

LH CELLULAR INTERFERENCE

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| <input type="checkbox"/> St. Joseph Medical Center, Tacoma, WA | <input checked="" type="checkbox"/> St. Anthony Hospital Gig Harbor, WA | <input type="checkbox"/> Harrison Medical Center, Bremerton, WA |
| <input checked="" type="checkbox"/> St. Francis Hospital, Federal Way, WA | <input type="checkbox"/> St. Elizabeth Hospital Enumclaw, WA | <input type="checkbox"/> Harrison Medical Center, Silverdale, WA |
| <input checked="" type="checkbox"/> St. Clare Hospital Lakewood, WA | <input checked="" type="checkbox"/> Highline Medical Center Burien, WA | <input type="checkbox"/> PSC |

PURPOSE

To provide instruction for reporting CBC results on the LH Hematology Analyzers in the presence of cellular interference.

BACKGROUND

Cellular interference is a suspect message on the LH that applies to a sample result when the WBC histogram pattern is consistent with interference at the 35 fl. region. Possible causes are listed in Step 2 below. When separation between the WBC populations is poorly defined on the histogram, WBC correction will be performed. The original result before correction appears as UWBC (Uncorrected WBC). The corrected result displays as WBC. The result transmitted to the LIS is the corrected WBC.

RELATED DOCUMENTS

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|--------------|--------------------------------|
| R-PO-CH-0808 | Failed Patient Run |
| R-W-HEM-1436 | Hematology Calculations |
| R-W-HEM-1420 | WBC Slide Estimates |
| R-W-HEM-1431 | Manual Differential |
| R-W-HEM-1421 | Platelet Count Estimates |
| R-W-HEM-1317 | Platelet Clumping-EDTA Induced |

STEPS

1. Make a slide for review. Consider that the Cellular Interference flag might not be attributable to anything visible on the slide review. Consider asking for a redraw of the sample.
2. During the review, assess the following as possible causes for the cellular interference message. Also perform and document WBC and PLT estimates. If none of these or any other abnormalities are seen on the slide, check that the WBC and PLT estimates match the instrument counts within the Clinically Acceptable Duplicate/Repeat limits. If they do match, order and result a slide review or a manual differential and verify the results.
 - NRBCs
 - Platelet Clumps
 - Giant Platelets
 - Unlysed RBCs
 - Malarial Parasites
 - Fragmented WBCs
 - Cryoglobulins
 - Agglutinated WBCs
 - Elevated Proteins
 - Small Lymphocytes

3. If any of the items listed in #2 are present, rely on your WBC estimate. If the WBC slide estimate does not match the WBC count within acceptable limits as noted in the Failed Patient Run policy, Clinically Acceptable Duplicate/Repeat limits, see step 6. Consult with Coordinator, Manager, Pathologist or Beckman Coulter Technical support Hotline before reporting the WBC count.
4. **Reporting Platelet count.** If Platelet clumps are present, refer to the Platelet Clumping-ETDA Induced Procedure
5. **Reporting NRBCs** If NRBCs have been enumerated by the LH, and more than 2 nRBCs per 100 WBCs are seen upon slide review, then a manual differential is necessary. Report the number of nRBCs counted from the manual diff. (The nRBC number from the LH should not be reported).
6. **Reporting WBC count.** Consider the following when reporting the WBC count.
 - The size of nRBCs will affect whether or not the LH has corrected the WBC count.
 - The WBC result will already be corrected from the LH if there is interference at the WBC counting threshold (35fl). The uncorrected value is listed at the bottom of the LH printout as UWBC. If a corrected value exists (listed on the LH printout in the WBC field), that is what will transmit to the LIS.
 - If NRBCs are counted by the LH and there is not a WBC correction done by the LH, that means NRBCs were not in the size range to cause interference with the WBC count. Report the WBC count from the instrument printout.
 - You may need to manually correct the WBC count for NRBC's if the WBC slide estimate does not correlate with the LH result.
 - If a manual WBC correction has been performed, a second tech, when available, must review the reason for the correction and review the calculations before reporting. Document the correction with a chartable comment WBCCOR ("WBC count manually corrected for nRBCs") and a non-chartable comment to document second tech review.
 - There is a possibility that the actual WBC count will not be able to be reported. If this is the case, leave the WBC field in the LIS blank and enter this comment at the test level "Unable to report WBC due to interferences. The estimated WBC count is...". Report the estimate if at all possible.
7. If in doubt about the need for WBC correction or anything else related to Cellular Interference, consult with Coordinator, Manager or Pathologist or Beckman Coulter Technical support Hotline before reporting the WBC.

EXAMPLES:

- a. Your WBC slide estimate does not match the corrected count from the LH.
This may happen if the LH has over-corrected the WBC count by including other interferences within its correction. Examine the WBC histogram (graphical representation of WBC size) and the slide. Contact your lead tech or key operator or the Beckman Coulter Technical support Hotline.
- b. The LH did not correct the WBC count and did not enumerate NRBC's, but NRBC's are present in a significant number (>5) on the slide review. Examine the WBC histogram and the slide. Manually correct the WBC count if indicated. Contact your lead tech or key operator or the Beckman Coulter Technical support Hotline.

MANUAL CALCULATION

$$\frac{\text{Uncorrected WBC count} \times 100}{\text{NRBC} + 100} = \text{Corrected WBC count}$$

If a manual correction has been performed, a second tech must review the reason for the correction and review the calculations before reporting. Document the correction with a chartable comment WBCCOR (“WBC count manually corrected for nRBCs”) and a non-chartable comment to document second tech review.

REFERENCES

1. Coulter LH700 Series System Operator’s Guide.
2. Coulter LH700 Series System Training Guide.
3. The Correct WBC, Miami Education Center Identification and Enumeration of NRBCs on the Coulter 750, Coulter Beckman.