential, and reticulocyte results and the action required before accepting patient results |

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| Policy | * Patient results categorized with Positive, Error, Action flags by the Sysmex analyzer or results that do not auto file in the LIS, will be reviewed in the LIS to determine if corrective or follow up action is needed prior to reporting results * Refer to the Pathologist Review Criteria for abnormal hematology criteria to be submitted for pathologist review |

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| Procedure | Follow the steps below to validate patient results:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Action | | | | | 1 | Review results in Sunquest using the LARS function. Refer to *Reviewing and Releasing Patient Results in LARS* procedure | | | | | 2 | Identify specific result flags/messages and/or conditions requiring follow-up action (e.g. Delta failure, Critical result, PRH review criteria.) Refer to table below for details | | | | |  |  | | | | |  | **If** | **Then** |  | | Critical Value | Refer to *Quality Assurance of Patient Results* procedure | | Delta Failure | Refer to *Quality Assurance of Patient Results* procedure | |  | | | | |

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Reviewing and Releasing Results on the Sysmex XN-3100 Hematology Analyzer, Continued

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| Procedure,cont | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Action | | | | | 2 |  | | | | |  |  | | | | |  | **If** | **Then** |  | | Sampling Error | * Evaluate sample for clot and/or adequate volume. Rerun or reject sample as needed.   Note: If patient cannot be recollected (i.e. premature newborn, hard stick, etc.), clinical correlation of specimen results and decision to recollect should be obtained by the CLS in consultation with the patient caregiver.   * If problem persists or appears on multiple samples, investigate for system malfunction/troubleshooting. | | Abnormal/  Suspect IP flag present | * Refer to procedure Evaluating flagged patient results on the Sysmex XN 3100 analyzer | |  | | | | |

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| Procedure,cont | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Step | Action | | | | | 3 |  | | | | |  |  | | | | |  | Upper reportable limit exceeded for: WBC, RBC, HGB, HCT, PLT/PLT-F  (i.e. @ flag) | * Make a dilution using the CELLPACK DCL as the diluent. Recommended dilution to be used is 1:5. Allow the dilution to equilibrate for 10-15 minutes prior to running * Follow Manual Analysis (Open) Mode procedure. Correct result(s) for the dilution factor prior to reporting. Report only affected parameter from diluted result.   Note: If dilution is for high WBC, then the Absolute Diff results must also be corrected for the dilution factor UNLESS a manual diff is performed. |  | | Upper reportable limit exceeded for: NRBC (i.e. @ flag) | * Make a 1:5 dilution as described above. Correct WBC for dilution factor and report.   Note: NRBC is not reported from the analyzer, however, WBC may be affected if NRBC exceeds reportable limit. | | Upper reportable RET% and/or RET#  (i.e. @ flag) | * Report Retic% (RET) as >30% * Report Absolute Retic (RETA) and Immature Retic Fraction with ETC comment NCAL ( not calculated) | |  | | | | |

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| Reference Ranges | Refer to Appendix C: Reference Ranges & Critical Limits Hematology |

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| Critical Limits | Refer to Appendix C:Reference Ranges & Critical Limits Hematology |

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| Reportable Ranges | |  |  | | --- | --- | | Parameter | Reportable Range | | WBC | 0.03 – 440 K/uL | | RBC | 0.01 – 8.60 M/uL | | HGB | 0.1 – 26.0 g/dl | | HCT | 0.1 – 75.0 % | | PLT | 2 -5000 K/uL | | NRBC | 0.0 – 600.0/ 100 WBC | | NRBC absolute | 0.01 – 20.0 K/uL | | RET% | 0.0 – 30.0 % | | RET absolute | 0.01 – 0.72 M/uL | |

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| Reporting Results | * Method code RVXN * Worksheet code RVSS |

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| Interfering substances | Refer to the table below for the list of interfering substances   |  |  | | --- | --- | | Parameter | Interfering substance and conditions | | WBC | * Leukocyte Aggregation ↓ * Cryoglobulins/Cryoproteins ↑ * Platelet aggregation ↑ * Giant platelets (>1,000,000/uL) ↑ * Megakaryocytes ↑ | |

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| Interfering substance | |  |  | | --- | --- | | Parameter | Interfering substance and conditions | | RBC | * Cold agglutinins ↓ * Severe Microcytosis ↓ * Fragmented RBCs ↓ * Hemolysis (in vitro) ↓ * Giant platelets (>1,000,000/uL) ↑ * Leukocytosis (>100,000/uL) ↑ | | HGB | * Lipemia ↑ * Abnormal proteins in blood plasma ↑ * Leukocytosis (>100,000/ụL) ↑ | | HCT | * Cold Agglutinin↓ * Severe microcytosis ↓ * Fragmented RBC ↓ * Leukocytosis ( >100 K/uL) ↑ * Severe Diabetes ↑ * Uremia ↑ * Spherocytosis ↑ | | PLT | * Pseudo thrombocytopenia ↓ * Platelet aggregation ↓ * Giant platelets (impedance only) ↓ * Increased Microcytosis (impedance only) ↑ * Red cell fragments (impedance only)↑ * WBC cytoplasmic fragments (impedance only) ↑ * Cryoprotein/Cryoglobulin ↑ | | RET | * Cold agglutinins ↑ * Giant platelets ↑ * Platelet aggregation ↑ * Fragmented leukocytes ↑ * Parasites (e.g. Malaria) ↑ * Howell-Jolly Bodies ↑ | |

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| References | * Sysmex XN 3100 Operator’s manual * Sysmex XN 3100 Automated Hematology Systems, Flagging Interpretation Guide, March 2018 |

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