Children's MINNESOTA

SBAR

Situation: We recently had a patient that had a discrepancy between the WBC-BF (White Blood Cell Count) and the TC-BF# (Total Nucleated Cell Count) on a CSF that was analyzed on the Sysmex. In most cases these numbers will always match or at least be very close together. In our laboratory we will only report a WBC count from the analyzer when these numbers match.

Background: In the attached example, (#1) I have highlighted the discrepancy between the WBC count and the TNC count. In the WDF scattergram there is a large population of cells that is being excluded from the WBC count.
In example #2 there is obviously an abnormal scattergram in the WDF channel, the cell counts have been flagged and the WBC Abn Scattergram message is present.

Assessment: In example #1 there is no "cue" for the tech that would alert them to this discrepancy. I have enabled the WBC Abn Scattergram message to appear whenever there is a discrepancy of 5% or more between "normal" WBC's and other nucleated cells that would be counted in this "High Fluorescent (HF) Region" I have also included the rule "use manual method for counting".
Example #3 shows the same patient analyzed again, note the highlighted codes.

Recommendation: Any body fluid counts that appear with asterisks, WBC Abn Scattergram flag, or the message "use manual method for counting" should be counted manually using the hemocytometer method.

Childrens Hospitals & Clinics - Mpls.
2525 Chicago Avenue South Minneapolis, MN 55404

XN series XN

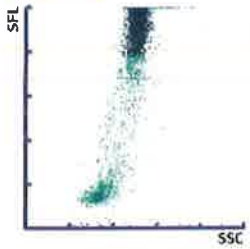
BF

Sample No.: W27575 Rack: Position: 06/22/2017 11:14:31
Patient ID: [redacted] Ward: Doctor:
Name: Birth: Sex:
Sample Comment: Instrument ID: XN-10^24041

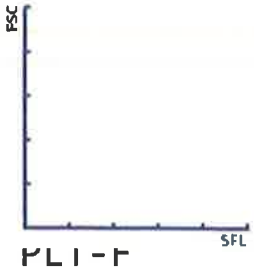
EXAMPLE #1

WBC		[10^3/uL]		
RBC		[10^6/uL]		
HGB		[g/dL]		
HCT		[%]		
MCV		[fL]		
MCH		[pg]		
MCHC		[g/dL]		
RDW-SD		[fL]		
RDW-CV		[%]		
PLT		[10^3/uL]		
MPV		[fL]		
NEUT		[10^3/uL]		[%]
LYMPH		[10^3/uL]		[%]
MONO		[10^3/uL]		[%]
EO		[10^3/uL]		[%]
BASO		[10^3/uL]		[%]
IG		[10^3/uL]		[%]
NRBC		[10^3/uL]		[%]
RET		[%]		[10^6/uL]
IRF		[%]		
RET-He		[pg]		
IPF		[%]		
WBC-BF	0.124	[10^3/uL]		
RBC-BF	0.000	[10^6/uL]		
MN	0.117	[10^3/uL]	94.3	[%]
PMN	0.007	[10^3/uL]	5.7	[%]
TC-BF#	0.798	[10^3/uL]		

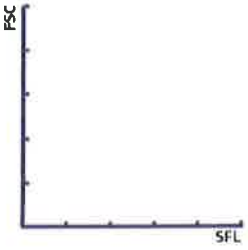
WDF



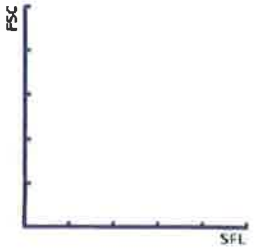
WNR



RET



PLT-F



RBC

PLT

NEUT	
BAND	
LYMPH	
MONO	
EOS	
BASO	

META	
MYELO	
PRO	
BLAST	
ATYP	
NRBC	

MACRO	
MICRO	
HYPO	
POLY	
OVAL	
FRAG	

PLT	
OTHER	
TECH:	

