**PURPOSE:**

# This document is a standard operating procedure for understanding the presence of XN-1000 generated flags.

**QUALITY CONTROL:**

Quality control must be performed and within the acceptable limits before sample analysis can be performed. Refer to procedure \*\*\*\* Running Quality Control on the XN-1000.

**XN FLAG IDENTIFICATION:**

|  |  |  |  |
| --- | --- | --- | --- |
| **XN Flag** | **LIS Error Message** | **Meaning** | **Action Required** |
| - | L | Indicates the value is less than the reference interval. | NO |
| + | H | Indicates the value is higher than the reference interval. | NO |
| @ | > | Out of assured linearity | YES* Repeat sample
* Dilute
 |
| ---- | A | Indicates an analysis or hardware error and the value cannot be produced. Value is automatically cancelled in instrument menu. A ‘C’ will appear in the status column. | YES* Check analyzer status
* Repeat sample
 |
| ++++ | A | Indicates value cannot be displayed because the value exceeds the display limit. Value is automatically cancelled in instrument menu. A ‘C’ will appear in the Status column.  | YES* Repeat sample
* Dilute
 |
| IP Message | A | All IP message result records will have an ‘A’.  | YESGo to:* WBC IP Message, procedure \*\*\*\*
* RBC IP Message, procedure \*\*\*\*
* PLT IP Message, procedure \*\*\*\*
 |
| \* | W | Low reliability | YESScan peripheral smear |
| ! | Y – HighZ – Low | Indicates that the value is higher than or less than the clinical panic value. Also indicates that the value is higher than the allowed value for a background check. | YES* Repeat sample
* Follow critical result protocol.
 |

**INTERPRETATION OF ANALYZER FLAGS:**

|  |
| --- |
| **INTERPRETATION** |
| **If:** | **Then:** |
| Specimen is judged NEGATIVE | There are no IP messages generated and results can be released. |
| Specimen is judged POSITIVE | An IP Message has been generated and further action is required. Positive judgments indicate a data value has some type of flag related to differential, morphology or count. |
| Specimen is judged ERROR | An analysis error has occurred. Check analyzer status as well as sample quality assurance. |
| An asterisk (\*) appears next to a parameter. | Indicates these results have low reliability and a scanning of the peripheral blood smear must be performed to confirm results. If there is no IP Message attached to the ( \* ) there will not be an automatic report print out from the instrument. |
| Dashes ( - - - - ) are in place of numeric data. | The analyzer cannot produce a numeric value.  |

**ACTION STEPS**

|  |  |
| --- | --- |
| **Step** | **Action** |
|  |
| **1** | If an XN flag is generated there will be an automatic print out of the sample run. |
| **2** | Use the following table below to identify which action is needed. |
| **3** | **If:** | **Then:** |
| WBC IP Message | 1. Refer to LIS ACTION steps in the next chart.
2. Go to procedure \*\*\*\* WBC IP Message
 |
| RBC IP Message | 1. Refer to LIS ACTION steps in the next chart.
2. Go to procedure \*\*\*\* RBC IP Message
 |
| PLT IP Message | 1. Refer to LIS ACTION steps in the next chart.
2. Go to procedure \*\*\*\* PLT IP Message
 |
|  | Dashes ( - - - - ) | 1. [Post All] results in Instrument Menu.
2. When prompted by the Instrument Menu verification dialog box select [No].
3. In Resulting Menu put a [.] value in the resulting parameter field.
4. When the cancellation dialog box appears add a comment as to why a value cannot be obtained.
5. Request a recollection.
 |
|  | Asterisk (\*) | 1. Refer to LIS ACTION steps in the next chart.
2. Make a peripheral blood smear.
3. Refer to procedure \*\*\*\* Peripheral Smear Review.
 |
| **4** | Do not release specimen results until all sample related problems have been resolved and correct results are obtained, as well as all morphological findings documented. |

**If ACTION is required, follow the LIS steps below:**

|  |  |
| --- | --- |
| **Step** | **Prompt** |
| **1** | Instrument menu |
| **2** | Select XN analyzer that the specimen was processed on. |
| **3** | Select specimen number. |
| **4** | Scroll down to bottom of CBC parameters. The IP messages will appear at the end. An ‘A’ will appear in the Error column. (i.e.)  |
| **5** | Select [Post All] on the toolbar.  |
| **6** | When the Instrument Menu pop up box appears. Select [ NO ] |
|  | A reflex box will appear in the bottom of the screen. |
|  | **XFLAG** | **ACTION** |
| SMREV | Smear Review required |
| MDFTP | Manual Differential required |
| MORTP | Morphology required |
| **7** | Specimen will disappear and be posted in the [Resulting Worklist] folder under the template [DIFFX]. |

**RELATED DOCUMENTS:**

Procedure \*\*\*\* Running Quality Control on the XN-1000

Procedure \*\*\*\* WBC IP Message

Procedure \*\*\*\* RBC IP Message

Procedure \*\*\*\* PLT IP Message

**REFERENCES:**

Sysmex, XN series (XN-1000) Instructions for Use, Sysmex Corporation (North American Edition, XN-11/XN-21

Sysmex XN-Series Automated Hematology Systems;

Flagging Interpretation Guide; Document Number:1166-LSS, Rev.3

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**APPENDIX (APPENDICIES):**

**REVISION HISTORY:**

|  |  |  |  |
| --- | --- | --- | --- |
| **REVISION** | **DATE** | **Description of Change** | **REQUESTED BY** |
|  |  | Initial Release |  |
|  |  |  |  |
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