LH AUTOMATED BODY FLUID CELL COUNTS

☐ St. Joseph Medical Center, Tacoma, WA	☒ St. Anthony Hospital Gig Harbor, WA	☐ Harrison Medical Center, Bremerton, WA
☒ St. Francis Hospital, Federal Way, WA	☐ St. Elizabeth Hospital Enumclaw, WA	☐ Harrison Medical Center, Silverdale, WA
☒ St. Clare Hospital Lakewood, WA	☐ Highline Medical Center Burien, WA	☐ PSC

PURPOSE

To provide instruction for cycling body fluid specimens on the LH750 using the manual aspiration mode and the Body Fluid Application software.

BACKGROUND

The body fluid application on the LH750 is accessed using the Body Fluid Checkbox on the LH workstation providing a Total Nucleated Cell (TNC) count.

SPECIMEN

Type of Specimen

Hyaluronidase-treated Synovial Fluids and Serous fluids: pleural, pericardial, peritoneal, peritoneal lavage, and peritoneal dialysates. CSF fluids are NOT run on the LH750. They are performed manually. Bronchial washes are NOT run on the LH750.

Specimen Storage and Stability

Store refrigerated after collection. Transport as soon as possible after collection. Process fluids within 8 hours of collection.

Specimen may be stored at 2-8°C for 1 week.

Acceptable Anticoagulants

EDTA or Heparin or none for Synovial Fluids.

Special Handling

Treat Synovial Fluids with Hyaluronidase prior to testing. Add 1 ml synovial fluid to 5 mg hyaluronidase. Mix for 5 minutes.

Criteria for Unacceptable Specimens

Specimens with clots are not acceptable for automated aspiration.

Sample Volume

200 µL minimum for aspiration

EQUIPMENT/SUPPLIES

- Coulter LH Diluent
- Hyaluronidase, if indicated, for use with synovial fluid samples.
  - Hyaluroidase is stable for 1 year after opening when stored at the recommended storage conditions:
    - Store at -20°C temperature in original capped container.
    - Avoid exposure to heat.
    - Discard and open a new vial if stability is in question.

QUALITY CONTROL

1. Two levels of 5C Control are performed every 8 hours.

2. A background count is performed using LH diluent prior to aspiration of each patient sample. Results for background must fall within established limits - less than 0.20 for WBC and RBC. This will be accompanied by an R flag.

INSTRUCTIONS

Body Fluid Background

Run prior to each body fluid

1. Hold a clean test tube under the open mode probe

2. Use F04, enter, to dispense diluent into a clean tube to use for the body fluid background.

3. Press the Stop button on the analyzer to exit the F key mode.

4. On the Workstation, put a check in the “Body Fluid” box

5. Press the ID button on the Analyzer, type an ID number

6. Press enter

7. Present the tube of diluent to the open mode (secondary) probe to aspirate diluent

8. Check the results of the body fluid background counts for RBC and WBC. If the count is as low as it needs to be, it should be flagged in red and have an R flag.

9. Report may not print automatically. Request a printout.

10. If the Body fluid background count is too high, repeat it until it is in or try another instrument (if available).

Body Fluid Analysis

1. On the Workstation, put a check in the “Body Fluid” box

2. Check sample for clots before running. If small clots are present, remove them before running the sample and footnote using LIS phrase CLOT.

3. Must be run in Manual mode (open tube)

4. Use the bar code reader to enter the accession number for identification or press the ID button on the Analyzer, then type in the full accession number and press enter

5. Mix the specimen well

6. Aspirate the sample

7. Report may not print automatically. Request a printout.

8. Review WBC/TNC results for flags or codes. If unable to resolve WBC "R" flags or cellular interference codes (which, in Body Fluid Mode, always relate to the WBC count) by repeat analysis, perform manual cell count. Flagging of the RBC on the patient BF count is not applicable.

LIS RESULTING

1. Body Fluid TNC is resulted in u/L

2. Convert the WBC/TNC to manual reporting units by moving the decimal point 3 places to the right. For example a WBC=0.30 x 10^3 needs to be converted to the manual result of 300 u/L.

3. Results less than 0.20 x 10^3 must have a manual hemocytometer count performed.

4. Upper limit of reporting is 350,000/uL

5. Results do not cross interface. Results will show up as "unknown" in Remisol.

6. In LIS, result the fields used for calculation of manual results as "N/A".

7. Enter the TNC results in the field for "XX WBC CT". The XX will vary based on the type of fluid, BF, SY, etc.

LIMITATIONS/INTERFERENCES

- Cellular debris, improper mixing, cellular interference, and clotted specimens may lead to erroneous or misleading results.

- Synovial fluids with fat globules, crystals, or high viscosity may lead to erroneous or misleading results.

PERFORMANCE CHARACTERISTICS

Normal Values

Serous Fluids:	Pleural/Peritoneal:	TNC: 0-300 /uL.
	Pericardial:	TNC: None
Synovial Fluids:		TNC: 0-200 /uL.

REFERENCES

COULTER® LH Series Workstation, Body Fluid Application, Operator's Guide. Sept. 2004.

DOCUMENT APPROVAL **Purpose of Document / Reason for Change:**			
New Format Added information about Hyaluronidase. Upper limit of AMR defined			
☐ *No significant change to process in above revision. Per CAP, this revision does not require further Medical Director approval.*			
Committee Approval Date	☒ Date: 11/17/15 ☐ N/A – revision of department-specific document which is used at only one facility	**SAH Medical Director Approval** *(Electronic Signature)*	10/27/2015
Clinical Pathologist Approval *(Electronic Signature)*	Katie Wilkinson, MD 10/27/15	**SCH Medical Director Approval** *(Electronic Signature)*	Adam Saenz 10/28/15
SFH Medical Director Approval *(Electronic Signature)*	Linda D. Blumkhardt, MD **3/27/16**		