WBC IP Message

RBC IP Message

PLT IP Message

Childrens Hospitals & Clinics - Mpls.
2525 Chicago Avenue South Minneapolis, MN 55404

XN series XN

BF

Sample No.: HH7273 Rack: Position: 06/08/2017 15:11:58
Patient ID: 2351232 Ward: PRIV Doctor: MCNAMARA, JOHN J MD
Name: [redacted] Birth: 06/22/2000 Sex: Male
Sample Comment: Instrument ID: XN-10^24042

Positive

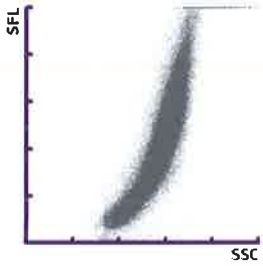
#1:Make smear and perform WBC est/MAND

Morph.

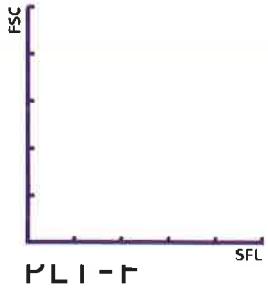
EXAMPLE #2

WBC	[10^3/uL]		
RBC	[10^6/uL]		
HGB	[g/dL]		
HCT	[%]		
MCV	[fL]		
MCH	[pg]		
MCHC	[g/dL]		
RDW-SD	[fL]		
RDW-CV	[%]		
PLT	[10^3/uL]		
MPV	[fL]		
NEUT	[10^3/uL]	[%]	
LYMPH	[10^3/uL]	[%]	
MONO	[10^3/uL]	[%]	
EO	[10^3/uL]	[%]	
BASO	[10^3/uL]	[%]	
IG	[10^3/uL]	[%]	
NRBC	[10^3/uL]	[%]	
RET	[%]	[10^6/uL]	
IRF	[%]		
RET-He	[pg]		
IPF	[%]		
WBC-BF	16.927 * [10^3/uL]		
RBC-BF	0.026 [10^6/uL]		
MN	11.877 * [10^3/uL]	70.2 * [%]	
PMN	5.050 * [10^3/uL]	29.8 * [%]	
TC-BF#	18.192 * [10^3/uL]		

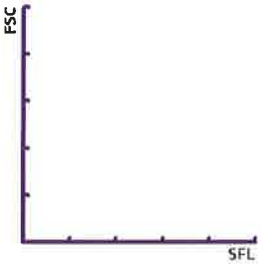
WDF



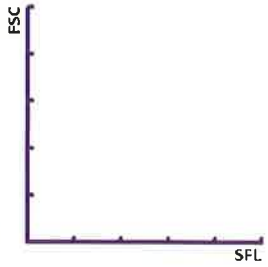
WNR



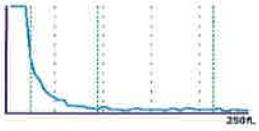
RET



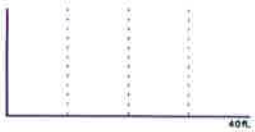
PLT-F



RBC



PLT



NEUT	
BAND	
LYMPH	
MONO	
EOS	
BASO	

META	
MYELO	
PRO	
BLAST	
ATYP	
NRBC	

MACRO	
MICRO	
HYPO	
POLY	
OVAL	
FRAG	

PLT	
OTHER	
TECH:	

WBC IP Message
WBC Abn Scattergram

RBC IP Message

PLT IP Message

Body Fluid Analysis IP Message

Abnormal, WBC Abn Scattergram

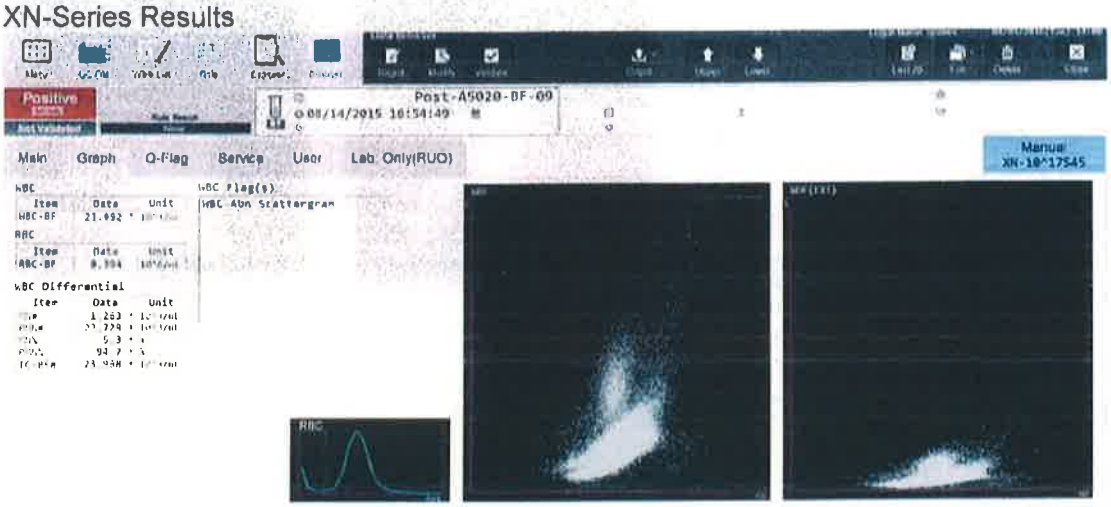
The WBC Abn Scattergram IP message is generated during body fluid analysis whenever clustering in the WDF scattergram is abnormal. This flag can also be generated when the HF-BF#* or HF-BF%* result exceeds the HF-BF user defined limits in the WBC Abnormal Flag (Body Fluid Analysis) setting.

*These parameters are not reportable, and are used only in the algorithm for the WBC Abn Scattergram flag during body fluid analysis.

Dashes may appear in place of data that was not calculated.

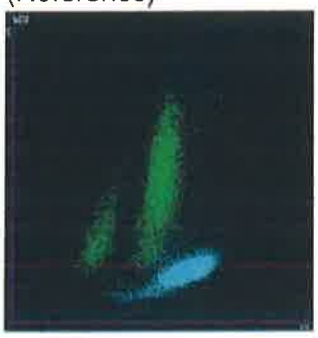
NOTE: Body fluid analysis is not available on all XN-series analyzer configurations.

XN-Series Results



WDF Scatter (Close-Up)

Normal WDF Scatter (Reference)



Abnormal, WBC Abn Scattergram
(continued)

Suggested Action Steps:

1. Dashes (— —) in place of numeric data:
    - Verify WBC-BF, TNC-BF and differential results according to your laboratory's policy. Possible actions may include:
        - repeating the sample
        - diluting the sample with CELLPACK DCL diluent to minimize interference.
        - performing a manual cell count
        - performing a manual differential
2. Asterisk (*) next to results:
    - Verify WBC-BF, TNC-BF and differential results according to your laboratory's policy. Possible actions may include:
        - performing a manual cell count
        - performing a manual differential
    - If the WBC ABN Scattergram IP Message is present due to HF-BF results exceeding the HF-BF user defined limits– scan the slide for the presence of mesothelial and/or abnormal cells. Report results according to your laboratory protocol.
    - If no abnormalities are found when reviewing the smear and the WBC and TNC estimate matches the analyzer reported WBC-BF and TNC-BF, the results with asterisks (*) may be reported.

NOTE: Decisions to report with a comment, perform a dilution or perform an alternate method should be based on your local laboratory protocol.

Childrens Hospitals & Clinics - Mpls.
2525 Chicago Avenue South Minneapolis, MN 55404

XN series XN

BF

Sample No.: W27575 Rack: Position: 06/22/2017 12:09:50
Patient ID: [redacted] Ward: Doctor:
Name: Birth: Sex:
Sample Comment: Instrument ID: XN-10^24041

Positive

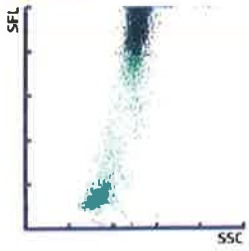
#1:Make smear and perform WBC est/MAND
#89:Use manual method for counting

Morph.

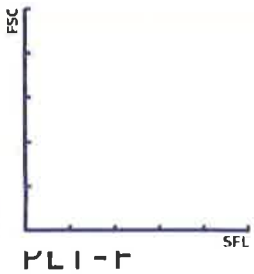
EXAMPLE #3

WBC		[10^3/uL]		
RBC		[10^6/uL]		
HGB		[g/dL]		
HCT		[%]		
MCV		[fL]		
MCH		[pg]		
MCHC		[g/dL]		
RDW-SD		[fL]		
RDW-CV		[%]		
PLT		[10^3/uL]		
MPV		[fL]		
NEUT		[10^3/uL]		[%]
LYMPH		[10^3/uL]		[%]
MONO		[10^3/uL]		[%]
EO		[10^3/uL]		[%]
BASO		[10^3/uL]		[%]
IG		[10^3/uL]		[%]
NRBC		[10^3/uL]		[%]
RET		[%]		[10^6/uL]
IRF		[%]		
RET-He		[pg]		
IPF		[%]		
WBC-BF	0.125	[10^3/uL]		
RBC-BF	0.000	[10^6/uL]		
MN	0.108	[10^3/uL]	86.4	[%]
PMN	0.017	[10^3/uL]	13.6	[%]
TC-BF#	0.765	[10^3/uL]		

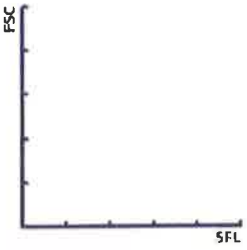
WDF



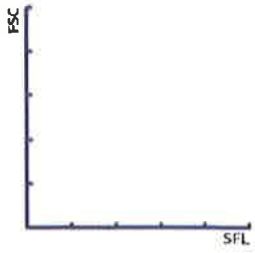
WNR



RET

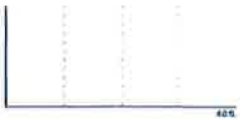


PLT-F



RBC

PLT



NEUT		META		MACRO		PLT	
BAND		MYELO		MICRO			
LYMPH		PRO		HYPO		OTHER	
MONO		BLAST		POLY			
EOS		ATYP		OVAL			
BASO		NRBC		FRAG		TECH:	

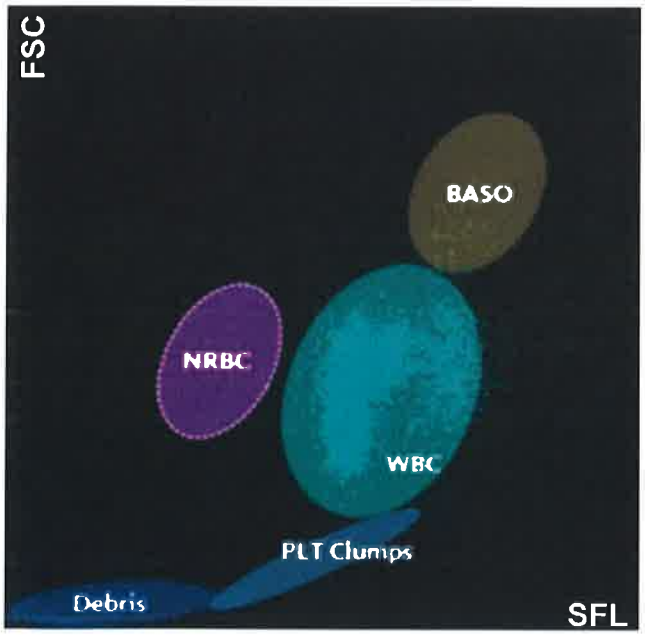
WBC IP Message
WBC Abn Scattergram

RBC IP Message

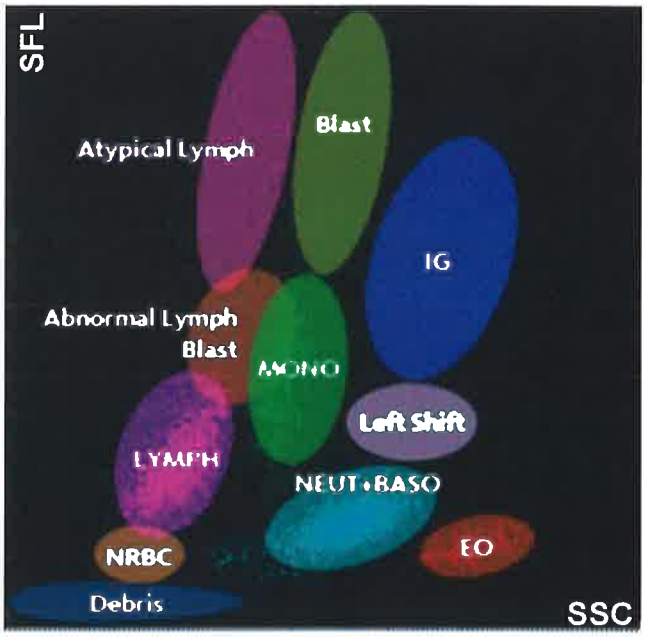
PLT IP Message

XN-3000 Quick Guide

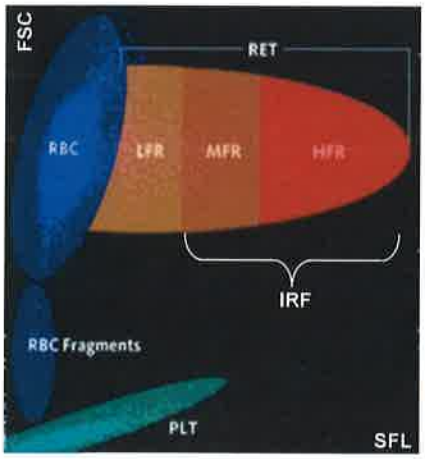
WNR



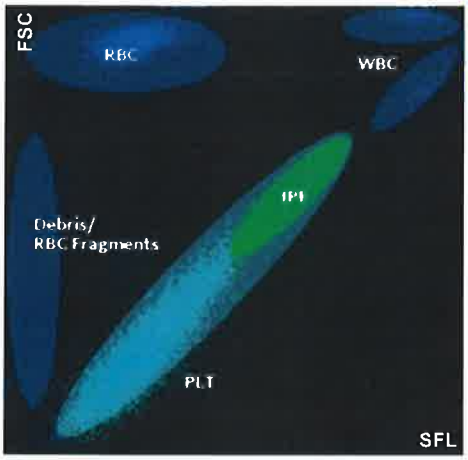
WDF



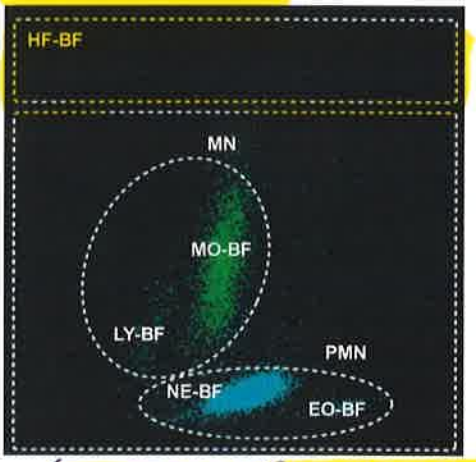
RET



PLT-F



WDF—Body Fluid Mode



(NORMAL SCATTERGRAM)